Challenges and Opportunities of E-Commerce in India: Pathway for Sustainable E-Commerce

Nitin Kumar[1*], Jhensanam Anusara[1], Md Altab Hossin[2], Md Kamruzzaman Sarkar[3], Bouasone Chanthamith[4], Sita Shah[1], Md Imrul Hasan Russel[5]

[1] Business School, Sichuan University, Sichuan, China
[2] Department of Management Science and Engineering, University of Electronic Science and Technology of China
[3] Department of Zoology, National University, Gazipur, Bangladesh
[4] School of Public Administration, Sichuan University, Sichuan, China
[5] Department of Finance, Asian University of Bangladesh
Corresponding author: Nitin Kumar (nitinkumar1811@outlook.com)

Abstract— *The aim of this study is to explore the status of e-commerce in India. It also explores the challenges and opportunities of e-commerce in India in the perspective of the global economy. A meta-analysis is employed in this study to determine the objectives. The article has used the secondary materials extensively. It reveals that the speed of growth of e-commerce in India is satisfactory but lower than China and USA. The article finds out same opportunities like India already adopted modern ICTs, 4G technologies, available broadband and so many local e-commerce businesses. But it still faces same problems like poor telecom infrastructure, no strict legal bans, lack of good attitude towards technologies and poor academic syllabus regarding e-commerce. The article suggests that a proper step should be taken by the government and private agencies to implement ICT based academic syllabus, update legal frameworks, developing ICT infrastructure and creating awareness of the man people for effective implementation of e-commerce for sustainable economic growth.*

Keywords— E-commerce, e-business, m-commerce, online banking, India.

I. INTRODUCTION

Nowadays peoples of India are most likely to buy and sell products and services over the electronic system, or in other words, we can say that now in Indian society, people are modernized using reliable and comfortable that using of e-commerce [1]. Uses of e-commerce directly link to the customer with manufacturer, stakeholders, marketers, government, and service providers. That is called Electronic commerce (e-commerce). E-commerce in India is growing year by year, it's very soft and reliable junction for customer choice and convenient with the help of internet [2]. The vendor or merchant who sells or buy products or services directly connect with the customer and allows payment through bank debit/credit cards or direct payment through online banking payment system [3]. For the buyer, it is a new and friendly channel to buy and sell products through online. However, an e-commerce portal having the most freedom, and as well as privacy for customers to use the internet and do the window shopping for products, make reconciliation of different models, evaluate their prices and customer satisfactory comments comparison [4]. As well as in India most of the government organization is using electronic communications technologies to connect with the customer, to fulfill their need and for solving the raising problems day by day [5]. Nowadays in India various social e-commerce junction available for the customer. In last we can say that e-commerce is the powerful equipment in our busy lives to fulfill all the needs through fastest way and comfortably from the home or our working place [6].

1.1 E-commerce Increasing Strategies in India
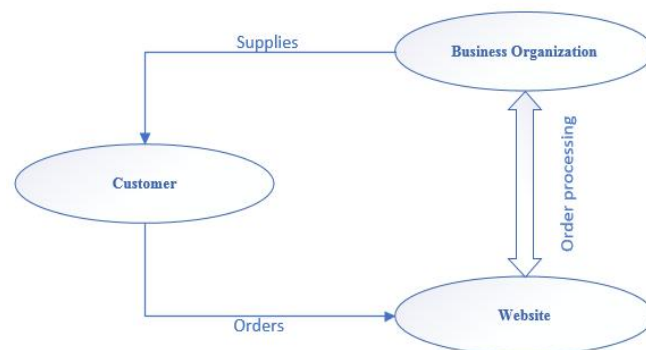Strategies for increasing e-commerce in India are given below:

Fig. 1: Strategies for e-commerce business

By implementing friendly search-engine architecture new customers can be targeted.

- By streamlining the online sales processes and improving the online shopping experience, marketers can rise the conversion rate and the average voucher price [7].
- An improved, usable, and attractive e-commerce experience makes more user satisfaction and trust which can lead to customer loyalty and retention [8].
- Seller/Shoppers can incur rage to the customer by giving some gift or incentives for making online purchases.
- Providing More Customer Service and Communications engaging and encouraging customers to use e-commerce tools, online support, and by providing them with comprehensive and appropriate production formation [9].
- Banks must educate their customers on the use of net banking and encourage them to do so [10].

1.2 Objectives of the Study

a) To discover the present scenario of e-commerce in India.
b) To recognize the Challenges and opportunities of e-commerce in India.
c) To demonstrate some measures to conquer the challenges based on research or findings.

II. METHODOLOGY

This study is based on the meta-analysis. The secondary materials have been extensively used for this study the secondary data has been collected from various websites, books, journal articles, thesis, daily newspaper, and magazine [11]. All the sources of data have been acknowledged. The article has been tried to mention the talent data whenever available. The article carefully analyzed the data for presenting the status of e-commerce growth. It also carefully identified the challenges and opportunities of e-commerce in India [12]. The researcher

team also interviewed same experts and e-commerce businessman for getting primary data. All the data categorically present to explore the objectives.

