



ELECTRONIC COMMERCE: A VERITABLE TOOL FOR BUSINESS SUSTAINABILITY IN THE ERA OF CORONA VIRUS (COVID-19) IN NIGERIA

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Abstract

This study was undertaken to determine whether electronic commerce has in anyway affected the continuity of doing business in the corona virus era with particular focus on the Nigerian economy. Survey research design was adopted for the study and data was obtained from questionnaire administered electronically on a sample of 336 respondents using the five point likert scale. The study employed Z-test to determine whether there is significant difference between the hypothesized mean of 3 and the mean responses generated from the questionnaire administered. Result from the analyses showed that electronic commerce has some significant effect on (1) continued production of goods and service (2) continued demand for goods and services and (3) customer satisfaction for goods and services delivered. We concluded that electronic commerce has some significant effect on business continuity in the covid-19 era in Nigeria. The study recommended that government of Nigeria should make policies that will further encourage e-commerce so as to sustain business activities that grow the economy. It also recommended that internet connectivity should be made accessible by all so as to encourage greater participants in the e-commerce world thereby promoting physical distancing which is a sure way of preventing further spread of the covid-19 virus.

Keywords: *E-commerce, Covid-19, Business continuity, Nigeria*

Introduction

The sudden outbreak of corona virus during the last quarter of 2019 came with existential health crisis that the world is still trying to find an enduring solution. The health sector, educational sector, Government, transportation, banking, insurance, manufacturing all got affected in one way or the other by the outbreak of the novelty disease code named corona virus. As a matter of fact, the negative effects of the corona virus pandemic are still being felt in every area of human endeavors all over the world. The virus knows no borders as the impact continue to spread. According to KPMG (2020), 94 percent of the Fortune 1000 across the globe, and businesses in Nigeria have been impacted and are already seeing COVID-19 disruptions.

Research has found that the contagious Covid-19 disease usually spreads fast from person to person through close contact. According to the Government of Canada (2021) exposure to Covid-19 disease is through contact with travelers, unknown persons, known carrier of the disease, other contacts. The fast spread of the pandemic which claims thousands of lives on daily bases, according to reports by the European Centre for Disease Prevention and Control, (2019) and the Institute for Health Metrics and Evaluation (2021), necessitated the need for various preventive measures like wearing of face mask, constant washing of hands and physical distancing with a view to preventing further spread of the disease while efforts were ongoing in search for enduring solution. Physical distancing, in most cases, included staying indoors with a view of avoiding contact with other persons and this is the area where business activities are really affected. As accurately put by the International Labor Organization (2021), the pandemic is heavily affecting labour markets, economies and enterprises, including global supply chains, leading to widespread business disruptions. The compulsory stay at home being enforced by Governments around the world led to the shutdown of factories, airports, seaports, Market places and offices. The consequences of the general lockdown have been viewed as double tragedy. It was believed to have resulted to loss of jobs thereby increasing unemployment in the society in one hand while on the other hand, it constitutes going concern threat to business entities since production and sales are suspended.

How long will business activities continue to be under lockdown? Continued shutdown of business operations may eventually lead to liquidation and the attendant consequences on the society and the world at large may be colossal. To avert the impending calamity, alternative means of production and sales were considered. As clearly put by PWC (2020), to meet the challenges posed by the pandemic, businesses around the world had to react in agile and decisive ways. On such reaction is the promotion of e-commerce. E-commerce simply means electronic commerce; it is a means of conducting business transactions with the use of computer and or smart phones aided by internet facility (Akhmetova, Baimukhanbetova & Belgozhakzy, 2020). According to Okolocha, Okolocha and Ezejiofor (2020), during this pandemic, most of these enterprises found it difficulties to operate, especially with small and medium enterprises where these problems are more serious as a result of the considerable decline in the demand for goods and services. This required SMEs to embark on internet-based platforms services as alternative means of sustaining their business during these critical periods.

Although e-commerce has been in existence for decades, during this era (ie pre Covid-19 era), e-commerce was viewed to be optional and with the objective of achieving efficiency in service delivery and customer satisfaction. According to Molla & Heeks (2007), a lot of benefits abound with deployment of e-commerce facilities, as company will be able to increase control over its

place in the supply chain, thus improving its market efficiency. This efficiency is achieved by avoiding activities that do not add any value to the cost object (Ezeala, 2017). Abdul (2016) also affirmed that efficiency is the reason for e-commerce. In his words with the increasing diffusion of ICTs, more specifically the Internet, the global business community is rapidly moving towards Business-to Business (B2B) e-Commerce. The buyers gain a clear advantage when the Internet gives them access to the global market, by which they can compare prices across regions, find out whether prices vary by order fragmentation and get awareness about substitute products. Due to transparency of the market, customer can compare the services of various e-commerce sites easily.

