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Abstract

This article aims to analyse various socio-cultural factors such as urban-rural digital divide, regional languages, customs, geographical locations and transport and logistics that affect the development of the electronic commerce in India vis-à-vis the global scenario. During the last decade, the internet and mobile services have seen a phenomenal growth, both horizontal as well as vertical. The penetration ratio of the broadband in homes in India is fast increasing. The scenario of electronic commerce in India presents a study in contrast due to approximately 69 per cent population living in the villages. However, the segment of the population living in metros and sub-metros is also quite large and affluent and surpasses the total e-commerce markets of many developed countries. Due to this reason, the online shopping in India is catching up. Nevertheless, there are different driving forces as well as barriers which have been identified. The most important driving force for e-shopping is time saving while the most prominent barrier is the doubt about the quality of the product. Insecurity of the electronic transaction is also an important inhibitor. With the current security steps being taken by the government of India and also at the technological level, it is hoped that these fears would be allayed and prospects of e-commerce in India appear to be bright.

Keywords: E-commerce, India, internet, broadband, mobile, motivators, inhibitors

Introduction

The advent of the electronic tele-communications technology, named as Internet, gave birth to a new method of trading known as Electronic commerce or e-commerce. In this system of trading, there is no person to person interaction between the seller and the buyer or the payer and the payee or the businessman and the customer. All these activities are carried out through the electronic medium, i.e. Internet. Thus, e-commerce can be defined as *"the use of the Internet and other networking technologies for conducting business transactions* (Turban et al. 2006). It is obvious that the extent of Internet diffusion in a country will have a direct bearing on the growth of the e-marketing there.
Depending upon the parties involved in e-commerce, it has been classified into five categories: business to business (B2B), business to consumer (B2C), consumer to business (C2B), consumer to consumer (or citizen to citizen) (C2C), and business to government (B2G) e-commerce (Bhasker, 2009). The B2B e-commerce includes all inter-organizational business transactions, while the dealings between the business houses and the consumers fall under the B2C category. Consumers can browse the websites of the sellers (business organizations) and select and buy the merchandise online. On the other hand, C2B is a business model in which consumers, i.e. individuals, can advertise their products or services online and the companies purchase them (The C2B Revolution 2005). Online advertising sites such as Google Adsense, Commission Junction and Amazon offer the opportunity for C2B e-commerce. C2C involves transactions between the consumers, i.e. individuals, facilitated by a third party, which makes its website available for this purpose and charges a fee or commission. In this mode, a

consumer posts an item for sale on a website offered by a third party, and other consumers bid to purchase it. The third party, however, does not take the responsibility of the quality of the product. EBay and Craigslist are the examples of this type of e-commerce. B2G is generally defined as the business between the companies and the public sector (Andam, 2003). It involves the use of the Internet for public procurement, licensing procedures, and other government-related operations. It may be added that application of the Internet within an organization for streamlining processes, reducing friction, and reducing internal overhead costs is sometimes referred to as business to employee (B2E) application (Bhasker, 2009). During the last few years, with the advent of the 3G mobile phones, another type of e-commerce has come in practice which has been named as mobile commerce (m-commerce). It involves buying or selling of goods or services through wireless technology, i.e. handheld devices such as cellular phones or personal digital assistance.

According to the India Country Overview-September 2011 published by the World Bank (World Bank 2011), "with a population of over 1.2 billion, it is the largest democracy. During the past decade, it has witnessed fast economic growth emerging as a global player with the world's fourth largest economy in purchasing power parity terms and made progress towards achieving most of the Millennium Development Goals". Even during the worst global economic recession, India could sustain GDP at approximately 6%. It has set a goal of 7.8% GDP growth for the period of 2010-2014. However, poverty remains a major challenge and according to official estimates for 2009-10, the combined all India poverty rate was 32% compared to 37% in 2004-05 (World Bank, 2011). According to the Global Competitive Report 2011-2012 (Schwab 2011), although the overall index (GCI) of India is 56 (five down from the year 2010-11), in certain sectors, it is far ahead of even developed economies. Being the second most populous country of the world, it derives substantial advantage from its huge consumer market size (ranked 3rd) that allows economies of scale and attracts investments. It has reasonably good and well-developed financial markets that can channel financial resources to good use (Schwab, 2011). India hosts some good educational institutions and a number of India corporate giants have attained the status of major global players. It has acquired a leadership role in the software production industry and is one of the most preferred destinations for the BPO services. Although the penetration rates for the mobile telephony and the Internet have increased appreciably during the last decade, there remains still much to be done in these areas. In spite of the many vibrant and thriving information communications technology (ICT) clusters in India, there exists still a wide digital gap between the rural and the urban India. The chaotic transport conditions, particularly in the metro cities, continue to torment the traditional type of shoppers, which is expected to contribute indirectly to the rise of the e-commerce in future. Recently, some cases of swindling through the unscrupulous use of the credit card numbers and e-banking have caused setbacks to e-commerce, but at the same time, it has motivated the government to bring more stringent legislations and devise fool proof methods for the use of the paperless currency to safeguard the interests of the consumers.