III. PRESENT SCENARIO OF E-COMMERCE IN INDIA

According to Rawat, ASSOCHAM Secretary General as per the survey in India 75% youth, in the age of 15-34 years, using online services or user in India, and India is an example of the youngest demography globally [10]. As per given age distribution, this may expect to be a continuing tendency in coming years. The growth among categories focused on younger generations in last one year, it is not very surprising to see [13]. It is observed that maximum online shoppers in India are youth, and their age is between 15-24 years including females and males both. Recently in India, increasing of internet subscribers is beneficial for e-commerce growth in India.
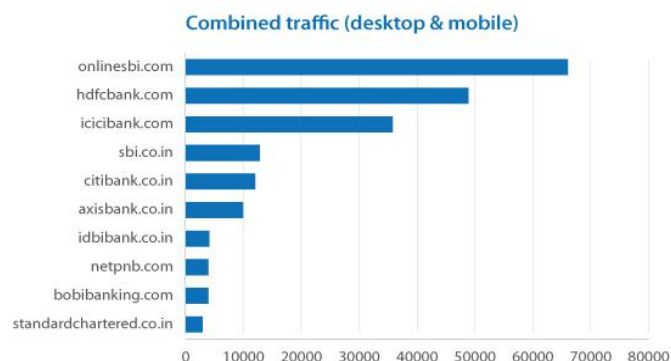

Fig. 2: Top 10 retail banking sites in India, June 2016.
(Source: http://www.bankingtech.com)

As per TRAI report, the total number of internet subscribers increased from 422.19 million at the end of Mar-17 to 431.21 million at the end of Jun 2017 with a quarterly growth rate of 2.14% [14], as shown in below table;

Table.1: The recent scenario of Internet subscribers and data usages in India

Segment	Mode of access								Total subscribers (in million)	
	Wired subscribers (in million)		Wireless subscribers (in million)							
			Fixed wireless (Wi-Fi, Wi-Max, Radio & VSAT)		Mobile wireless (Phone + USB dongle)		Total wireless			
	Mar-17	Jun-17	Mar-17	Jun-17	Mar-17	Jun-17	Mar-17	Jun-17	Mar-17	Jun-17
Broadband	18.24	18.33	0.56	0.52	257.71	281.99	258.27	282.51	276.52	200.84
Narrowband	3.33	3.33	0.02	0.02	142.32	127.02	142.34	127.04	145.68	130.38
Total	21.58	21.67	0.582	0.538	400.04	409.01	400.62	409.55	422.19	431.21

Source: [14]

As well as we can see the wireless data usages in India growing every quarter including urban and rural areas. As per the reports received from Telecom Regulatory Authority of India (TRAI), During the end of 3rd quarter (Q.E.) June 2017, total usage of wireless data was 4,206,415 terabytes [14]. Out of this, usage of 2G data was 100,390 terabytes, usage of 3G data was 690,743 terabytes, usage of 4G data was 3,999,012 terabytes and usage of CDMA data was 16,270 terabytes, as showed in the picture below;
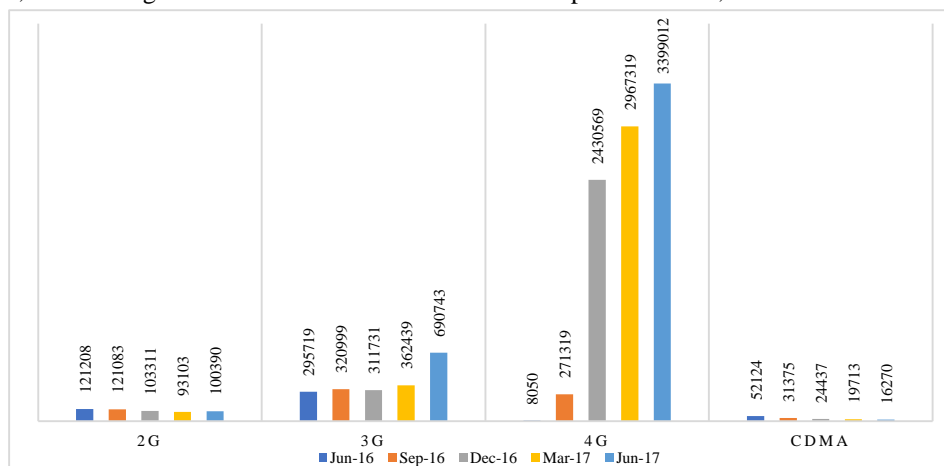

Fig. 3: The trend of wireless data usages (in Terabyte), Source: http://www.trai.gov.in

3.1 Market Size and Growth

According to the study, India's e-commerce market value was about $3.8 billion in 2009, and it's increased to $12.6 billion in 2013. As per a report in 2013, India's e-retail segment value was US$2.3 billion. We can say that about 70% of India's e-commerce market is related to the travel. According to the statistical data said by 2020 online shoppers' growth rate expected to touch 329 million, instead of 130.4 million in the year 2016.

