



Exploring E-commerce Opportunities for a Better International Trading and Tax Revenue Generation: A Review for Developing Countries

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ABSTRACT

E-commerce trading platforms are increasingly adopted by different users owing to the platforms' nature of simplifying online trading and promoting the delivery of goods and services over long distances around the world. Yet, many developing nations are not adjusting to the e-commerce technological advancements and changes, despite its huge contributions to production, distribution, job creation, digital economy and electronic tax revenue generation. These led to the loss of tax revenues, especially in the informal e-commerce operation. However, a digital transformation strategy is highly needed and should be paid more attention to, by developing nations toward encouraging e-commerce users to be patriotic and tax compliant. As such, this paper recommends among others that the government agencies under different ministries of trades and digital economies, are to provide a free or subsidised e-commerce business registration as part of the ease of doing business in developing countries to collect online taxes and to track down the concealed e-commerce operators toward boosting revenue generation and remittances.

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INTRODUCTION

As the world is fast moving toward a digital economy, so is e-commerce business operation virtually bringing the buyers and sellers closer in that regard. E-commerce in modern industries relates to online shopping, which contributes to tax revenue and industrial networks that helps virtually in determining the demand and supply of goods and services (Xiao, Yuan, Sun, & Sun, 2021). According to Yapar, Bayrakdar, and Yapar (2015), it is a systematic process that enables the sale or purchase of goods and services over the internet. To Awa, Ojiabo, and Emecheta (2015), e-commerce business modernisation involves non-physical and electronic connections and maintaining business relationships by sharing information and knowledge with trading agents. Some researchers view e-commerce as the exchange or facilitation of trading products or services using internet connectivity or online social networks from the available delivery and electronic payment (Argilés-Bosch, Somoza, Ravenda, & García-Blandón, 2020; Atanassova, 2018). Therefore, E-commerce is a systematic and modernised form of online trading that does not involve the physical

presence of the buyer, seller or the goods or service from two or more distinct locations.

Recent trends in online businesses had led to the use of e-commerce platforms by different users globally. E-commerce platforms are online trading platforms for business enterprises and individual users to negotiate virtually (Helmy Mohamad, Farouk Hassan, & Abd Elrahman, 2022; Liu, Osewe, Shi, Zhen, & Wu, 2022; Luzhao, 2020). The e-commerce platforms' users cut across various economic sectors, disciplines and individuals. They include students, social media users, retailers, manufacturing SMEs, public online shoppers, government agencies, tax departments, hotel managers, owners of restaurants, and entertainment centres (Al-Taffi, Bin-Nashwan, & Amrah, 2020; Gupta, Kiran, & Sharma, 2020; Hertati & Safkaur, 2021; Jianjun, Wang, & Wu, 2020; Kahiigi & Semwanga, 2020; Singh & Bharath, 2021; Solichin, Astuti, & Mahardhika, 2021; Yuyan, Fan, Shen, & Miller, 2020).

In addition, e-commerce users have to get proper financial or accounting records for their online business transactions. It is so because, e-commerce on the regulatory level greatly promotes the payments of Value Added



Tax (VAT) to different nations' economies, as more countries are now moving toward a digital economy (Tofan & Bostan, 2022). Similarly, shifting developing nations' economies and tax systems to a digital revenue system help in increasing their digital presence and VAT revenue generation (Charlemagne Igue & Alinsato, 2021; Dom, Custers, Davenport, & Prichard, 2022; Georgieva, 2021; Lucas-Mas, Oliver, Junquera-Varela, & Felix., 2021; World Bank, 2021).

Furthermore, e-commerce contributed a lot to nations' economic growth and development. Many people are more likely to accept new e-commerce technologies (Na, Lee, & Yang, 2021). Equally, several job opportunities are noted in e-commerce from the point of purchasing a product or service to the final stage of delivery to the final consumer. These series of business activities have in several developed countries contributed enormously to economic growth and development as well as employing the teeming youths of different countries of the world. Conversely, the utilisation of e-commerce globally has brought about some critical challenges toward contributing to nations' tax compliance and revenue generation (Tang & Zhu, 2020; Zhou, Sun, Ma, & Chen, 2018).

