

Challenges in adoption and implementation of E-Commerce platform: Case study of Nepal

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Abstract

This research paper aims to study and identify current state and the challenges in adoption and implementation of ecommerce platform in the context of Nepal. Research on the topic was carried out on existing relevant research papers and information were extracted. All this information was compared and then synthesized in this paper. The result revealed some key challenges. Also, models for technology acceptance help to know consumers behavior towards technology and its acceptance and use. The paper further explores the existing e-commerce platforms available in Nepal and worldwide. The paper focuses on studies that were conducted earlier in the subject. This paper helps to provide understanding of e-commerce platforms, its challenges and future possibilities in the context of Nepal. This paper is a literature review.

Keywords—ecommerce, ecommerce platform, challenges, adoption, implementation, Nepal

1 INTRODUCTION

Businesses have always wanted to extend the customer-base as wide as possible and with the help of technology, they have been able to achieve it. Business now-a-days have been started going online through the medium of ecommerce platform. E-commerce is also referred as electronic commerce, it provides a platform to buy and sell things online between business to business (B2B) or business to consumers (B2C) (Barlian, Supardi, Suprapt, & Pradipto, 2020). It provides alternative way that is cheap with more distribution channels for products and services. It has provided a convenient way which is accessible all the time. Safe and secure payment can also be made online for the product and services. E-commerce platforms has led in increase in sales. With e-commerce platform's adoption, merchants will be able to move their businesses online.

E-commerce platform has a wide concept, but in simple terms can be referred to as a software with the help of which people can buy and sell product or services online. Internationally, there is various e-commerce platform marketplaces and some of them are Amazon, eBay, Walmart, Etsy, Alibaba. Also, there are platforms such as Shopify, WooCommerce, Magento and these platforms can be considered as a solution as they provide all the necessary tools to develop, deploy and host an e-commerce store. They provide all the technical services required in cloud and can be accessed through medium of internet. In the context of Nepal, we observe in ecommerce platform marketplaces like Daraz, Sastodeal, Hamrobazar, Nepabay, Foodmandu. Some other big online e-commerce store we observed was Evo store, Olizstore who sell imported electronic products such as Apple, Moshi, Bose, JBL. We have observed only big companies and stores having their own dedicated online e-commerce store with the objective to promote their own brand and normal merchants do not have their own online store, rather they turn to marketplaces such as Daraz, Sastodeal, Hamrobazar. These marketplaces are less effective while promoting merchant's brand. In a study conducted in China the author mentioned, there are different cultures and business philosophies typically exist here, limiting the application and transferability of western e-commerce methods (Tan, Tyler, & Manica, 2007). There are various challenges for these e-commerce platforms that includes security, payment methods, trust, internet connectivity, product delivery. This paper will discuss about the challenges that is faced in e-commerce platforms in context of Nepal.

1.1 E-commerce Platforms

Ecommerce platforms are usually either SAAS (software-as a-service), or PAAS (platform-as a-service) or on-premises provider, for online store services to buy and sell products. It helps organizations from small to large scale to sell their products and services. When merchants migrate from traditional business to online ecommerce, there are various challenges and complex tasks that needs to be performed, this platform requires management of applications, data, servers, storage

and network which require technical skills. On the application side it includes hosting, integration, compatibility, managing payment methods, inventory management, creating homepage, collection, product pages, cart pages and some other requirements. The cost and implementation timeline could be high.