3.2 Key Drivers in Indian e-Commerce

The main drivers of e-commerce in India are as follows:

- A large percentage of population subscribed to broadband Internet, burgeoning 3G internet users, and a recent introduction of 4G across the country [15].
- The explosive growth of Smartphone users, soon to be world's second largest Smartphone user base.
- Rising standards of living as result of a fast decline in the poverty rate.
- Availability of much wider product range (including long tail and Direct Imports) compared to what is available at brick and mortar retailers.
- Competitive prices compared to brick and mortar retail driven by disintermediation and reduced inventory and real estate costs.
- Increased usage of online classified sites, with more consumers buying and selling second-hand goods.

3.3 The State of Indian E-commerce: Trends and Opportunities

The concept and launching of e-commerce are not new. It has started its journey from few decades immediately after launching information highway i.e. internet. Both the customers and traders are now using the benefit of e-commerce [16]. It is getting popular day by day with increasing its trust to general people. It takes its position to people's mind due to increasing the use of various social networking sites. People can easily know about the product description, quality, and price by their mobile phone, laptop or other devices [12]. Then they can take purchase decision quickly due to its availability of information and convenience. Like other developed and developing countries, Indian e-commerce market is being popular day by day. It bears a positive trend of development which is contributing to the national economy. It creates a lot of job opportunity to educated jobseeker which helps to reduce unemployment rate [17].

3.4 The Critical Health of the Sector

Losers and gainers According to a study by Accel Partners, online shopping of physical goods in India will grow to US$ 8.5 billion in 2016 and the number of online shoppers in India will be more than double to 40 million. The internet user base is predicted to increase to 300 million by 2015 [5]. Does that mean that e-commerce is here to stay, and every small and big fish will survive? That might not be the case. The ones that show potential to succeed are international deep-pocket incumbents who have experience, concepts, and variety of offerings, and tend to grow at a fast pace as compared to the other existing players in the Indian market. Even Indian e-commerce players are trying hard to bring in similar concepts as their international competitors [18]. They are trying to bring impending and imminent consolidation, which is evident from the probable mergers of India.
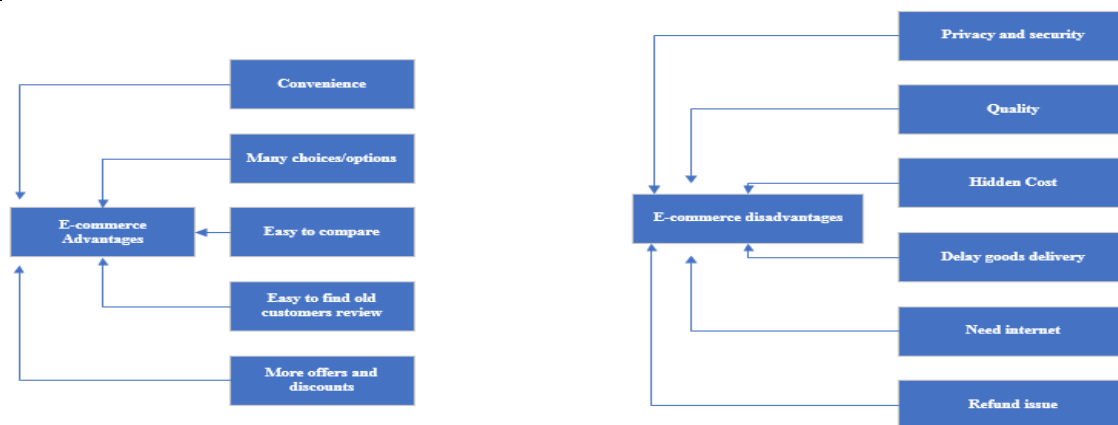
Fig. 4: Advantages and disadvantages of E-commerce

3.5 Technology and Market

Key market and technology trends that we believe will define e-commerce in near future include: Brand loyalty Price has been the dominating factor in the Indian market and the customer is not hesitant in changing brands frequently to avail the lucrative offers presented by competing brands. There is a lot that e-commerce players in India would have to do to make their customers feel special to retain them, as the loyalty erodes fast when the shopper is confronted with promotions and deals [19]. Knowing what your customers want and offering them accordingly can possibly drive this, which is possible by using big data techniques to predict consumer preference and behavior.