Notably, despite the rapidly developing new business technologies in every aspect of life, some e-commerce users have difficulty adjusting to the advancement of technological changes (Na et al., 2021). Similarly, the digital technology readiness of some countries responsible for an effective digital transformation strategy has not received adequate attention (Jafari-Sadeghi, Garcia-Perez, Candelo, & Couturier, 2021). The lack of proper technological readiness and attention will leave many local technology users grappling to meet the demand and advancement of the new e-commerce business activities let alone increase their compliance intentions. It is a serious matter affecting the digital economies of many developing nations which in turn affects the online remittance of taxes especially the VAT by many e-commerce users. The inability of VAT laws to operate effectively in combination with sales tax laws in e-commerce created a problematic burden of indirect taxation within the world's digital economy (Bardopoulos, 2015). It is in this regard that this paper narratively provides in-depth information on various areas and sectors that developing

nations can delve into, for better business opportunities, employment and online tax filing and revenue generation.

THE E-COMMERCE PLATFORMS

E-commerce platforms are digital platforms that provide online business operations on different kinds of goods and services at both national and global scale levels by a corporate or non-corporate entity. An e-commerce platform is also an online transaction platform for business enterprises or individuals to negotiate virtually (Luzhao, 2020). They are internet intermediary platforms that provide online business services by corporate or non-corporate business entities (Weijun & Li, 2019). According to Lee, Lee, and Ryu (2019), the key features of e-commerce platforms include online stock management, payment and settlement, customer request management, and order and delivery management.

E-commerce items are sold and purchased on different e-commerce platforms based on the available physical items, online services, digital items on social media or electronic data interchange between the buyer and seller at online marketplaces (Atanassova, 2018; Palak, 2021). E-commerce platforms promote the virtual interactions and trading of products and services from the e-retailers or firms via online stores, based on the attractiveness, beauty and clarity of the products' picture, the existing informative and insightful details about products information (Balasubramanian, Mani, Mathur, Kumar, & Achan, 2021; Luzhao, 2020; Peng, Cui, Chung, & Zheng, 2020; Thuy, 2021). Eventually, the e-commerce platforms help leverage existing consumers, attract new ones, and increase sales revenue.

Some of the first and most available and interactive e-commerce platforms include eBay, Alibaba, Dangdang and 8848, which witnessed the birth of China's e-commerce industry in 1999 that was concentrated mainly on personal computers (Su & Liu, 2021). Other internationally recognised e-commerce platforms include, among others Amazon, Jingdong, Machmall, FDI, Naver Smart Store, TMALL, Café 24, owned by Alibaba Group, G Market, Taobao, Uber, XCMG, Canton Fair, followed by Cupang, Airbnb, Rakuten, DingTalk, Youzan, Walmart, Shippo, SK planet, Jiomart or Jio platform, Snapdeal, Safaricom, Facebook, GooglePlay, Google Shopping and Lazada



(Juneja & Mitra, 2021; Kang, Diao, & Zanini, 2020; Lee et al., 2019; OECD, 2020; Peng et al., 2020; Reardon et al., 2021; Weijun & Li, 2019; Woo, 2020; Xin, Wang, Yu, & Zhang, 2019; Zenny, 2020; Zhong, Zhang, Zhang, Zheng, & Zhang, 2021).

Luzhao (2020) categorises e-commerce platforms into five primary types: the shopping street type of e-commerce platform, the malls and supermarkets categories, the vertical B2C, and the brand vertical B2C type like the Vanke, Masa Maso platforms and the special counter that looks like the offline department stores. Similarly, e-commerce platforms operating in Nigeria include Anikys Sauce platforms in Lagos (Reardon et al., 2021), with other popular e-commerce platforms including Jumia Nigeria, Konga, PayPorte, Jiji Nigeria and VConnect Nigeria, alongside other less popular including Yudala, Kara, Printivo Store, Obiwezy, Ajebomarket, Kilimall, Techmall, Goods Arena, Obeezi, Bargain Master, E-shop, Supermart, CartNG, OLX Nigeria, Sellatease, Kusnap, and Tinkoko (Global E-Commerce Intelligence, 2019). Moreover, e-retail businesses have creatively adopted social media platforms through user-generated content in the changing digital marketplace and creating communities of inquiry that connect them to their customers (Gupta et al., 2020; Kahiigi & Semwanga, 2020).