In e-commerce platform, for the store to be installed parameterization, theme setup, import data and the products, collection setup, integration of payment gateway and addition plugins or apps as per the requirements from the merchants (Radu & Maican, 2015). There are some e-commerce platforms that performs as an online marketplace like Amazon, eBay, BestBuy, Alibaba, Macy's and few others. Some platforms are built with an objective to sell their company products and are brand specific. Some examples include Apple, Microsoft. There are e-commerce platforms that have been developed from scratch and all the infrastructures have been provisioned by their own company or cloud services. These company have full control of the infrastructure. All the requirements or features are tailored by company's developers. Also, there are some e-commerce platforms that provides ability to build their store without having to provision network, security, architecture. Some of these platforms' examples are Shopify, Magento, WooCommerce. These platforms provide a solution for implementing these features. The only drawback is that full control of the store will not be accessible. Online stores can be built with the help of Web IDE provided by the e-commerce service provider and can be subscribed on monthly or yearly basis. With this, a normal retailer will also be able to move from traditional business to modern online store smoothly. This platform also acts as a medium through which a buyer and a seller can communicate for product and services. Also, analytics tool is available that helps to track daily activities such as sales and real-time stock inventory and the revenue generated.

Ecommerce platforms thus provide help to merchants who want to extend their customer base through online platforms. There are various types of e-commerce platforms that includes marketplace or brand dedicated e-commerce stores with one objective to sell products online. Thus, e-commerce platform can be considered to be one of the solutions for merchants to go online.

1.2 E-Commerce platform around the world

E-commerce platforms are implemented almost all across the world today. E-commerce platforms is considered as a solution which allows merchants to reach customers through the medium of internet all across the globe. These platforms have been successful to provide consumers products and good customer experience all across the world. Today there are many e-commerce platforms worldwide some of the online marketplace include Amazon, Alibaba, Walmart, e-bay, Etsy. Some e-commerce platforms are Magento, Konkart, Lemonstand, PrestaShop, Opcommerce that provide website builder feature, hosting, security, network is provided by e-commerce platform that results in less implementation time, lower cost. As per a study conducted on 2015 by (Lixandriou & Maican, 2015), they made an comparison of 19 different e-commerce platforms on the basis of features, payment methods, rewards, shipment, checkout, data storage and concluded that Konkart ranks at top with 0.913 points and SupaDupa ranks the lowest with 0.439 points (Radu & Maican, 2015). There are also various international shipping companies such as FedEx, UPS, DHL whose applications can be integrated in the e-commerce platforms that makes delivery service smoother and faster processing time. Also, availability of international payment gateways such as Stripe, PayPal, Paytm has enabled to make secure payments from anywhere from the world. With the help of these technologies, ecommerce platforms will be able to function smoothly and provide e-commerce services all across the globe. For e-commerce platform implementation there exists various challenges and hurdles. These hurdles might be technical, infrastructural, economic, trust, government policies.

1.3 E-Commerce platforms in the context of Nepal

In a developing country like Nepal, e-commerce was initially started introduced in 1999, with the concept of shipping presents and gifts, allowing Nepalese travelling overseas, particularly in the United States, to give presents to friends, loved ones and relatives (Malla, 2018). E-commerce though is popular currently still is at the infancy stage currently in Nepal whether it being B2B or B2C

e-Commerce. (International Trade Administration, 2019). E-commerce marketplace such as Daraz, Sastodeal, Nepbay, Hamrobazar are currently present in Nepal which act as an online marketplace for merchants to communicate and sell products. There are currently various online payment gateways available such as Khalti, E-Sewa which are mobile wallets, Ipay, Qpay, local bank payment used for making payments. But people should have dollar account to make payment to merchants in foreign currency (International Trade Administration, 2019). Mobile e-commerce is also growing popular now-a-days. Out of total population, 60% have internet access and 95% out of those population will access through mobile (International Trade Administration, 2019).

As per MIS report from Nepal Telecommunications authority on March 2020, approximately there are 21,852,338 broadband users (Nepal Telecommunication Authority, 2020). And as of March 2021, there are approximately 26,256,005 broadband users (Nepal Telecommunications Authority, 2021). This shows increasing number of broadband users and people going online that results in more potential online consumers.