3.6 Logistic Shipment

Retailer's own logistics have been a major issue for online retailers in India, which leads them to build their own strategies in the absence of established systems to handle cash-on-delivery and same-day shipments. Online market leaders are choosing to build their own logistics such as Flipkart, who has launched eKart that is open to its rivals as well [20]. The Indian market is yet not comfortable to adopt payments through credit or debit cards. Cash-on-delivery accounts for up to 60 percent of transactions, according to Internet and Mobile Association of India and audit firm KPMG. Overdependence on the cash-on-delivery mode of payment remains worrisome as the transactions add about 3 percent additional costs. Also, the additional processes required for cash-on-delivery orders, longer payment cycle, higher instances of returns and associated costs are hurting margins.

3.7 Experience of Customers

Improving customer experience with varied offerings and options with the advent of technology, online retailers are devising attractive delivery options such as same-day delivery or delivery within an hour to door of consumers which gives advanced customer services [21]. To further improve customer experiences, we might also see the adoption of international practices such as digital or experiential stores and showrooms, pop-up and fulfillment stores and drones that will fascinate the Indian market. The other technologies that will affect these trends and help shape the e-commerce business include:

3.8 Applications of Big data

To gain, retain and attain more customers, online retailers would have to leverage technology to the fullest, and by developing strategies through analytics produced using big data will help in making customers feel special and increase brand loyalty [15]. With the increasing adoption and use of Smartphone's, businesses are able to collect a large amount of data on consumers, which can be further utilized to do target-based marketing and advertising.

3.9 Application of Mobile

Brands have taken the mobile advertising route and are gradually picking up. Online retailers have realized the potential increase of online shoppers through their mobile phones in future. And as consumers grow more comfortable with using mobile devices for browsing and shopping, they are now more open to getting messages from brands via their mobiles. Businesses are implementing strategies for integrating mobile into their marketing campaigns and before they do that, they will have to make efforts to optimize legacy websites for mobile in order to improve customer experience [22]. This is where the responsive design will come into play. Fixing the mobile clicks is imperative as an unresponsive design may lead to the customer abandoning the site in a few seconds causing a low conversion rate and poor return on investments.

3.10 Using Social Media

Another important consideration is the social aspect and marketers have realized its importance very well. Product and service feedback via social media channels have an impressionable effect on the minds of the larger customer base [23].

IV. ADVANTAGES OF E-COMMERCE TO CONSUMERS

4.1 Inventory Cost Minimizing

E-commerce can reduce inventory costs through just in time (JIT) system which increases firm's ability to produce and forecast demand properly. It also helps to maintain huge inventories or expensive retail showrooms through the adoption of modern IT facilities [16]. It can help to do marketing through various social marketing sites.

4.2 Providing Better Customer Service

Customer Relationship Management (CRM) is a vital part of business. If customer get more satisfaction, they will visit the business again and again. E-commerce is an approach which is able to deliver proper services to customer according their demand which increase customer satisfaction [24]. High-quality customer relationship is an important tool for retaining customers in the e-commerce environment. Customer Relationship Management Solution requires e-commerce for better business and establishing a better customer relationship. It can enhance customer loyalty which is important for the company.

4.3 Reducing Distribution Cost

E-commerce reduces distribution costs since it easily conveys message through online. It can easily explain the product feature to its customer [25]. As a result, it reduces distribution cost. It is known from so many scholarly articles that e-commerce is helpful for reducing distribution and other related costs.

4.4 Globalizing Business

Since e-commerce is based on internet, so it can reach easily to a mass customer within short time. Various social networking is using for marketing of various products under e-commerce, as a result it gains a new extent to increase its market. It helps business globalize E-commerce by minimizing costs enables companies' especially small ones to make information on its products and services available to all the potential customers spread over worldwide [26]. This is well confirmed by Amazon. Com. is founded by Jeff Bezos, the largest bookstore in the net by taking away a large amount of sales from the traditional booksellers. In India, the experience of reinfusion-on-the- net presents the similar case.

V. CHALLENGES OF E-COMMERCE

Customers consider online transactions or turnover and safety to be the second biggest challenge faced by e-commerce companies in India. Present days news about online fraud, tricky coupons, fake adds, spam e-mail and scam of credit card information being stolen has dynamic customer confidence in this system. As per present

scenario, most of the customers in India prefer to buying stuff on (COD) cash on delivery basis. Due to lack of confidence security system, most of the customer using COD service [27]. Developing Electronic Commerce solutions successfully across the Organization means building reliable, scalable systems for:

Fig. 5: Showing possible challenges of e-commerce in India

5.1 Poor Infrastructural Problems

Infrastructure is an essential part of e-commerce business. It is not possible to continue the business without a good infrastructure. The Internet is an essential tool for e-commerce infrastructure. Since e-commerce needs continuous uninterrupted internet, so it is necessary to ensure it. Infrastructure is not only essential for the trader but also essential for the buyer. The major e-commerce infrastructures are available computers, mobile and electronic devices of buyer and seller, available internet service providers and internet penetration rate, quality and speed of internet connectivity, internet security, and online payment gateway [12]. Now the traders of various part of India faces poor e-commerce infrastructure, though the penetration rate is 60% in urban areas and 20.26% in rural areas. The growth rate of penetration is increasing day by day. But the logistics and supply chain infrastructure and financial infrastructure are not up to mark for conducting e-commerce business in India.