The mentioned e-commerce platforms are applicable in different sectors of the economy, including I.T., online service, non-profit organisations, manufacturing, education, defence, agriculture, oil and gas; website adoption for service/sales, government, retail, banking, medical; wholesale, construction, transportation among others (Amling & Daugherty, 2018; Dongyang & Liu, 2021; Eferin, Hohlov, & Rossotto, 2019; Geng, Wang, Chen, Song, & Yu, 2020; Giuffrida, Mangiaracina, Perego, & Tumino, 2017, 2019; Grandón, Nasco, & Mykytyn, 2011; Holland & Gutiérrez-Leefmans, 2018; Luzhao, 2020; Pelletier & Cloutier, 2019; Wang, Somogyi, & Charlebois, 2020).

E-commerce Platform and Cross-border Trading Services

The rise in cross-border e-commerce has become a new economic development and growth point for many countries (Liu et al., 2022; Nan & Yang, 2021; Qi, Chan, Hu, & Li, 2020).

E-commerce traders and consumers in cross-border e-commerce platforms rely on advanced information networks to connect for effective control of their e-commerce resources and platforms (Nan & Yang, 2021). According to Chen and Yang (2021), the cross-border online platform is a social networking platform where firms, service providers, sellers, and users, among other actors, interact and trade virtually. Cross-border e-commerce is now a critical export and import channel for promoting international trade among individuals and business firms of different nations (Mou, Cohen, Dou, & Zhang, 2019). It requires overseas warehouses, transportation and network communication alongside equipment and infrastructure (Lei & Zhao, 2021). According to Ying, Jia, Schoenherr, Gong, and Chen (2020), cross-border e-commerce is a complex system that requires integrating multiple types of internet trading services, electronic payment, logistics services, customs declaration and inspection services, and legal provisions.

The online services in cross-border e-commerce operate effectively using dedicated e-commerce shopping platforms. Cross-border e-commerce occurs when several parties in different customs areas finalise a transaction involving international logistics via an e-commerce platform (Mou et al., 2019). It also provides the buyers with products that may not be available in domestic contexts. Cross-border e-commerce has achieved remarkable achievements by opening broad international markets within the short term via overseas warehouses (Lei & Zhao, 2021). Furthermore, Chou (2020) observed that some e-commerce platform users increased their online business activities due to effective cross-border e-commerce.

Online trading cannot run effectively without cross-border e-commerce services. Mou et al. (2019) found that monetary savings, convenience, and product offerings were parts of the critical reasons that online users embrace cross-border trading e-commerce. Lower product prices and superior product diversity are also part of the benefits of cross-border e-commerce. Nan and Yang (2021) asserted that it is possible to establish a relationship between the consumers and e-commerce websites for cross-border e-commerce platforms from a network standpoint and not only restricted to online trading.



Cross-border e-commerce platforms include OSell, Zongteng, NetEase Kaola, BizArk and Linca, all from China (Mou et al., 2019; Qi et al., 2020; Ying et al., 2020). They further asserted that China alone has more than 5000 e-commerce platforms operating cross-border e-commerce services with an improved internet infrastructure for a better e-commerce environment. Other related cross-border platforms sites are metao.com, wish.com, vip.com and mia.com (Mou et al., 2019; Qi et al., 2020; Ying et al., 2020). According to Nan and Yang (2021), cross-border e-commerce platforms face the challenges of maintaining consumers on their websites with increasingly competitive internet settings by using the e-commerce platforms in the digital economy era to solve customers' problems.

Lei and Zhao (2021), Liu et al. (2022), Mou et al. (2019), and Ying et al. (2020) reported that unreliable delivery time, fraud and delay in customs clearance affect enterprises in cross-border e-commerce operations. In addition, a lack of understanding of online convenience worldwide also affects consumer adoption of online service delivery channels such as e-commerce, e-banking, and m-banking on the part of financial service providers (Jebarajakirthy & Shankar, 2021). Delay, long-distance and complex interactions between the buyers, sellers, and platforms are also parts of the issues in cross-border e-commerce.