At present, people are moving to online business from traditional approach (Rani, and Kautish, 2018, 2019). Also, there is increase in number of people purchasing online from ecommerce providers such as online marketplace. We can take example of Daraz Nepal, established in 2016. It is considered the most popular e-commerce marketplace currently in Nepal. Daraz Nepal has been able to provide its services through website and mobile application. It supports payments through Debit/Credit cards, and E-Sewa (a mobile wallet for making online payment). As per study conducted by (Crofts & Pokhrel, 2018), in their research paper they concluded that ecommerce business is a growing platform and has potential but has some challenges such as security, payment gateways, transportation, manpower (Crofts & Pokhrel, 2018). As per study conducted by author Chiranjivi on ecommerce online marketplace Daraz Nepal, the author concluded that quality service and product is a challenge (Pathak, 2020). Another popular online marketplace includes Sastodeal, established in 2011 with an objective to start e-commerce industry and currently provides delivery to most parts of Nepal with an affordable price point (SastoDeal, 2021). The company had recently joined forces with Flipkart an Indian e-commerce company where Flipkart will sell products through Sastodeal in Nepal. People are adapting to new ways and technologies to conduct business. People currently are choosing to move their businesses online to extend their customer base. We observed various e-commerce marketplace in Nepal such as Daraz, HamroBazar, SastoDeal, Muncha house, Foodmandu and some e-commerce online store such as Evo store, Olizstore dedicated to promote their brand. We also observed currently some e-commerce platform providers are not yet popular in Nepal such as Shopify, Magento, WooCommerce. With the help of these platforms, merchants will be able to have their own e-commerce websites and customize them as per requirements. Limited amount of e-commerce platforms can be observed which may be due to challenges such as trust issues, online payments, security, internet connection unavailability, government policies and some others.

1.4 Challenges for adopting and using e-commerce platform

In the developing country like Nepal, e-commerce platform is at its growing stage and seems to have good future. People are moving from traditional to online business in search of several opportunities, so e-commerce platform has been adapted slowly by people and is on an increasing trend. We have several challenges for e-commerce implementation and some of them include the following.

A. Internet connectivity

Internet connectivity plays an essential role in e-commerce platforms. It provides a medium for sellers and consumers to communicate. Consumers can search for various products and services online and make comparative analysis between them. As there is rise in internet prices, its affordability to everyone is in question. In a recent study the author mentioned, inability to bring the prices of internet connectivity down is also a major challenge (Khan, 2016). Financial status can also be of concern due to job loss in time of lockdown during COVID-19 pandemic. Also, the coverage area is also comparatively less due to geography of Nepal.

B. Online payment

Ecommerce has been increasing in the context of Nepal and resulting in adaption and implementation of e-commerce platforms. More and more people are engaging in online purchase. Payment gateways have never become this essential in the current context. The author has identified security and privacy concern of consumers in mobile payment (Dewan & Chan, 2005). Cross border transaction is also an issue, this may be a slow process as per verification process differ in countries. In his research paper, the author made findings that online payment law, figuring out the payment method, security information and secure technical support are the major challenges. (Yang, 2017). In the context of Nepal, there is no support of international payment gateway such as Stripe, PayPal, Paytm which limits the online purchase internationally.

C. Security

Security is a one of a prime concern and challenge for the e-commerce platforms. Critical data and sensitive information are transferred which if intercepted can lead to frauds and other security issues. The goal of consumer security is to protect data from people or hackers and viruses on the systems attempting to gain unauthorized access (Olufemi, Kayode, & Sunday, 2014). While conducting transactions through the medium of internet, the use of secure data transfer method is critical (Arawwawala & Gunawardane, 2017). In the research paper (Biswas, 2015) proposed to use RSA security algorithm for secure communication over server and clients and server to server (Biswas, 2015).

1.1 Models for technology acceptance with respect to e-commerce platforms

Technology is covered almost all across the world. There are various available models for describing the technology acceptance. One of them is Technology acceptance model, a tool used for assessing new technology acceptance based on user perceptions. According to Technology acceptance model, that explains two factors for accepting of computer system by its intended users, the first is perceived usefulness and second is perceived ease of use (Davis, 1989). When a technology is invented the inventor believes that it is useful and user-friendly, but the potential consumers may not embrace it. As per authors (Legris, Ingham, & Collette, 2003) in their study mentioned the outcomes of empirical studies employing TAM are not completely consistent or clear. There are also few other models and some of them include TAM2 model, Theory of reasoned action (TRA), Theory of planned behavior (TPB), UTAUT models.