5.2 Lack of proper Cyber Laws

Cybersecurity is a vital tool for maintaining trust in the e-commerce business. The appropriate cyber law is necessary to maintain the cyber security in the country. So, it is not possible to conduct e-commerce business smoothly without implementing timely and appropriate cyber law in India [28]. But cyberlaw is not up to mark in India, it needs reform and makes law according to the types of offense for its proper implementation.The cyber law should be standard so that individual property rights, the privacy of data and content, data protection should be reserved with its commercial and criminal areas of law.

5.3 Lack of Privacy and Security

The privacy and information of buyer and trader should be secure for maintaining a trustworthy business relation. Because sometimes data may be used by the criminal groups for hacking customer and trader's money which decrease the trust of e-commerce business [28]. Lack of privacy and security is a big challenge for e-commerce business in India. Privacy has been and continues to be a significant issue of concern for both current and prospective electronic commerce customers. With regard to web interactions and e-commerce, the following dimensions are most salient: Privacy consists of not being interfered with, having the power to exclude individual privacy is a moral right. Privacy is a desirable condition with respect to possession of information by other persons about him/herself on the observation/perceiving of him/herself by other persons. In addition to privacy concerns, other ethical issues are involved with electronic commerce. The Internet offers unprecedented ease of access to a vast array of goods and services. The rapidly expanding arena of "click and mortar and the largely unregulated cyberspace medium have however prompted concerns about both privacy and data security. Manufacturers Competing with Intermediaries Online Disintermediation, a means eliminating the intermediary such as retailers, wholesalers, outside sales reps by setting up a Website to sell directly to customers Disintermediation include (1) music being downloaded directly from producers (2) authors distributing their work from their own Web sites or through writer co-operatives. Dinosaurs - "Dinosaurs" is a term that refers to executives and college professors who refuse to recognize that technology has changed our lives. When an executive speaks in terms of the Internet being the "wave of the future".

5.4 The confidence of Customers for Payment and Tax Related Issues

Most of the people of the rural areas are not aware of the tax-related issues. As a result, it creates some problems in the e-commerce business. People are anxious about the products which are available in e-commerce business because of the price which integrated with tax [19]. Tax administration should be cooperative to put the tax in a way to avoid double taxation. Another issue is related to the payment system. People do not want to use their credit card for online payment to avoid fraudulent activities. Indian e-commerce market can easily gain success by reducing the tax on consumer goods.

5.5 Lack of Digital Illiteracy

Digital illiteracy is a top requirement for adopting e-commerce. But in India, the digital literacy rate is not satisfactory which creates a barrier for smooth development of e-commerce in India. Though e-commerce requires a group of top-level IT professional for software development. Infrastructure development, customization of software according to consumer's demand, and negotiate global level e-commerce service providers but top-level IT professionals are interested to go abroad for personal gain as a process of brain drain [29]. So, it is a major challenge for a country like India to engage his IT expert and researcher to engage spreading the e-commerce market [30]. Besides this, an e-commerce friendly curriculum is necessary to develop new professionals and spreading digital knowledge.

5.6 Virus Problem

A computer virus is a threat to e-commerce. There are thousands of viruses' manufacturer who continuously develop a various virus to steal the information of various levels of people. Indian e-commerce is not out of the influence of the harassment. A computer virus is a tough problem for execution of e-commerce in India [1]. Many buyers and traders are worried about a computer virus, as a result, their trust level on e-commerce are very low. The government should take initiative to implement the antivirus related program for the smooth running of e-commerce in India.

5.7 Localization in-terms of place and language

India is a big country in terms of population and area. So, e-commerce business in one province is not enough to deliver their product to other areas because of carrying cost, time and other related risks [31]. So, localization is necessary to deliver the product timely which can stimulate the e-commerce business easily. But unfortunately, it is not up to the mark in India. Internet-based e-commerce has besides, great advantages, posed many threats because of its being what is popularly called faceless and borderless [32].

5.8 Consumer's Perceptions

Consumer's perception is an important element for e-commerce business. E-service replacements may seem unfamiliar, artificial and non-authentic in comparison to traditional service processing methods [8]. Consumers may believe that new Internet-based processing methods expose them to new potential risks the dangers of online fraud, identity theft, and phishing swindles means schemes to steal confidential information using spoofed websites, have become commonplace, and are likely to cause alarm and fear within consumers.