It is intended to analyse all these issues in this article to get a perception of the scenario of e-commerce that is likely to emerge in India in the coming years.

Methodology

Most of the data for this study have been obtained from the open source websites of the relevant organizations, such as UNCTAD, World Bank, Broadband Commission, Tele-communications Regulatory Authority of India (TRAI), different ministries of government of India, International Telecommunication Union and Forrester. It was not necessary to conduct personal interviews, for this study, because organizations themselves, if necessary, did these exercises. The approach adopted in this analysis is similar to the data collection methods that are commonly followed by the researchers by examining public documents such as annual reports.

Results and analysis

While Internet provides the interaction medium for carrying out various e-commerce activities, there are many social factors that influence the extent of its intensity and scope. Some of these factors may be country specific and in the context of India, it includes urban - rural digital divide, regional languages and customs, geographical locations, transport and logistics, etc. It is necessary to analyze all these aspects to arrive at the conclusion, what type of scenario of the e-commerce is likely to emerge in future in India.

Internet and E-commerce

Internet facilitates e-commerce broadly in three manners (Opplinger, 1998; Moorthy & Karisiddappa, 1998):

(i) It provides a very large customer base and reaches across borders of a maximum number of countries.

(ii) The maintenance of a website is cheap and involves reduced overhead expenses resulting in lower prices, makes more competitive, facilitates instant updation, access and sales (i.e. it results in 'zero time lag' between advertising and sales), and

(iii) It caters to the customer's wide and varied interests, thus saving the time taken for travelling between different places (although physically seeing may help choose quality item).

According to the Information Economy Report-2011 (UNCTAD, 2011), "at the end of 2010, there were estimated 2 billion Internet users which is about 30 per cent of the world population. In spite of this, there continues to be a big gulf between the developed economies and the developing economies. In the developed economies, about 75% of the population uses Internet, whereas in the developing economies such as India, this figure is only about 24 per cent".

Broadband ushered in the second generation revolution in ICT. Recognizing the important role of broadband in the speedy use of ICT in economic growth, the governments, particularly in the developed countries, have taken action for the effective use of broadband. At the end of 2010, it is estimated that there were 527 million fixed broadband users worldwide (UNCTAD, 2011). However, it is also characterized by a huge gap, not only in the basic connectivity but also in the download speeds, between the developed and the developing economies. According to a Report by the Broadband Commission (Broadband Commission, 2010), against 24.6 subscriptions per 100 inhabitants in the developed economies, there were only 4.4 subscribers per 100 inhabitants in the developing economies. In its press release, Broadband Commission outlined its targets for 2015 including (i) making broadband policy universal, (ii) making broadband affordable, (iii) 40% homes in the developing countries should have access to broadband and (iv) Internet penetration should reach 60% worldwide, 50% in developing countries and 15% in Least Developed Countries (LDCs) (Broadband Commission, 2011).

There is another factor that must be taken into account. The methods for accessing Internet are shifting fast from the fixed computer to the mobile devices. The devices such as "Smart phones" and iPad have brought about the 3rd generation revolution. It is expected that sales of iPad, launched in April 2010 will exceed 200 million units by 2014 (UNCTAD, 2011). The global mobile penetration was estimated to be 79 subscriptions per 100 inhabitants up from 69 the year before. According to International Telecommunication Union (ITU, 2011), there were 5.9 billion subscribers of mobile phones worldwide, the global penetration rate and the penetration rate in the developing world being 87% and 79% respectively. Mobile phones are now increasingly used for accessing Internet. Mobile-broadband subscriptions have grown 45% annually over the last four years and today, there are twice as many mobile-broadband users as the fixed subscriptions (ITU, 2011). Against the estimated average of worldwide mobile-broadband subscription of 13.6 per 100 inhabitants, it was 5.4 in the developing countries at the end of 2010 (Broadband Commission, 2011). The new uses of the mobile phones such as accessing Internet and mobile money by the enterprises help raise productivity reduce information search and communication costs through better price

information. Furthermore, it reduces the need for travel and thereby lowers the transportation costs (UNCTAD, 2010).