With various models for technology acceptance, authors used it to describe the technology acceptance. As per author Tong (2010), had findings that customer online purchase intentions are invariant to perceived usefulness and perceived risk of purchasing online, but not previous online shopping experience (Tong, 2010). Authors Fayad and Paper (2015) in their research argued that in current form TAM will not adequately explain behavior of online consumer because e-commerce adoption differs significantly from organizational adaption of new technologies (Fayad & Paper, 2015). According to authors (Awa & Ukoha, 2015) in their study mentioned, Technology Acceptance model, Theory of planned behavior and Technology organization environment presents valuable insight as to how business adopt to e-commerce but improvement on these model as done by authors in their study gives SME's more flexibility to maintain and improve advantage over competitors.

Various researchers have used the model in their paper to analyze the technology acceptance and results showed these models helped for technology acceptance even though the model have been called not being useful in certain cases. Similarly, we can apply the model for acceptance of e-commerce platform technology by people.

2 Research Articles

Following are 15 articles relevant to the topic and a study was made in detail highlighting some points. Following are the information that were synthesized from the topic.

Table 1: For each of the literature paper, important information was highlighted

A rt	Full Referenc	Main research questions /	Main results / issues	Why is this paper relevant	Other remarks (e.g. theme / etc.)
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icl e	e (APA Referenci ng Style)	objectives			
1	(Kidane & R.R.K.Sharma, 2016)	To identify important factors that affects the customer purchasing decisions on e-commerce websites.	Results: Policies for return, Trust, warranty for cash back and COD (Cash on delivery) are factors that have been identified to affect customer's purchase decision	This paper helped to identify factors that affect the consumer behaviour to purchase product which is relevant to the features that should be included in the online store.	Primary research and sample size can be collected for analysis. Influence of purchasing decisions using social media platforms such Facebook marketplace, Pinterest further study can be conducted.
2	(Balan, 2021)	To identify the major challenges and opportunities for the expansion in the retail industry through ecommerce in context of India.	Results: This paper highlights challenges such as economical, transportation, technological usage, technology adoption, insufficient infrastructure, customer service. Opportunities for ecommerce industry also increased due to rapid increase of internet and mobile users.	This paper discusses about the factors involving opportunities and challenges faced for the ecommerce growth that is relevant to the implementation and adaption of e-commerce platform.	For dataset only 163 response samples were collected.
3	(Lixandrou & Maican, 2015)	To make comparison of 19 chosen ecommerce platform based on analysis made on 11 features.	Results: All 19-e-commerce platform were compared based on 11 features and final ranking was made in which Konkart is at the top with 0.913 points and at the bottom is SupaDupa with 0.439 points. Issues: The requirements for customers will vary which determines the platform customer wants to adopt.	This paper provides an idea about the features these e-commerce platforms can provide and selection can be made for its adaption and implementation .	More features of e-commerce platform can be included.
4	(Khan, 2016)	To identify benefits and challenges in ecommerce	Results: Ecommerce helps to save time, makes convenient to customers, easy product accessibility globally, product reviews.	This paper is somehow relevant as it identifies factors such as	Further samples can be taken to support the theory.