5.9 Unrealistic competition

The vibrancy of the Indian startup ecosystem over the past couple of years has channeled a lot of investment into the e-commerce sector. The long-term prospects for e-commerce companies are so exciting that some investors are willing to spend irrationally high amounts of money to acquire market share today [33]. Naturally, the

Indian consumer is spoiled for choice. However, this trend has reversed as investors are getting worried about slipping further down a slippery slope. While this article focuses on e-commerce challenges in India, an intrinsically one-sided topic, it is important to note that e-commerce giants are increasingly attracted to India. Cross-border e-commerce to India is growing, and many large international players are also making a significant investment in setting up shop in India.
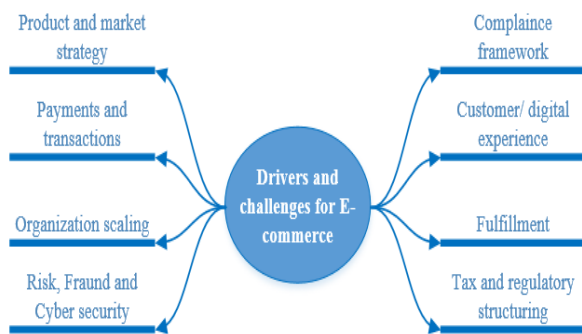

Fig. 6: Key drivers of e-commerce in India
Source: https://media.licdn.com/

Most of the companies moving towards the digitalization, it's growing rapidly an important to realize, where consumers perceive the alternative of the digitized e-service [34]. Consumers may trust that new Internet-based technology and expose them to new potential risks the dangers of the online bluff, identity theft and beside many, benefit offered by the education a number of challenges have been possess to the recent learning view. E-commerce integration assures coverage of all critical aspects of e-commerce, but it also has several obstacles. In addition to the e-commerce, many business faculty fellows may not wish to add e-commerce subject to their courses primarily because of their own lack of comfort with knowledge and technology related subject's materials to existing business, courses can overweigh faculty and students alike trying to anger with the extra subject matter in courses already moist with the required information [35]. Finally, this perspective requires a great deal of coordination during faculty and disciplines in the business trade to ensure reasonable coverage of e-commerce education.

VI. OPPORTUNITIES OF E-COMMERCE

At present e-commerce is the most preferred sector in India and it's moving towards the No. 1 destination. Due to the rising of e-commerce sector, and due to rising business, sometime customer going to disappear with the service, and as well as e-commerce sector become the highly employable sector [18]. Through the e-commerce

platform, the customer can get our daily needs solution under one roof. It's maybe domestic or global product [22].

6.1 Strategies for growth

The growth rate of e-commerce in India is mentionable and higher than other countries. In terms of e-commerce it places the third position in the world but due to lack of proper IT infrastructure, logistic support and financial infrastructure it faces challenges for its development [19]. The smartphone user and internet subscriber in India are growing rapidly which stimulates the e-commerce growth in India. Now e-commerce traders provide a wide range of services from daily necessities to logistics which help them to spread the e-commerce business all over in India.

6.2 Low inventory cost

Inventory cost is an important element for maintain business. E-commerce traders are getting benefit for reducing their inventory cost due to living as a big country like India. It helps them to minimize the cost by storing the product at any places in India. It also provides a big opportunity for e-commerce traders to provide just-in-time (JIT) services and forecast the demand of the product more accurately [36].

6.3 Better customer service

E-commerce is a best approach to provide maximum level customer services in terms of low cost, quality products, and just in time. Customer satisfaction is an asset for businessman to increase their business growth. Best level customer satisfaction can be given by e-commerce business. In this business, both traders and customers get benefit from it. It is an alternative system of traditional business which provides an opportunity to deal their business from distant places and without physical interaction by saving money, cost and minimizing risk.

6.4 Reducing distribution costs

Since e-commerce is based on virtual market i.e. internet, so it reduces distribution cost and time by providing just-in-time (JIT) services. It is a great opportunity for buyer and sellers to deal their business by sitting their own places. It helps to avoid all kinds of risk. Generally traditional business requires a mentionable amount for its distribution cost but e-commerce is an alternative system of traditional business which helps to reduce distribution cost and easily spread the business all over the country and sometimes out of the boundary of the country.

6.5 Globalizing business

E-commerce is a business platform which can provide the same kind of services to its customer crossing the country's boundary [7]. The people can easily buy products from an online shop which is situated within the country or from abroad by online payment through debit or credit card, m-cash and other related methods. It also helps to market the products easily to mass people over

the world within a short time. India is a country which is favorable for globalizing the e-commerce business as well as crores of Indian people.

6.6 Quick marketing of products

Since e-commerce is mainly based on internet and connected with the virtual arena, so it is a big opportunity for e-commerce trader to do marketing to a large number of people through various social networking site and websites. It is a platform to explain all details about the product to its consumers [37]. E-commerce is providing a complete solution for purchasing the products from online and pay online by avoiding so many types of hassle and risk. It provides an opportunity to reach the product information to people of the domestic country as well as abroad within a short time.