In the Covid-19 era, however, the objective of adopting e-commerce should be viewed beyond efficiency in production and service delivery but as a necessary means for business continuity. The new normal now is that, while carrying out our business transactions as against continued shutdown as witnessed during the period between last quarter 2019 and last quarter 2020, we must continue to maintain physical distancing, so as to curtail further spread of the deadly Covid-19 disease.

The general objective of this research is to assess the effect of e-commerce on business continuity in the Covid-19 era in Nigeria. The specific objectives are:

1. To assess the effect of e-commerce on continued production of goods and or services in the Covid-19 era in Nigeria
2. To assess the effect of e-commerce on continued demand for goods and or services in the Covid-19 era in Nigeria
3. To assess the effect of e-commerce on customer satisfaction in the Covid-19 era in Nigeria

Conceptual Issues

Electronic Commerce

Electronic commerce simply referred to as e-commerce is the act of doing business electronically with the aid of internet. The word electronically as used here means without physical contact between the parties to the contract. Goods such as laptop could be purchased from Jumia or services like musical downloads could be made in form of digital distribution (Statista, 2021). Ecommerce is driven by the technological advances of the semiconductor industry, and is the largest sector of the electronics industry (Kuhuk, 2020). Research has showed that Ecommerce has made some remarkable impact on virtually every area of business and human endeavors which includes:

Supply chain management- In commerce, supply chain management (SCM) is the term used to describe the management of the flow of goods and services between businesses and locations. Supply chain management can be likened to audit trail when we are discussing the flow of business transaction in the firms accounting system, this is because it ranges from the movement and storage of raw materials, of work-in-process inventory, and of finished goods to end order fulfillment (that is from point of origin to point of consumption). in the words of Marincas (2008) by affections on physical flows of materials, e-commerce improves the way of product and inventory level for companies. Again by affecting the information flows, e-commerce optimizes the capacity of information processing than companies used to have, and for the financial flows, e-commerce allows companies to have more efficient payment and settlement

solutions. Thus impacting positively on the three flows (physical flow, financial flow and information flow) of supply chain management.

Employment- e-commerce helps create new job opportunities due to information related services, software app and digital products. It also causes job losses. The areas with the greatest predicted job-loss are retail, postal, and travel agencies. The development of e-commerce will create jobs that require highly skilled workers to manage large amounts of information, customer demands, and production processes. In contrast, people with poor technical skills cannot enjoy the wages welfare. On the other hand, because e-commerce requires sufficient stocks that could be delivered to customers in time, the warehouse becomes an important element. Warehouse needs more staff to manage, supervise and organize, thus the condition of warehouse environment will be concerned by employees (Terzi, 2011).

Customer satisfaction- E-commerce brings convenience for customers as they do not have to leave home and only need to browse website online, especially for buying the products which are not sold in nearby shops. It could help customers buy wider range of products and save customers' time. Consumers also gain power through online shopping. They are able to research products and compare prices among retailers. Also, online shopping often provides sales promotion or discounts code, thus it is more price effective for customers. Moreover, e-commerce provides products' detailed information; even the in-store staff cannot offer such detailed explanation. Customers can also review and track the order history online.

E-commerce technologies cut transaction costs by allowing both manufactures and consumers to skip through the intermediaries. This is achieved through by extending the search area best price deals and by group purchase. The success of e-commerce in urban and regional levels depends on how the local firms and consumers have adopted to e-commerce (Evans, 2002).

E-commerce Models

A model is the framework that guides the execution of an activity. According to Mayple (2020), electronic transaction starts with the identification of the relevant electronic commerce business model which has far reaching implications on marketing channels, audience personas, value propositions, and other areas of the digital marketing mix. Mayple (2020) identified the following as the main e-commerce Models:

B2C – Business to consumer.

This relates to transaction between company and individual whereby the individual is the one making purchases. The decision-making process for a B2C purchase is typically short term so the acquisition period is swift, and customer resistance is normally low.

B2B – Business to business.

This has to do with business transaction between two firms. Unlike the B2C above, the B2B model normally would mean a longer sales cycle, but a higher-order value.

C2B – Consumer to business.

The C2C model provides for situation when individuals sell goods and services to companies. For instance, a platform that allows people to advertise their products and services and have companies bid for the opportunity.

C2C – Consumer to consumer.

Here, consumers exchange goods and services amongst themselves and typically make their money by charging transaction or listing fees.

E-Commerce in Covid-19 Era

General business transactions of e-commerce showed that the COVID-19 pandemic has significantly affected e-commerce and the ebusinesses around the globe are expected to reach \$6.5 trillion by 2023 (Anam et al, 2020). During the general lockdown, precisely in March 2020, global retail website traffic recorded an unprecedented growth as it hit 14.3 billion visits (Clement, 2021). While all these forecast are made for countries around the world, our study seek to know how business activities in Nigeria are being affected.