The usage of the Internet is though a prerequisite for e-shopping; the two do not have a linear relationship. An e-browsing does not convert necessarily into e-shopping (Kaufmann-Scarborough and Lindquist 2002).

India and internet

Various stages of the development of Internet in India have been analyzed in detail (Wolcott & Goodman, 2003) and it has been commented, "Indian experience provides an excellent illustration of how fundamental, focused changes in policy and legislations can unleash forces that can accelerate Internet diffusion".

The real breakthrough in the expansion, horizontal as well as vertical, of the Internet services in India started after the establishment of the Telecom Regulatory Authority of India (TRAI) in the year 1997 by an act of Indian Parliament and opening of the Internet services to the private sector. The Internet services in India were launched on 15th August 1997 and in November, 1998; the telecom services were opened to the private sector. After overcoming the initial hiccups, TRAI ushered in a new era of telecom revolution by adopting two pronged strategy - expanding its own subscriber base and network and initiating an intense competition between the government internet providing agency (Bharat Sanchar Nigam Limited, i.e BSNL) and a number of private agencies, resulting in lowering of the tariff, which is now second lowest (US $ 1.6 per month) in the world after Bangladesh (TRAI 2012). The Indian consumer has immensely benefitted from low tariffs, which has been a major factor in the explosive growth of the Internet and mobile phone services in the last few years.

According to the TRAI report (TRAI 2012), at the end of 2010, India ranked fourth amongst Internet users in the world accounting for 4.56 percent of the total Internet users. There was growth of 32.27 percent in the number of Internet users during 2000 – 2010 against the world average of 17.46 per cent. However in terms of Internet users per 100 people, India's position is quite low (143rd out of 186) with only 7.5 per 100 people using Internet against the world average of 30.48. Furthermore, in terms of the people having fixed Internet connection, India ranked 7th highest out of 214 countries at the end of 2010. The number of Internet subscribers per 100 people was 1.53 as compared to the world average of 7.73.

The Broadband connection in India came in force in the year 2004. As per the data made available by TRAI, there were 13.42 million broadband subscribers till February 2012. As of Dec. 2011, broadband subscription was 59.6 per cent of the total internet subscription (TRAI, 2012). It is obvious that in terms of subscriptions per 100 inhabitants this figure is dismally low. Actually, lack of accessibility, lack of information, illiteracy, inconsistent power supply, and high maintenance cost of the PCs have been identified as some of the major reasons for this scenario (Veeraraghavan *et al*., 2009).

During the last four years, in India, as in the whole world, the popularity of accessing broadband via mobile devices has increased phenomenally. There were 431.37 million wireless subscribers at the end of 2011. Accessing broadband via mobile devices registered a Compound Annual Growth Rate (CAGR) of 93.1 per cent between March 2007 and Dec. 2011 (Figure 1) (TRAI, 2012).

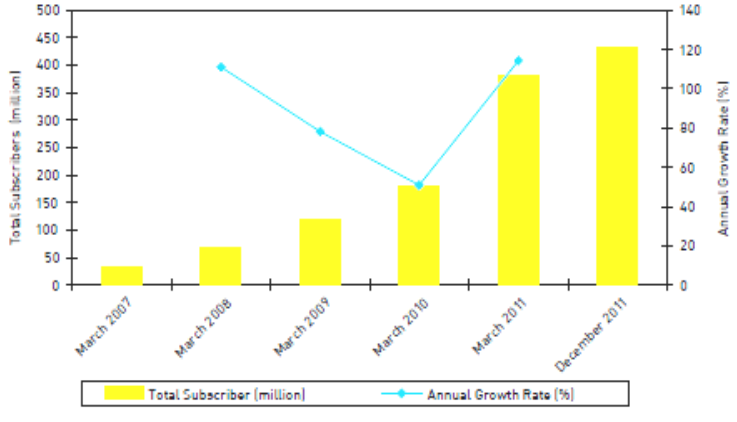

Figure 1: Growth of wireless subscribers in India capable of accessing Internet between March 2007 and Dec. 2011.
Source: *www.trai.gov.in*

Furthermore, under the Universal Service Obligations (USO) (Department of Telecommunications, 2002), TRAI is coordinating concerted efforts for the creation of infrastructure for the mobile services in the rural and remote areas and also extending Broadband connectivity to the villages in a phased manner. It has been realized that, since the tele-density is interlinked with the level of development, the large rural-urban digital gap will not be sustainable.

It is obvious from the above description that the Information and Communications Technology (ICT) scenario in India is changing fast.