6.7 Integration of E-commerce

Integration among various stakeholders is an essential tool for making the business easily. E-commerce business is usually connected to the other service providers like internet service provider, government agency, commercial bank, the central bank, payment gateway, businessman, and business cooperative society for maintaining the smooth running of e-commerce business [38]. Coordination is necessary among all stakeholders. Integration should be done by including e-commerce in the academic syllabus, including latest business-related technology to e-commerce, coordination among e-commerce businessman, university professors, expert, IT experts and government agency for proper implementation and enhancement of e-commerce in India.

VII. CONCLUSION

E-commerce as an alternative marketing channel is making slow but steady progress in India. With the spread of education and increasing number of people becoming technology friendly, they are slowly gaining confidence in online services. Infrastructural bottlenecks, economic disparity, vulnerabilities of the payment gateway systems, inadequate legal framework are challenges that need to be addressed by all stakeholders to promote e-commerce in the country.

REFERENCES

[1] E. H. Kaur and D. Kaur, "E-Commerce in India – Challenges and Prospects Abstract :," *Int. J. Eng. Tech.*, vol. 1, no. 2, pp. 36–40, 2015.

[2] M. Rahman, N. K. Saha, M. N. I. Sarker, A. Sultana, and A. S. Prodhan, "Problems and Prospects of Electronic Banking in Bangladesh: A Case Study on Dutch-Bangla Bank Limited," *Am. J. Oper. Manag. Inf. Syst.*, vol. 2, no. 1, pp. 42–53, 2017.

[3] M. N. I. Sarker, S. Islam, and M. Rahman, "Effects of electronic banking on performance of banks in Bangladesh," *Int. J. Appl. Res. Int. J. Appl. Res. J.*, vol. 1, no. 1, pp. 28–34, 2015.

[4] M. N. I. Sarker, "Role of Banks on Agricultural Development in Bangladesh," *Int. J. Ecol. Dev. Res.*, vol. 1, no. 1, pp. 10–15, 2016.

[5] M. Sowder, "Challenges and Opportunities of e-commerce," *Int. J. Mark. Financ. Serv. Manag. Res.*, vol. 1, no. May, pp. 98–108, 2005.

[6] Chaithralaxmi.T and Shruthi. N, "E-Commerce in India – Opportunities and Challenges," *Int. J. Latest Trends Eng. Technol.*, no. special issue, pp. 505–510, 2016.

[7] Á. Valarezo, T. Pérez-Amaral, T. Garín-Muñoz, I. Herguera García, and R. López, "Drivers and barriers to cross-border e-commerce: Evidence from Spanish individual behavior," *Telecomm. Policy*, no. December 2017, pp. 1–10, 2018.

[8] D. P. Devaraju, "The Challenges and Opportunities of E-Commerce in India: Future Prospective," *Int. J. Eng. Comput. Sci.*, vol. 5, no. 11, pp. 19065–19069, 2016.

[9] R. M. Sarode, "Future of E-Commerce in India Challenges & Opportunities," *Int. J. Appl. Res.*, vol. 1, no. 4, pp. 646–650, 2015.

[10] R. Sharma, "Challenges and Opportunities of E-Commerce and Its Role in Management Education in India," *Int. J. Curr. Trends Eng. Technol.*, vol. I, no. I, pp. 23–26, 2014.

[11] M. N. I. Sarker, Y. Bingxin, A. Sultana, and A. S. Prodhan, "Problems and challenges of public administration in Bangladesh: pathway to sustainable development," *Int. J. Public Adm. Policy Res.*, vol. 3, no. 1, pp. 16–25, 2017.

[12] N. Hajli and M. S. Featherman, "Social commerce and new development in e-commerce technologies," *Int. J. Inf. Manage.*, vol. 37, no. 3, pp. 177–178, 2017.

[13] A. D. Rillo and V. dela Cruz, "The Development Dimension of E-Commerce in Asia: Opportunities and Challenges," *Asian Dev. Bank Inst.*, vol. 2, 2016.

[14] TRAI, "Telecom Subscription Data as on 30th June, 2017," New Delhi, India, Press Release No. 60/2017, 2017.

[15] P. J. Wu and K. C. Lin, "Unstructured big data analytics for retrieving e-commerce logistics knowledge," *Telemat. Informatics*, vol. 35, no. 1, pp. 237–244, 2018.

[16] F. Biagi and M. Falk, "The impact of ICT and e-commerce on employment in Europe," *J. Policy Model.*, vol. 39, no. 1, pp. 1–18, 2017.

[17] M. Mohiuddin, "Overview the E-Commerce in Bangladesh," *IOSR J. Bus. Manag. Ver. II*, vol. 16, no. 7, pp. 2319–7668, 2014.

[18] Z. Yang, Y. Shi, and H. Yan, "Analysis on pure e-commerce congestion effect, productivity effect and profitability in China," *Socioecon. Plann. Sci.*, vol. 57, pp. 35–49, 2017.