E-Commerce Platforms and International Logistic

Logistics systems' effectiveness and efficiency are vital in successfully running e-commerce operations globally. Global e-commerce operations required platform operators to have a relative knowledge of e-commerce resources management over long distances (Pei-Ju & Lin, 2018). E-commerce has so far contributed to the massive demand for developing new logistics facilities for processing globally placed online shopping orders within the entire supply chain (Xiao et al., 2021). Furthermore, the rise in the demand for logistics resources and facilities has promoted sharing between different e-commerce companies in recent years (He, Zhang, & He, 2019). E-commerce logistics resource control requires firms to make excellent and prompt decisions to provide quick logistics services. He et al. (2019) observed that e-commerce firms

sometimes operate a self-run logistics system that enables them to share their logistics with other firms that do not have such a system through a third party for better logistics efficiency. Similarly, other experts in e-commerce, like Pei-Ju and Lin (2018), viewed the aspect of e-commerce logistics management via business models from big data analytics. They incorporated resource dependence and innovation diffusion theories to generate logistical strategies for effective and efficient cross-border e-commerce.

On the other hand, countries like China help provide logistics support by connecting and applying a dynamic low-cost labour environment for the logistics industries (Amling & Daugherty, 2018). However, an increase in logistic costs and transport delivery looping can reduce investment opportunities in e-commerce trading (Hidayatno, Destyanto, & Fadhil, 2019). Some international e-commerce logistics platforms include Amazon's Delivery Service Program, Aldi, Jet.com, Alibaba's Cainiao, JD.com, Kroger, and pop-up stores, the temporary distribution firms operating during a season festivity (Amling & Daugherty, 2018). Other e-commerce platforms are for online shipping, such as Shippo (Reardon et al., 2021) and online delivery like Meituan, Swiggy and Jingdong Delivery (Reardon et al., 2021; Xin et al., 2019).

Moreover, Lyu, Chen, and Huo (2019) revealed that logistics park platforms and locations positively influence e-commerce companies toward resource integration concerning their operational performance. Similarly, business enterprises trading e-commerce also believed that slow customs clearance took a long time which is inconvenient to them, leaving behind 90.40% believing that it results in high-cost cross-border logistics and transportation costs (Lei & Zhao, 2021; Liu et al., 2022). In addition, such clearance issues leave accountants always struggling to solve international trade issues concerning e-commerce from multiple taxations (Atanassova, 2018). Other bothering issues in international cross-border e-commerce have to do with product packaging. The issue of e-commerce with logistics is primarily found in urban settlements, leaving behind a sizeable influence (Hidayatno et al., 2019). The product packaging results in large waste generated in biodegradable materials, biopolymers, cardboard and plastics (Escursell, Llorach-



Massana, & Roncero, 2021; Hidayatno et al., 2019). The generated waste may harm the physical environment, animals and human beings. Strong bilateral trading agreements and implementations on logistics' sustainable development can help address the issue (Xiao et al., 2021).

E-commerce Platforms Trade Volumes in the Global Economy

The demand for e-commerce as a consumer-based economy significantly increases and changes how goods and services are purchased, distributed, and delivered beyond conventional logistics facilities (Anam, Abbas, Ming, Zaheer, & Akhtar, 2017; Xiao et al., 2021). Around 0.8 billion people in 2017 and 1.8 billion users in 2020 were estimated to use an e-commerce channel through m-banking services across the globe (Jebarajakirthy & Shankar, 2021). China's e-commerce trade volume alone reached 34.81 trillion yuan, creating many job opportunities for urban and rural dwellers toward sustaining economic growth and improving people's lives (Zhong et al., 2021). However, Scarcella (2020) reported an e-commerce sale of goods estimated at USD 2 trillion annually with projections to reach USD 4.5 trillion by 2021, out of which USD 1 trillion is estimated to be cross-border e-commerce.

Correspondingly, Coppola (2021) reported worldwide net sales of 4.28 trillion USD in e-retail sales from over two billion purchases and 5.2 billion unique visitors primarily via mobile devices during the Covid-19 pandemic. The online market is becoming more attractive. The sales volume will likely reach \$6.54 trillion in 2022, targeting customers who purchase online items from platforms such as eBay, Lazada, Paytm Mall, and Tmall Global (Baozhuang, Mu, Cao, & Gao, 2021). Geebren, Jabbar, and Luo (2021) reported that banks invested up to \$115 Billion in funds worldwide into m-banking for e-commerce services.