Coronavirus

'CO' stands for corona, 'VI' for virus, and 'D' for disease. Formerly, this disease was referred to as '2019 novel coronavirus' or '2019-nCoV.' The COVID-19 virus is a new virus linked to the same family of viruses as Severe Acute Respiratory Syndrome (SARS) and some types of common cold. According to the World Health Organization (2019), the current outbreak of coronavirus disease (COVID-19) was first reported from Wuhan, China, on 31 December 2019. The disease is caused by infection with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus strain and the organs most affected are the lungs (Wikipedia, 2019)

Reported cases of Covid-19

The novelty Covid-19 disease has negatively impacted on both businesses and human lives around the world. The epidemiological summary of Covid-19 cases as reported by the European Centre for Disease Prevention and Control (2021) has it, as at August 31, 2021, as follows:

Africa: 7 746 207 cases; the five countries reporting most cases are South Africa (2 764 931), Morocco (853 373), Tunisia (662 752), Libya (307 471) and Ethiopia (306 117).

Asia: 62 084 175 cases; the five countries reporting most cases are India (32 737 939), Iran (4 926 964), Indonesia (4 073 831), Philippines (1 954 023) and Iraq (1 874 435).

America: 83 971 866 cases; the five countries reporting most cases are United States (39 057 665), Brazil (20 752 281), Argentina (5 178 889), Colombia (4 907 264) and Mexico (3 341 264).

Europe: 63 316 753 cases; the five countries reporting most cases are Russia (6 882 827), France (6 742 488), United Kingdom (6 731 423), Turkey (6 346 881) and Spain (4 847 298).

Oceania: 169 779 cases; the five countries reporting most cases are Australia (51 256), Fiji (46 027), French Polynesia (40 178), Papua New Guinea (17 999) and Guam (10 353).

Other: 705 cases have been reported from an international conveyance in Japan.

Deaths have been reported from:

Africa: 194 840 deaths; the five countries reporting most deaths are South Africa (81 595), Tunisia (23 430), Egypt (16 721), Morocco (12 437) and Algeria (5 209).

Asia: 957 479 deaths; the five countries reporting most deaths are India (438 210), Indonesia (131 923), Iran (106 482), Philippines (33 109) and Bangladesh (26 015).

America: 2 106 383 deaths; the five countries reporting most deaths are United States (638 715), Brazil (579 574), Mexico (258 491), Peru (198 263) and Colombia (124 883).

Europe: 1 246 444 deaths; the five countries reporting most deaths are Russia (181 637), United Kingdom (132 437), Italy (129 093), France (114 210) and Germany (92 140).

Oceania: 2 236 deaths; the five countries reporting most deaths are Australia (999), Fiji (479), French Polynesia (385), Papua New Guinea (192) and Guam (145).

Other: 6 deaths have been reported from an international conveyance in Japan.

We anchored our study on the survival of the fittest theory. This theory was originally developed by Herbert Spencer (Miesing & Preble, 1985) as quoted by Dan, (2020) and used in the 19th and 20th century as social Darwinism theory. Social Darwinism assumed it is normal for the competition to behave in hedonistic ways to produce the fittest business, who survived and prospered by successfully adapting to its environment or become the most efficient and economic producer of all. This theory placed emphases on adoption to external environment by understanding and taking advantage of changes in the external environment with a view to outdo its competitors and ultimately survive the challenges in the environment. This theory is in tandem with our study which focused on e-commerce as the new strategy to be adopted by companies with a view to survive the supply chain challenges caused by Covid-19 in this competitive business world.

Alexander, Marianne, Zoe, Edward, Michael & Christopher (2020) examined the impact of COVID-19 on small business outcomes and expectations. To achieve the objective of their study, they conducted a survey of over 5,800 small businesses between the months of March 28 and April 4, 2020. First, many small businesses had started experiencing liquidity problems due to the pandemic and consequently laying off workers. During this period their result showed that employment fell by about 49%. Second, it was revealed that there was uncertainty as to the likely duration of the Covid-19 disruptions leading to closure of many businesses. About 43% of businesses were temporarily shutdown. Again, the majority of businesses planned to seek funding through the Coronavirus Aid, Relief, and Economic Security (CARES) Act. However, bureaucratic hassles coupled with difficulties in establishing eligibility prevented firms from accessing the funds.