		To get familiarity of current ecommerce status in Bangladesh	Challenges include lack of participation from private and public corporation, security for online transactions, trust issues between seller and consumer, internet cost, implementing new transaction methods. Issues: Ecommerce has a negative impact on traditional businesses.	security, transaction methods, accessibility which are the essential factors to be implemented in an e-commerce platform.	
5	(Franco & S, 2016)	To Identify the advantages and disadvantages of ecommerce for business and customers in India. To identify challenges for banking industry for online transactions in India.	Results: This paper highlighted online transaction security is the main challenge for e-commerce industry. Advantages are convenience, options, time saving, comparison, reviews, Rise in sales, rise of customer base, opens most of the time, business reachability, instant transaction. Disadvantages include some hidden costs, quality, privacy & security, internet access, delay, security & card issues, no personal interaction, constant upkeep, additional expenses for ecommerce infrastructure.	This paper highlights the advantages and disadvantages of security and the key points such as security, reachability must be considered for the platform which is why it is moderately relevant.	Further samples could be taken to support the paper.
6	(Rahman & Hassan, 2020)	To propose or develop a framework for cashless transactions relying on people's attitude towards using e-commerce in post-COVID-19 era for best practice and increase trust.	Results: This model assists in enhancement of trust values to shape cashless transaction culture and practices.	This paper refers to the importance of cashless transaction adoption and being trustworthy, useful for consumers which shows the importance but is not very relevant to our topic.	Research Samples to provide support the theory can be taken.
7	(Ghandou	To provide	Results:	This paper is	Further research

	r, 2015)	e-commerce value model that helps to understand website operation which results to achieve company objectives	Using web analytics tools to achieve performance in metrics accessible to organization that can contribute to achievement of the website objectives that leads to increase in revenue. Websites need to fulfil customer requirements and also use social media to target customers.	somehow relevant as it provides certain website drivers to create value for the website the includes important points like goals, maintenance, security.	can be carried out for mobile e-commerce applications.
8	(Kaushik, Mishra, Rana, & Dwivedi, 2018)	To investigate the impacts of product reviews from consumers on e-commerce platform product sales.	Results: The number of positive reviews and the order they appear on product page has substantial impact on product sales. Review volume is more influential than balance on e-commerce platforms.	This paper helps to illustrate the impact of product reviews on sales which is not relevant to topic.	Sample Data is collected from 57 smart phones on one e-commerce platform amazon.in.
9	(Permata sari & Kuswadi, 2018)	To find the importance of social media on customers purchase decisions and daily routines.	Results: Perceived value has greatest influence on customer purchase intentions while perceived risk and price has negative impact.	This paper focuses on customer purchase intention which is not relevant to the topic.	Further research can be carried out considering popular social media platforms such as Facebook, Instagram, Pinterest, TikTok, Snap Chat. Only 307 samples were collected which is limited and further research can be performed on acceptance of technology.
10	(Nkwo & Orji, 2019)	To learn about traditional techniques that are successful for customer engagement and retention employed in African marketplace and	Results: Traditional merchants of Africa used variety of strategies such as delivery of products to home, testimonials from prior consumers and discounts can be implemented in e-commerce sites to regain and attract consumers.	This paper is relevant as traditional methods needs to be added in e-commerce sites as features in the implementation process which is	151 samples were collected out of which 50 were merchants of Africa and 101 customers which is comparatively limited.

		<p>how they can be adapted in e-commerce websites for effectiveness.</p> <p>In marketplace of Africa, what social support measures are employed to entice and drive clients to shop?</p> <p>How might tactics be adapted and implemented in traditional African e-commerce to boost client engagement and sales?</p>	Cooperative method of payment and payments on instalment basis which facilitated sharing of the product which is comparatively cheaper.	a technical challenge.	
1 1	(Al-maaitah, Majali, Alsoud, & maaitah, 2021)	<p>To investigate the effects of COVID-19's reach on Saudi Arabia's ecommerce firms.</p> <p>To confirm if e-commerce is raised due to coronavirus.</p>	<p>Results: This paper though limited data confirms ecommerce market and firms at Saudi Arabia i has been impacted by the corona virus.</p> <p>Due to COVID-19 consumer behaviour are changing trying to adapt the current situations.</p> <p>Issues: Due to uncertain situation of COVID-19, proper recommendation could not be provided.</p>	This paper has relevance to the current chosen topic as COVID-19 has led to uncertain situation that cannot be predicted which is a challenge	Only top 5 top ecommerce firm were studied for making analysis for whole Saudi Arabia which is limited to consider whole country of Saudi Arabia.
1 2	(Bawazir, 2018)	To investigate numerous challenges involved in adoption of ecommerce in Gulf countries like Qatar, Dubai and Saudi Arabia.	<p>Results: Mistrust, lack of awareness, and risk concerns about e-commerce led to low IT prevalence in comparison to other developed countries.</p>	This paper is relevant to the topic as it talks about adaption of ecommerce in developed countries.	Further samples can be taken to support the theory.
1 3	(Arawwa wala &	To look at the issues and road	<p>Results: ICT security, customers attitude</p>	This paper is relevant as it	Further research could be