Nigeria as a developing country is also not left behind in e-commerce and other related digital economies. The country had around 108.75 million internet users and ranked fourth in Africa, with a B2C index value in e-commerce of 53.2 points (Varrella, 2021). Varrella further reported that the most e-commerce online trading platforms that attract many visitors are Jumia, Jiji, Konga, and Cheki. Moreover, e-commerce in Nigeria is witnessing increasing growth and acceptance due to the

rapid development of information and communication technology. Agbo and Nwadiolor (2020); Oloyede, Azeez, and Aluko (2015) reported that a reasonable number of e-commerce business activities occur in Nigeria.

Global E-Commerce Intelligence (2019) also reported that more than 50% of e-commerce-connected consumers in Nigeria purchased online products like electronics and fashion items. They further asserted that e-retail operations in Nigeria are likely to maintain a double-digit growth rate in the nation's economy, considering the increasing number of online buyers trading online. Similarly, an increasing number of consumers adopt e-commerce services for online buying because it saves their time and energy (Escursell et al., 2021; Oloyede et al., 2015; Palak, 2021; Shankar & Rishi, 2021). According to Global E-Commerce Intelligence (2019), 1% of adults traded online daily, 23% weekly, and 41% once, where 51% of the purchases on cross-borders were from online shoppers in Nigeria.

E-commerce Platforms and Data Security

Some e-commerce platforms use sophisticated big data technology. Such e-commerce platforms include the Alibaba Cloud built by Taobao and Tianmao based on Hadoop technology architecture (Su & Liu, 2021). These big data in e-commerce platforms enhance the technical power of the owners, users and government toward a sustainable talented team for effective online monitoring and payments (Atanassova, 2018; Dongyang & Liu, 2021). As a result, e-commerce platforms have moved beyond online trading platforms and changed into big data environments built around resources and technology that significantly reduce transaction costs, advance production efficiency, and optimise economic structure in the digital economy era (Su & Liu, 2021). However, the products sold via e-commerce platforms suffered from using big data to manipulate prices for customers, low-quality images and suspicion of customers (Baozhuang et al., 2021; Wu, Cheng, & Qi, 2020). Baozhuang et al. (2021) asserted that such manipulations occur due to the laxity of the providers focusing more on online market supervision and missing vital product information, which affects the authenticity of the products.

On the other hand, data security, internet infrastructure, experienced



practitioners, online legal procedures and misinformation are sometimes returned to the users by some e-commerce platforms providers from their search and recommendations algorithms (Atanassova, 2018; Dongyang & Liu, 2021; Juneja & Mitra, 2021; Luzhao, 2020; Xuan, Alrashdan, Al-Maatouk, & Alrashdan, 2020). Most transaction data and other related users' information are stored and analysed on e-commerce platforms using graph databases, a new standard for data visualisation compared to relational and NoSQL databases (Yeung, Wong, & Wu, 2020). Such databases have to be secured, practical and efficiently accessible at any time.

Furthermore, cyberattacks increase along with an increase in e-commerce platforms' trading. Using the blockchain database management system can help control cyberattacks in e-commerce without a third party's involvement. The blockchain technology database is more effective, faster, inexpensive, transparent, consistent, and low-risk and makes data modification and attachment very difficult (Ismanto, Ar, Fajar, Sfenrianto, & Bachtiar, 2019; Xuan et al., 2020). Thus, the blockchain technology database serves as an e-commerce platform that offers a new model that solves the limitation of e-commerce data management (Ismanto et al., 2019). Xuan et al. (2020) further noted that the blockchain database management system is still at an early stage of verification and has its limitations of instability and technical scalability or immutability of data. Therefore, the data stored in a given database for both the e-commerce platform owners and the users have to be secured, readily available, and accessible at any time when the need arises.