Jong, Tengfei, & Dorothea (2021) reviewed the role of technology in Business-to-Consumer e-commerce. Their study covered twelve (12) Asian economies. The researchers put up an argument that the diffusion of Business to Customer (B2C) e-commerce only concentrated in developed and large economies thereby creating a digital divide that excludes small and medium-sized enterprises and people with limited means. They therefore explore, in their study, the disparities in B2C online commerce revenues among selected Asian economies by investigating the role of technology adoption in B2C online sales. Data on technology adoption measures which were proxy with internet retail sales (*IRS*), mobile internet retail sales (*MOB*), domestic internet retail sales (*DOM*), and foreign internet retail sales (*FOR*). *Tech* represents the technology adoption measures were collected from the Global Competitiveness Report, International Telecommunications Union, World Development Indicators, International Monetary Fund, International Labour Organization, and national sources. They concluded that (1) internet access through fixed broadband internet subscription and mobile broadband subscription, online security, and financial inclusiveness are key factors behind the staggering growth of e-commerce in Asia and the Pacific in recent years. (2) the pandemic has led more

consumers to turn to mobile shopping leading to an unprecedented rise in access to telecommunication services in Asia.

Abdul (2016) assessed the benefits and challenges of e-commerce in an emerging economy. They collected secondary data from published books, journals, research papers, magazines, daily newspaper, internet and official statistical documents. Using descriptive analysis they concluded that the e-commerce revolution has fundamentally changed the business of transaction by giving new opportunities and breaking borders easily. They found that e-commerce has strongly impacted the traditional business system, in Bangladesh particularly, by providing satisfactory services to the people. On the other hand, they also found that e-commerce gives challenges to traditional business for competitive position couple with so many challenges associated with the successful implementation of e-commerce with the help of comparing with developed country

In their study on the mediating role of internet sales channels on the relationship between e-commerce and firm performance, Jelena , Radoje, Elizabeta , Cristiano & Aleksandar (2020) postulated that the effect of e-commerce on firms performance is not direct and needs to be examined using mediating factors. With the data of the Flash Eurobarometer 439 Survey based on the use of Online Marketplaces and Search Engines by small and medium enterprises the Ordinary Least-Squares (OLS) model was employed for analysis. Findings showed that while the relationship between e-commerce and firm performance is negative, it is positively mediated by certain types of internet sales channels. Thus lending support to the mediating hypothesis earlier stated. Their study revealed further that the benefits of e-commerce in terms of higher sales are more pronounced when firms use commercial websites and online marketplaces. On the other hand, the interaction between e-commerce and search engines has an insignificant effect on firm performance.

A look at consumer perception regarding e-commerce and related risk was made by Smith (2011). First, researchers identified value of e-commerce as the instrumental role it has played in the global marketplace through the evolution of virtual businesses, and the unique opportunities it provides for linking marketers with consumers. Second, they viewed e- risks to include cybercrime, unauthorized access to customer identity/ privacy and other security breaches. The study revealed that consumer fears concerning online privacy and security risks have the potent to dissuade patronage to e-transaction, thus cripple the growth of e-commerce. A survey conducted regarding e-commerce transactions and the impact of having web assurance seals displayed on websites revealed that (1) forty percent of the respondents had concerns about the security of a website (2) nearly all of the respondents, more than 90 percent, felt that the presence of a web assurance seal on a website was positively, influential in their decision to do e-transaction.

Arkadiusz Kawa (2017) reviewed fulfillment service in e-commerce logistics in Poland. They describe fulfillment service as the service rendered by the intermediary who stands between the customer and the supplier of goods. The primary data was obtained my means of interview from companies providing fulfillment services in Poland and abroad while secondary data was obtained from relevant reports, studies and Internet sources. By way of descriptive analysis, the researchers analyzed the data so obtained for the study. They concluded that he fulfillment service is a very forward- looking and promising trend in e-commerce. They further maintained that an online store using the fulfillment service usually minimizes the costs associated with the

entire logistics and can dedicate more time to marketing, branding etc. conversely, researchers were able to point out some defects associated with fulfillment service. For instance a company which uses fulfillment transfers all logistics processes to the outside, and thus loses control over them because with this arrangement it does not have a direct influence on outgoing orders or good contact with customers, suppliers, etc.

Anam Bhatti, Hamza Akram, Hafiz Muhammad Basit, Ahmed Usman Khan, Syeda Mahwish Raza Naqvi, Muhammad Bilal (2020) assessed E-commerce trends during COVID-19 Pandemic. They obtain data on top ten retail e-commerce websites during the pandemic. Using descriptive analyses, they found that COVID-19 has significant negative impact on business transactions around the world thereby forcing them to adopt e-commerce as alternative means to continue in business. They also concluded that the virus has compelled businesses as well as their customers to use internet and make it habit in their daily routine.