	Gunawardane, 2017)	blocks that SME's in Sri Lanka face when implementing e-commerce technologies.	towards ecommerce usage and government support have been identified as the factors that affect ecommerce technologies. The study also revealed that the SME's will most probably adopt to ecommerce technologies.	focuses on implementing technologies related to e-commerce in SME's of Sri Lanka.	performed in detail regarding the hosting of ecommerce platform on-premises or cloud or international ecommerce hosting platform such as Shopify, Magento and WooCommerce. Further research can be done by using UTAUT model for technology acceptance.
1 4	(Goncalves, Rocha, Martins, Branco, & Au-Yong-Oliveira, 2018)	To explore the e-commerce website's usability and accessibility on one of the Portuguese websites with help of application, manual and blind users.	Results: When using automatic tool, the score was good. Manual evaluation showed some usability and accessibility issues were detected. User testing showed poor performance in efficiency, effectiveness and satisfaction which results in interaction issues with customers.	This paper helped to show the problems in accessibility and usability of ecommerce website that is relevant for the ecommerce platform adaption.	Only 15 Heuristics or points were analysed. 20 blind users' participation was there out of which 5 were women and 15 were men which are comparatively small sample.
1 5	(Biswas, 2015)	To analyse mobile technology of current money transfer as well as its security. To provide comprehensive framework for ecommerce trading, transfer funds and product delivery.	Results: In proposed ecommerce architecture, Broker, mobile banking, Companies, Courier server makes possible to transfer funds securely and ensures the tracking and safe delivery of product. RSA security algorithm is proposed between server and symmetric key encryption between server and mobile through SMS.	This paper is relevant as it focuses on security in the mobile banking.	JWT token can be implemented for security and also secure mechanism for SMS transfer. Also, delivery report should be maintained for tracking the SMS count.

3 Conclusion and Future Research

This paper is literature review of the current chosen topic. The qualitative data was collected through the available data sources related to the topic. In the process of research, it was observed

that there are comparatively less research papers on e-commerce platforms.

Currently, with the advancement of technology, merchants extended their reach by adopting e-commerce platforms. Worldwide there are many e-commerce platforms and is on increasing trend and many new technologies have been developed that have made it easier for implementation. Although there are e-commerce platforms in Nepal, it is currently in growing stage. E-commerce and e-commerce platform are directly related as booming e-commerce leads to more people adopting to e-commerce platforms.

From study, it was found that there are various challenges for implementing of e-commerce platforms such as internet connectivity, security, payment gateways, delivery and many others. On the basis of analysis, it was observed that internet connectivity, security, payment methods, trust was identified to be key challenges.

There are various models for technology acceptance by people and various researchers have implemented these available models and even proposed a new model based on the current models for analysis of technology acceptance. We can apply these models for technology acceptance, in our case on e-commerce platforms, to know the consumer behavior and acceptance.

In the near future we hope e-commerce will thrive in Nepal as it has thrived all across the world. New e-commerce platforms such as Shopify, WooCommerce, Wix, Magento can be adapted and implemented. Passing the government law for international payments will a great advantage. Also, new technologies such as artificial intelligence, advanced chatbots, Augmented reality (AR) for products, CRM integration will provide a new shopping experience for consumers that assists them to make purchasing decisions.

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