E-Commerce Platforms Effectiveness in Online Billing and Electronic Payments

The effectiveness of e-commerce platforms led many users worldwide to use online trading to transact businesses virtually. Perceived usefulness and satisfaction also account for the online users' continuance intention to use e-commerce platforms and electronic payments (Sreelakshmi & Prathap, 2020). In addition, users' income level, effective internet service, online payment awareness and trust, social influence, transaction safety and security, and electronic conveniences led to the adoption of e-payment in developing countries (Oyelami, Adebiji, & Adekunle, 2020). As a

result, online users primarily execute online payments and settlements to retailers in line with e-commerce platforms via online banking and third-party online payment systems (Mao, Zhu, Wang, & Xiao, 2020). Furthermore, when overdue payments occur, users are notified by the suppliers, alongside improving the trading partners' relationship (Lu, Lu, Wang, & Wu, 2021).

The online payment platforms that facilitate the payments of online transactions are many across the world. They are independently owned or invested in and controlled by famous e-commerce platform owners and providers. They include Alipay, founded by Alibaba, Paytm, WeChat Pay and PayPal (Kang et al., 2020; Pratama & Jin, 2019; Reardon et al., 2021). The e-payment platforms also use electronic currency exchange, prepaid cards, online credit and debit cards, e-wallets and e-cash (Fatonah, Yulandari, & Wibowo, 2018; Immordino & Russo, 2018). Similarly, the general acceptance and utilisation of e-commerce platforms result in the delivery of products or services to the final destination of the users or consumers after making electronic payments and paying electronic taxes to the required tax authorities (Fatonah et al., 2018; Reardon et al., 2021; Solichin et al., 2021; Tran & Hong, 2021; Xin et al., 2019). For example, in Nigeria, Oyelami et al. (2020) reported that electronic payment significantly affects consumers' purchase decisions alongside increasing their online spending.

Nevertheless, e-billing forms part of the effectiveness of using e-commerce platforms. In addition, the application of the e-billing system using e-commerce platforms helps facilitate online product payments and e-tax payments from the users (Sebayang & Lailiyah, 2020). They also found that e-billing comes with some constraints but is still quite effective in online payment in e-commerce. Thus, e-commerce platforms are highly effective online trading platforms that simplify the billing and payments for goods and services worldwide.

E-COMMERCE AND ELECTRONIC PAYMENT SYSTEMS

E-commerce has brought about considerable changes in the online payment or e-payment system, taxation, and consumers' purchasing behaviour. Many users going for online retail shopping during the pandemic still



want to continue, as it allows a direct connection between the customers and sellers (Christie, 2021; Escursell et al., 2021; Scarcella, 2020). The e-payment system is introduced not entirely as a substitute for cash but as a better opportunity for traders and e-commerce users. The e-payment medium is an electronic payment system that negates cash and serves as an essential aspect of e-commerce and e-tax (Fatonah et al., 2018). Zhang and Choi (2020) reported that sellers prefer the online and offline mediums to others when the product value is less relative to the consumer channel preference. The preference for the online medium is because of the third-party online payment platforms that utilise internet technology products for online filing and remittance (Pratama & Jin, 2019).

In addition, online payments allow the use of online payment platforms like Alipay, WeChat Pay or PayPal (Pratama & Jin, 2019) via electronic currency exchange, cryptocurrencies, prepaid cards, online credit and debit cards, e-wallets, e-cash, electronic cards, electronic bank deposit and transfer or the combination of the aforementioned (Atanassova, 2018; Fatonah et al., 2018; George, Joy, Muhammed, & Muhammed Nowfal, 2022; Immordino & Russo, 2018). However, it requires electronic devices and efficient internet connectivity before using it effectively. Furthermore, Fatonah et al. (2018) reported that 46% of empirical e-payment system studies on e-commerce were carried out in Asia, 23% in Africa, 20% in the Middle East, and 6% in Europe and America.

E-commerce and Mobile Banking (M-Banking)

One of the most gainful channels for delivering bank services is m-banking. M-banking is a virtual service provided by banks. The customers interact with the bank using an application downloaded from a website or an application store like Google Play Store and App Store (Picoto & Pinto, 2021). The m-banking provides value-added services other than the conventional banking channels in the physical branch banking or using the ATMs, which are more flexible for both consumers and bankers based on its customised online services to customers (Shankar & Rishi, 2021). Picoto and Pinto (2021) also affirmed that the m-banking application operates from a mobile device such as mobile phones, smartphones,

tablets, PDAs or wireless media players. The simplicity of m-banking makes it one of the most cost-effective, bank-preferred, and innovative banking channels to deliver banking services to the final consumers than online banking and near-field communication (Geebren et al., 2021; Jebarajakirthy & Shankar, 2021).