Ferrera & Eowyn (2019) studied the evolution of e-commerce and global marketing. The researchers based their research on the review of existing literature. Apart from the analysis related journal articles, conference papers, books, they further analyzed a variety of secondary data sources such as industry report, databases and scholarly websites. According to Webster & Watson (2002), literature review technique is a proven method for analyzing the past and preparing for the future. Again, in the words of Reed (2008) and Srivastava (2007), literature review has been successfully utilized as investigation technique by many scholars in such situations. Findings, based on the analysis of existing literature, their findings revealed both the positive and negative effects of e-commerce. (1) On the positive effects they stated that with e-commerce, consumers can buy from their home without moving out which could not have been imagined before. It has also changed consumer behavior. In the past when customers wanted to buy something, they had to take time to go to shops during a certain hour of the day. But today, consumers can use their computers, smart phones or portable electronic devices, to buy products and services online, when they want as time and location are no longer restrictions anymore. Such changes are making customers happy and satisfied due to effective and efficient accessibility (2) on the negative effect of e-commerce, issue on privacy of customers was raised. Since personal information is collected and recorded digitally, profile of consumers with sensitive information such as address, email, bank details are created. The stored information is susceptible to data breaches and can be accessed by cyber criminals for malicious purpose.

In order to explore how e-commerce could be brought into service delivery logistics for customer retention, Qamar Farooq, Peihua Fu, Yunhong Hao (2019) did a review of management and importance of e-commerce implementation in service delivery of private express enterprises of China. Related literature was reviewed and after analysis of the articles the researchers came to the conclusion that (1) companies need to overcome obstacles, ensure trust, and encourage customers' patronage (2) to keep customers long, enterprises need to be part of them by outperforming through good management. This needs to have a deep understanding of e-commerce used to attract image and identity.

Neha Wadhawan, and Arya (2020) who assessed understanding e-commerce: a study with reference to competitive economy opined that the e-commerce industry was highly fragmented with respect to varied product lines and attempted to compare the present buying methods with

online method. Their findings revealed that the popularity of e-commerce is directly dependent on the scaling up of the manufacturing sector which once achieved the standardization and branding follows automatically, noting that the keenness to do transaction with e-commerce propels for the digital payment and therefore financial inclusion becomes corollary in the theorem of e-commerce.

Study conducted by Hishman and Aiman, (2019) was intended to identify the impact of E-commerce on globalization of local markets in Jordan. Primary data was collected by way of questionnaire administered on a sample of three hundred and fifty (350) respondents who are drawn from categories of persons such as managers, heads of departments and business owners within the local markets in Jordan. With the aid of SPSS, the researchers deployed ANOVA to analyze the data collected so far. Result showed that (1) there is impact of E-commerce on globalization of local, markets in Jordan in a high degree (2) there were significant differences in the level of the impact of E-commerce on globalization of local, markets in Jordan at ($\alpha = 0.05$) due to gender variable in favor of female, age in favor of (41- 50) And the scientific qualification in favor of the postgraduate studies and the duration of service in favor of "15 years and above" and the sector in favor of commercial. They recommended that (1) There is need for e-commerce operations to meet the needs and requirements of customers, especially international and to achieve the highest degree of satisfaction to strengthen the Jordanian domestic markets and make them in the ranks of developed countries (2) the need to awareness of the risks of the electronic trade process, and to ensure the integrity of the procedures followed in the process of trade exchange (3) the need to provide an integrated information base on the web site to enhance direct contact with external customers for e-commerce purposes.

In their study on the impact of e-commerce on India's commerce, Rajasekar and Sweta (2016) revealed that e-commerce is showing tremendous business growth in India. Increasing internet users have added to its growth. Despite being the second largest user base in world, only behind China (650 million, 48% of population), the penetration of e-commerce is low compared to markets like the United States (266 M, 84%), or France (54 M, 81%), but is growing at an unprecedented rate, adding around 6 million new entrants every month. E-Commerce in India is destined to grow both in revenue and geographic reach. With the explosion of internet connectivity through mobile devices like Smartphone and tablets, millions of consumers are making decisions online and in this way enterprises can build the brand digitally and enhance productivity but government policies must ensure the cost effective methods. While many companies, organizations, and communities in India are beginning to take advantage of the potential of e-commerce, critical challenges remain to be overcome before e-commerce would become an asset for common people.

Shahid, Keshav and Jenifur (2016) examined e-commerce with the view to understand the present status and trends of E-Commerce; and identify the variables influencing the increased usage of e-commerce. They argued that e-commerce has significant influences on the environment. Although the model is highly used in current business scenario but the option has not been explored at its fullest. They revealed that consistency of transaction steps, consistency of Web site design, replacement guarantee, M-Commerce services, consistency of promotions, consistency of in-stock indications, consistency of product variety, location based services, multiple payment option, right content, shipment option, legal requirement of generating

invoices for online transactions, quick Service, clear & realistic terms and conditions, right specification of products as shown on the portal etc are factors that will significantly contribute to the success of the e-commerce industry. The study recommended that the governments should offer a level field to its E-commerce firms to allow the country's significant development. The thrust on e-commerce should be to offer a legal framework so that while domestic and international trade are allowed to expand their horizons, basic rights such as consumer protection, privacy, intellectual property, prevention of fraud, etc are highly protected.