[19] M. Klumpp and A. Jasper, "Success Factors for Retail Logistics in an E-Commerce-Environment," *Sinoeuropean Eng. Res. ...*, 2008.

[20] Y. Yu, X. Wang, R. Y. Zhong, and G. Q. Huang, "E-commerce Logistics in Supply Chain Management: Practice Perspective," *Procedia CIRP*, vol. 52, pp. 179–185, 2016.

[21] C. E. Franco and R. S. Bulomine, "Advantages And Challenges Of E-commerce Customers And Businesses: In Indian Perspective," *Int. J. Res. - Granthaalayah*, vol. 4, no. 3, p. 7, 2016.

[22] M. B. Ribadu and W. N. Wan Ab. Rahman, "An integrated approach towards Sharia compliance E-commerce trust," *Appl. Comput. Informatics*, 2017.

[23] C. Y. Li and Y. C. Ku, "The power of a thumbs-up: Will e-commerce switch to social commerce?," *Inf. Manag.*, vol. 55, no. 3, pp. 340–357, 2017.

[24] T. M. Nisar and G. Prabhakar, "Journal of Retailing and Consumer Services What factors determine e-satisfaction and consumer spending in e-commerce retailing?," *J. Retail. Consum. Serv.*, vol. 39, no. August, pp. 135–144, 2017.

[25] H. Kong and T. D. Council, "E-commerce : Challenges and Opportunities for Exporters," pp. 1–6, 2017.

[26] E. Gomez-Herrera, B. Martens, and G. Turlea, "The drivers and impediments for cross-border e-commerce in the EU," *Inf. Econ. Policy*, vol. 28, no. 1, pp. 83–96, 2014.

[27] N. A. Reddy and B. R. Divekar, "A Study of Challenges Faced By E-commerce Companies in India and Methods Employed to Overcome Them," *Procedia Econ. Financ.*, vol. 11, no. 14, pp. 553–560, 2014.

[28] G. Michael, A. R. Arunachalam, and S. Srigowthem, "ECOMMERCE TRANSACTION SECURITY CHALLENGES AND PREVENTION METHODS-NEW APPROACH," *Int. J. Pure Appl. Math.*, vol. 116, no. 13, pp. 285–289, 2017.

[29] M. N. I. Sarker, A. Sultana, and A. S. Prodhan, "Financial Performance Analysis of Islamic Bank in Bangladesh: A Case Study on Al-Arafah Islami Bank Limited," *World J. Econ. Financ.*, vol. 3, no. 1, pp. 52–60, 2017.

[30] M. N. I. Sarker and Z. Jie, "Social Security for Vulnerable Groups in Bangladesh on Government Perspective : Contribution of Research Leader," *J. Public Policy Adm.*, vol. 1, no. 1, pp. 1–9, 2017.

[31] M. N. I. Sarker and M. H. Rashid, "An Impact of Banking Activities of Private Commercial Islamic Bank to Economic Development in Bangladesh: A Case Study on First Security Islami Bank Limited (FSIBL)," *J. Invest. Manag.*, vol. 4, no. 5, pp. 264–272, 2015.

[32] M. A. Islam, M. N. I. Sarker, M. Rahman, A. Sultana, and A. S. Prodhan, "Determinants of Profitability of Commercial Banks in Bangladesh," *Int. J. Bank. Financ. Law*, vol. 1, no. 1, pp. 1–11, 2017.

[33] M. T. Ballestar, P. Grau-Carles, and J. Sainz, "Customer segmentation in e-commerce: Applications to the cashback business model," *J. Bus. Res.*, no. November, pp. 0–1, 2017.

[34] R. D. Anvari and D. Norouzi, "The impact of e-commerce and R&D on economic development in some selected countries," *Procedia - Soc. Behav. Sci.*, vol. 229, pp. 354–362, 2016.

[35] R. Rahayu and J. Day, "Determinant Factors of E-commerce Adoption by SMEs in Developing Country: Evidence from Indonesia," *Procedia - Soc. Behav. Sci.*, vol. 195, pp. 142–150, 2015.

[36] M. Cui, S. L. Pan, S. Newell, and L. Cui, "Strategy, Resource Orchestration and E-commerce Enabled Social Innovation in Rural China," *J. Strateg. Inf. Syst.*, vol. 26, no. 1, pp. 3–21, 2017.

[37] Z. Yang, Y. Shi, and H. Yan, "Scale, congestion, efficiency and effectiveness in e-commerce firms," *Electron. Commer. Res. Appl.*, vol. 20, pp. 171–182, 2016.

[38] Z. Huang and M. Benyoucef, "From e-commerce to social commerce: A close look at design features," *Electron. Commer. Res. Appl.*, vol. 12, no. 4, pp. 246–259, 2013.