M-banking in e-commerce is an aspect of online banking that enables users to access banking services using mobile phones and tablets, which emerged as the most effective e-commerce application (Shankar & Rishi, 2021). Bank customers using the right m-banking app can perform remote banking operations like checking personal account information, making transfers between accounts locally and internationally, making online payments, observing real-time capital market quotes, and placing a buying or selling order (Picoto & Pinto, 2021). They also opined that many bank consumers adopting m-banking for e-commerce minimise banking services at physical bank branches, thereby saving time and energy. Moreover, most e-commerce users use m-banking applications in purchasing and making direct payments on several online platforms (Shankar & Rishi, 2021). Therefore, m-banking has to be available for banking services anytime and at different locations. Such m-banking services make it attractive to users and become an excellent banking tool for effective online trading and better competition.

Countries with very high rates of adopting m-banking are developing countries, like India, Indonesia, South Africa, and Brazil, which were found not to have well-established banking systems or lack enough telecommunication facilities (Picoto & Pinto, 2021). They note that it is more prevalent in some African countries are Botswana, Kenya, and Uganda. Perceived ease of use, usefulness, trust, social influence, risk, perceived behavioural control, compatibility, and facilitating conditions were part of the several factors for the adoption of m-banking as well as other psychological factors, including consumers' perceived benefits and consumers' perceived risk (Shaikh and Karjaluo, 2015, in Shankar & Rishi, 2021). Such adoptions of m-banking by individuals for e-commerce trading result from their behavioural intentions influenced by their attitude to using technology based on perceived usefulness and ease of use (Bo et al., 2020). However, m-banking turns out to be one of the self-service banking services



carried out by customers for online purchases and payments compared to other banking services, based on the global level of acceptability (Picoto & Pinto, 2021).

E-Commerce and Electronic Banking (E-Banking)

As the world moves into the digital economy, the financial and banking sectors are witnessing rapid growth that motivates customers to engage in online banking and trading. This online trading or e-commerce fundamentally influences users' daily lives, as noted over the years (Agbo & Nwadiolor, 2020; Argilés-Bosch et al., 2020; Feng, Lu, Hou, Cui, & Darbandi, 2021; Tang & Zhu, 2020). E-banking effectively blends bank operations by utilising modern IT that provides desirable customer services (Feng et al., 2021). They further asserted that it provides customers with uniform access to banking services through protected intermediaries without physical presence. Immordino and Russo (2018); Zhigang (2020) observed that e-banking uses some tools such as electronic wallets, electronic checks, electronic money, credit card, debit card, expense card, ATMs and POS systems.

The rapid growth in the utilisation of e-banking has made it possible for bank customers to access information about their bank details due to the availability and accessibility of the internet, hardware devices, software, and financial information processing systems (Feng et al., 2021). The growth effectively allows e-commerce users to operate online transactions while being online quickly. Oloyede et al. (2015) found that e-commerce and e-banking promote better transactional operations, promote nations' global economies, and expand business operations and productivity using various online tools. However, the development of e-banking systems requires a lot of legal, infrastructure, human, customer satisfaction and maintenance, hard and software, among other related information systems (Geebren et al., 2021; Jebarajakirthy & Shankar, 2021; Picoto & Pinto, 2021; Shankar & Rishi, 2021).

E-commerce, Tax Compliance and Online Tax Payment

The introduction of information technologies in tax administration is becoming increasingly significant. It helps domestic and international businesses improve service quality, service delivery, and relevance in

providing tax information of users to the relevant taxpayers (Tran & Hong, 2021). E-commerce trading laws now require the users to pay a certain amount of levy as tax to the nation's tax authorities where such transactions occur or where such sales profits occur as tax compliance to the existing tax laws. The conventional mode of paying taxes by individual taxpayers was through cash payment, but with the advancement of technology, it has now moved to online payment techniques. According to Bestaria, Sinagab, and Saudi (2019), the online tax system helps public members obtain tax information and ease tax payments. However, most of the online tax payments by taxpayers are through the third-parties. Similarly, the tax payments are made by directly paying taxes, using online or electronic means or through third parties appointed by the government (Solichin & Astuti, 2021). Third-party online payment platforms are the modern means of online tax payment that simplify tax payment directly from taxpayers' homes or offices without being physically present in the tax administration office.