Methodology

Survey research design was adopted for the study. Data was obtained from questionnaire administered on sample of 336 randomly selected from population generated on line using the five points likert scale.

Z-test was employed to determine whether there is significant difference between the hypothesized mean of 3 and the mean responses generated from the questionnaire administered.

The rule is to accept the null hypothesis and reject the alternative hypothesis if Z-test calculated is less than the Z-test obtained from the statistical table at 5% level of significance. From the table, Z-score at 5% level of significance gave a value of 1.64.

Test of hypotheses

Hypothesis one-

E-commerce has no significant effect on continued production of goods and services in the Covid-19 era.

This hypothesis is tested with the data on mean responses as shown in Appendix 1.

Table 1

Question	Mean Response (X)
1	4.4173913
2	4.44347826
3	4.1826087
4	4.26956522
5	4.22608696
6	4.4173913
7	4.33913043
8	3.73043478
9	4.28695652
10	4.45217391
\bar{X}	4.27652174

Source: Authors' computation

$$Z\text{-score} = \frac{\bar{X} - \mu}{SD / \sqrt{N}}$$

\bar{X} = Mean of observation = 4.27652174

U = standard measure = 3

SD = 0.203

N = number of observations = 10

Z-score = 19.88

Z-score from table = 1.64

Since Z score computed (19.88) is more than Z score from table (1.64) we reject the null hypothesis and accept the alternative hypothesis which states that e-commerce has some significant effect on continued production of goods and service in the Covid-19 era in Nigeria.

Hypothesis two

E-commerce has no significant effect on continued demand for goods and services in the Covid-19 era.

This hypothesis is tested with the data on mean responses as shown in Appendix 2.

Table 2

Question	Mean of Responses (X)
1	4.70588235
2	3.19457014
3	3.95022624
4	4.18099548
5	4.09049774
\bar{X}	4.02443439

Source: Authors' computation

$$Z\text{- score} = \frac{\bar{X} - \mu}{SD / \sqrt{N}}$$

\bar{X} = mean of observation = 4.0244

U = standard measure = 3

SD = 0.203

N = number of observations = 5

Z score = 4.7

Z-score from table = 1.64

Since Z score computed (4.7) is more than Z score from table (1.64) we reject the null hypothesis and accept the alternative hypothesis which states that e-commerce has some significant effect on continued demand for goods and services in the Covid-19 era in Nigeria.

Hypothesis three

E-commerce has no significant effect on customer satisfaction for goods and services delivered in the Covid-19 era.

This hypothesis is tested with the data on mean responses as shown in Appendix 2.

Table 3

Question	Mean of Responses (X)
1	4.4479638
2	4.57466063
3	3.85972851
4	4.37104072
5	4.43438914
\bar{X}	4.33755656

Source: Authors' computation

$$Z\text{- score} = \frac{\bar{X} - \mu}{SD/\sqrt{N}}$$

\bar{X} bar = mean of observation = 4.3376

U = standard measure = 3

SD = square root of $[0.307225487/5] = 0.2478$

N = number of observations = 5

Z score = 12.1

Since Z score computed (12.1) is more than Z score from table (1.64) we reject the null hypothesis and accept the alternative hypothesis which states that e- commerce has some significant effect on customer satisfaction for goods and services delivered in the Covid-19 era in Nigeria.

Summary of results

Null Hypothesis	1	2	3
Hypothesis Statement	E-commerce has no significant effect on the continued production of goods and services in the Covid-19 era in Nigeria	E-commerce has no significant effect on the continued demand for goods and services in the Covid-19 era in Nigeria	E-commerce has no significant effect on customer satisfaction in the Covid-19 era in Nigeria
Z- Score computed Result	19.88	4.7	12.1
Z- Score result from table at 5% level of significant	1.64	1.64	1.64
Decision on null hypothesis	Reject	Reject	Reject

Conclusion

With reference to our analyses above, results showed that:

- 1) e-commerce has some significance effect on continued production of goods and services in the covid-19 era
- 2) e-commerce has some significance effect on continued demand for goods and services in the covid-19 era
- 3) e-commerce has some significance effect on customer satisfaction for goods and services delivered in the covid-19 era.

Based on the findings above, we conclude that e-commerce has some significant effects on business continuity in the covid-19 era in Nigeria.

In line with our conclusion above, we put forward the following recommendation:

Government of Nigeria should make policies that will further encourage e-commerce so as to sustain business activities that grow the economy.

Internet connectivity should be made accessible by all. This will encourage greater participants in the e-commerce world thereby promoting physical distancing which is a sure way of preventing further spread of the covid-19 virus.