The online tax payment first requires online tax filing of returns. This online taxation technique enables taxpayers to file tax returns using internet-connected devices (Tran & Hong, 2021) due to their online knowledge of payment, behaviour, and consumption (Yu, Chen, Yao, & Liu, 2021). Furthermore, it is transmitted directly to the tax authorities via the internet, without a post, paper submission, or personal delivery. Tran and Hong (2021) further opined that it is entirely online taxation between the taxpayers and the relevant tax authorities who do not physically interact but use virtual means for tax operations, declaration and filing. Therefore, online tax declaration and e-tax payments provide the most advanced technological breakthrough in tax administrative procedures and gradual modernisation of taxation. In addition, it raises taxpayers' satisfaction with online services provided by tax authorities and saves time.

E-commerce and Online Tax Payment among Students

University students around the world also utilise e-commerce platforms for online trading. For example, Varsity Vibe is a typical e-commerce application used by university students in South Africa, providing the first discount after registration and subscription



(Singh & Bharath, 2021). Researchers in e-commerce provide more accounts on the utilisation of e-commerce platforms among university students. For instance, Singh and Bharath (2021) revealed that Varsity Vibe is connected to various stores and contains some coupons that students can earn for online purchases on their campuses and are perceived to have ease of use and usefulness. Similarly, Pratama and Jin (2019), who used the UTAUT, found that expectancy, performance expectancy and facilitating conditions influence the behavioural intention of international university students in using Alipay for making online payments. They also reported that the students feel a great ease and have less difficulty using Alipay to make online payments and electronic tax filing.

Furthermore, government public policy also played an essential role in promoting students' understanding of the online tax system and obtaining vital information concerning tax and tax payment mechanisms when using e-commerce platforms in schools (Bestaria, Sinagab, & Saudi, 2019). They lastly found that developing a tax public policy course on online tax system implementation was very useful for academics in educating students toward having adequate tax knowledge and tax awareness for better tax compliance in the future. Having adequate tax knowledge will allow more smooth usage of the available e-commerce platforms by university students in schools while paying VAT upon consumption.

CONCLUSIONS AND RECOMMENDATIONS

It can be concluded that e-commerce is part of the internet-based international market that connects the buyer and the seller over connected devices. Several local and international developed e-commerce applications are used to facilitate quick and efficient trading with their final destinations at countries' cross borders by international logistics companies. Despite e-commerce's numerous contributions to the economic aspects, users of the e-commerce trading platforms were sometimes sceptical about using the application for fear of data breach. Those using it sometimes engaged in the use of informal e-commerce applications, shredding them from official business registration with the government tax authorities, thereby creating huge revenue gaps and transaction concealment in many developing countries like

Nigeria. However, these negated types of e-commerce operations leave tax authorities counting revenue losses and shortfalls due to the technicalities of the informal e-commerce trading platforms users and the service providers.

To address these lingering issues as earlier mentioned, there is a need for the government agencies under the ministries of trade and digital economy, to provide a free or subsidised business registration as part of the ease of doing e-commerce business in developing countries to collect online taxes and to track down the concealed e-commerce to face the wrath of the law. This will attract the informal e-commerce operators to comply and meet up with the legal tax provisions. Secondly, online tax filing should be further simplified for the new and subsisting local e-commerce providers to file their tax returns without necessarily going directly to the tax authorities' head offices.

Thirdly, training and e-commerce skill enhancement of existing and potential e-commerce platform users should be provided by the ministry of trade in collaboration with the ministry of the digital economy. Those who complied with the tax regulations should be motivated to do more and the defaulters should be sanctioned as well. Lastly, more attention on digital transformation strategy and simplification should be allotted more attention by developing nations toward encouraging e-commerce users to be tax compliant and contributors to electronic tax revenue generation for a better digital economy.

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