References

- Abdul G. K (2016). Electronic Commerce: A Study on Benefits and Challenges in an Emerging Economy. *Global Journal of Management and Business Research. Volume 16, issue 1.*
- Akhmetova Z, Baimukhanbetova E, Belgozhakzy M, Alikbaeva A & Tulebaeva N (2020). The Development of e-commerce infrastructure in modern conditions. *E3S Web of Conferences* 159, 04028 (2020) <https://doi.org/10.1051/e3sconf/202015904028> *BTSES-2020*
- Alexander W. B, Marianne B, Zoe C, Edward L. G, Michael L,1 , & Christopher S. (2020). The impact of COVID-19 on small business outcomes and expectations. Retrieved from www.pnas.org/cgi/doi/10.1073/pnas.2006991117
- Anam B, Hamza A, Hafiz M, B, Ahmed U. K, Syeda M. R. N, Muhammad B (2020). E-commerce trends during COVID-19 Pandemic. *International Journal of Future Generation Communication and Networking Vol. 13, No. 2, 2020 pp.1449-1452.* Retrieved from: <https://www.researchgate.net/publication/342736799>
- Arkadiusz Kawa (2017). Fulfillment Service In E-Commerce Logistics. *Scientific Journal of Logistics.* https://www.logforum.net/pdf/13_4_4_17.pdf. <http://dx.doi.org/10.17270/J.LOG.2017.4.4>
- Dan F. (2020). The Complicated Legacy Of Herbert Spencer, The Man Who Coined ‘Survival Of The Fittest. *Smithsonian Magazine.* Available at <https://www.smithsonianmag.com/science-nature/herbert-spencer-survival-of-the-fittest-180974756/>
- European Centre for Disease Prevention and Control (2021). Covid-19 situation update worldwide. Retrieved from: <https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases>
- Evans, Richard (1 May 2002). "E-commerce, Competitiveness and Local and Regional Governance in Greater Manchester and Merseyside: A Preliminary Assessment". *Urban Studies*. SAGE Publishing. **39** (5–6): 947–975. doi:10.1080/00420980220128390. JSTOR 43084757. S2CID 154155858.
- Ezeala, G. (2017). Assessment of the Production Costing Method in The Nigerian Manufacturing Sector. *Journal of Global Accounting, Nnamdi Azikiwe University, Awka.* https://scholar.google.com/citations?view_op=view_citation&hl=en&user=R3uzFTQAAAJ&citation_for_view=R3uzFTQAAAJ:u-x6o8ySG0sC
- Ferrera, Cécile; Kessedjian, Eowyn (2019): Evolution of E-commerce and Global Marketing, *International Journal of Technology for Business (IJTB)*, ISSN 2644-5085, Springwish Publisher, Bratislava, Vol. 1, Iss. 1, pp. 33-38, <http://dx.doi.org/10.5281/zenodo.2591544>
- Government of Canada (2021) Covid-19 daily epidemiology update. <https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html> <https://health-infobase.canada.ca/src/data/covidLive/Epidemiological-summary-of-COVID-19-cases-in-Canada-Canada.ca.pdf>
- Hishman M, A & Aiman M, A. (2018). The impact of E - commerce on globalization of local markets in Jordan Institute for Health Metrics and Evaluation (IHME) (2021). Estimation of excess mortality due to COVID-19. <http://www.healthdata.org/special-analysis/estimation-excess-mortality-due-covid-19-and-scalars-reported-covid-19-deaths>
- International Labour Organization (2021). Business and COVID-19.

- https://www.ilo.org/global/topics/coronavirus/key-resources/WCMS_741005/lang--en/index.htm
- Jelena Š. J, Radoje V.1, Elizabeta M., Cristiano, F.& Aleksandar V(2020). The Relationship between E-Commerce and Firm Performance: *The Mediating Role of Internet Sales Channels*. Retrieved from: www.mdpi.com/journal/sustainability. doi:10.3390/su12176993
- Jong, W. K., Tengfei Wang, and Dorothea Ramizo (2021). The Role Of Technology In Business-To-Consumer E-Commerce Evidence From Asia . *Asian Development Bank Economics Working Paper Series*. ISSN 2313-5867 (print), 2313-5875 (electronic) Publication Stock No. WPS210044-2 DOI: <http://dx.doi.org/10.22617/WPS210044-2>
- Kuhuk & Jane (19 May 2020). "COVID-19 shopping behavior: what products would customers rather buy online?". *Competera* (Infographic). Archived from the original on 21 May 2020. Retrieved 4 May 2021.
- Mayple, (2021). *The Ultimate Guide to eCommerce Marketing*". Mayple. Archived from the original on 28 April 2021. Retrieved 4 May 2021 from <https://www.mayple.com/ecommerce-marketing-strategy>
- Marincas, D. A. (2008). "Information system for the supply chain management". *The AMFITEATRU ECONOMIC Journal*. **10** (24): 236–253. Archived from the original on 18 May 2015. Retrieved 8 May 2015.
- Molla, A., and Heeks, R. (2007). "Exploring E-commerce benefits for businesses in a developing country". The Information Society.
- Qamar, F., Peihua, F., Yunhong H., Tchamy, J., and Yanni Z. (2019). A Review of Management and Importance of E-Commerce Implementation in Service Delivery of Private Express Enterprises of China. Article Information. Volume: 9 issue: 1,. Retrieved from <https://doi.org/10.1177/2158244018824194>
- Okorochoa, B. C., Okorochoa, C. & Ezejiolor, R. A. (2020). Assessment of Covid-19 impact on small and medium enterprises. *International Journal of Research*. 7(9), Available at <https://edupediapublications.org/journals> e-ISSN: 2348-6848 p-ISSN: 2348-795X.
- Statista (2021). Retail e-commerce sales CAGR forecast in selected countries from 2016 to 2021. <https://web.archive.org/web/20171126014712/https://www.statista.com/statistics/220177/b2c-e-commerce-sales-cagr-forecast-for-selected-countries/>
- Terzi, Nuray (2011). "The impact of e-commerce on international trade and employment". *Procedia - Social and Behavioral Sciences*. 24: 745–753. doi:10.1016/j.sbspro.2011.09.010.
- World Health Organization (2019). Corona virus. <https://www.who.int/docs/default-source/coronaviruse>
- Wikipedia (2019). Coronavirus (COVID-19). https://en.wikipedia.org/wiki/Coronavirus_disease_2019

Appendix 1

Questionnaire administered on producers of goods and services

This questionnaire was intended to generate response as to continued production of goods and services.

S/N	STATEMENT	Strongly Agree [5]	Agree [4]	Undecided [3]	Disagree [2]	Strongly Disagree [1]	Total Score	No of respondents	Mean of Response
1	Deployment of e-commerce has led to sustained process of initiating orders for supply of production input (raw materials)	260	236	12	0	0	508	115	4.4173913
2	E-commerce has resulted to better way of processing orders for the supply of production input	265	240	6	0	0	511	115	4.44347826
3	Compilation of orders for supply of production input during the Covid -19 era was not adversely affected due to deployment of e-commerce initiative	200	248	30	0	3	481	115	4.1826087
4	The company has witnessed some increase in the volume of orders for production input during the covid-19 era due to adoption of B2B / B2C e-commerce	195	284	9	2	1	491	115	4.26956522
5	E-commerce has resulted to better way of processing orders for taking delivery of services from your suppliers	210	252	15	8	1	486	115	4.22608696
6	Supply of Raw Materials ordered via online shopping meet your specification	255	244	9	0	0	508	115	4.4173913
7	You are comfortable with the on line transaction and wish to continue with it	320	164	3	6	6	499	115	4.33913043
8	You don't have complaints about the response time whenever you place an online order for services	125	240	36	20	8	429	115	3.73043478
9	Raw materials orders are met within the production lead time	260	204	21	6	2	493	115	4.28695652
10	Your customers have maintained a steady demand for your finished products	305	196	9	0	2	512	115	4.45217391

Source: Responses from authors' questionnaire

Appendix 2

Questionnaire administered on final consumers of goods and services

Questions 1 to 5 of this questionnaire was intended to generate response as to continued demand for goods and services.

Questions 6 to 10 of this questionnaire was intended to generate response as to customer satisfaction and continued loyalty

S/N	STATEMENT	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Total Score	No of Respondent	Mean of Response
1	You are aware of online availability of consumer goods and services	785	252	3	0	0	1040	221	4.70588235
2	Your online shopping for consumer goods are not affected by the covid-19	560	84	51	6	5	706	221	3.19457014
3	Delivery of goods ordered are not negatively affected by the covid-19	495	328	24	20	6	873	221	3.95022624
4	Your online shopping for services are not affected by the covid-19	505	320	75	18	6	924	221	4.18099548
5	Delivery of services ordered are not negatively affected by the covid-19	470	312	99	14	9	904	221	4.09049774
6	Goods delivered to you by means of online shopping meet your specification	595	365	15	4	4	983	221	4.4479638
7	You are comfortable with the on line transaction and wish to continue with it	755	224	21	8	3	1011	221	4.57466063
8	You don't have complaints about the response time whenever you place an online order for goods	410	376	9	32	26	853	221	3.85972851
9	The e-services delivered to you meet your specification	540	392	21	10	3	966	221	4.37104072
10	You are comfortable with the response time for services received	615	344	6	10	5	980	221	4.43438914

Source: Responses from authors' questionnaire