India and E-commerce

Let us first try to analyse the conditions conducive to a healthy growth of e-commerce vis-à-vis India. For a successful e-business model, some identified ideal conditions (Weill & Vitale, 2001) that are prevalent in the developed countries are:

- A convenient and inexpensive access to the Internet.
- The possibility of comparing the features and prices of a particular consumer product due to the presence of a large number of online vendors.
- Security for payment through electronic device.
- Speedy delivery of purchased goods.
- Possibility of a refund or adjustment against another purchase, if the buyer is not satisfied.
- A transparent and comprehensive legal framework to resolve the disputes, if any.

As mentioned earlier, Internet tariffs in India are now second lowest in the world.

There are now websites which guide the prospective customer to access a number of websites in a particular category. For example, bestindiansites.com (Best Indiansites, 2012) offers an online guide to around 480 plus categories, such as sports, insurance, finance, travel, art & culture, etc. Under each category, the websites are categorized as "Top 10" and "Top 50". Thus now Indian customer has the possibility of browsing a number of sites for selecting a proper product of his choice.

Security of payment through electronic device still remains a big concern in India. Surveys about the payment methods for the online shopping reveal that the buyer in India shows inhibition in using credit cards due to the risk of online frauds. In the past, there have been some incidents of misuse of credit card numbers by some unscrupulous people (The Economic Times, 2010; The Times of India, 2012). Due to this reason, in contrast to the U.S. and European countries, in India, credit cards and debit cards have not become so popular. In India, the number of credit card holders dipped in 2011 (21%) as compared to in 2010 (23%) (The Economic Times 2012). In the developed countries, the use of mobile money, i.e. paying through mobile phone is catching up. In accordance with this, My Mobile Payments Ltd. (MMPL) has launched its M-wallet service for the Indian users, called Money-on-Mobile (Money N Mobile 2010). It may induce confidence in the Indian e-shoppers. Furthermore, the stake-holders, particularly the business houses, governments and the software companies are also taking corrective measures. At the international level also, attempts are being made to foolproof the transmission of the payment details over the networks. Secure Electronic Transaction (SET) initiative is backed by Visa and Master Cards with giants like Microsoft, IBM, Netscape Communications, etc. for developing new technologies for the purpose.

As far as logistics are concerned, in India still most of the small towns are not covered by courier and logistic companies, although the inhabitants of these places are tempted to adopt e-commerce as most of the products easily accessible through e-shopping are not physically available at their places. Keeping this in view, some companies like Flipkart.com are launching

their own delivery system to cover remote places in India (Flipkart.com 2007–2012). Furthermore, logistic service providers like Aramex (Aramex, 2012) and Chhotu.in (Chhotu.in 2012) are making their services available in delivering the products to Indian e-shoppers (Chaturvedi, 2012).

As regards the refund or adjustment if the customer is not satisfied, people have different experiences (Vadlamani, 2012). Overall the situation is not as good as in US and European countries. But the online vendors are realizing that their business will not pick up unless they adopt fair practices.

Regarding the legal system for resolving a dispute arising out of the electronic transactions, India has been one of the first few countries which acted to frame laws to curb the cybercrimes. Indian Parliament passed the Information Technology Act 2000 in May 2000, which became operative in October, 2000 after President's assent (Basu & Jones, 2003; Knowledge. emory 2000; Duggal, 2012).The essence of the Act is evident from its long title: *"An Act to provide for the legal recognition of transactions carried out by alternatives to paper based methods of communication and storage of information*.." Subsequently, an Information Technology Amendment Bill 2006 has been passed by the lower house of the Indian Parliament (EFY Times, 2008), but its final approval is still pending.

The scenario of e-commerce in India presents a study in contrast. On the one hand, 69% per cent population lives in the villages where Internet penetration is very low. Even if Internet access increases in the coming years, the poverty, illiteracy and very modest consumer needs are the other important consumer impediments in the development of e-commerce in this segment of the population. On the other hand, in metros and sub-metros, a large section of affluent upper middle class has emerged, which has means to splurge, but is hard pressed for time due to professional and other preoccupations. Actually, this section of the Indian society is mainly contributing to the growth of B2C e-commerce in India and the e-business houses are also wisely concentrating on this segment. Due to huge total population (> 1.2 billion) of India, even this segment of the middle class constitutes a large number and provides a consumer market that surpasses total consumer markets of many developed countries. Thus, it will be appropriate to analyze the attitude and impulses of this section for understanding the growth pattern of e-commerce in India.

According to a recent report (comScore, 2011), online shopping in India has touched a growth rate of 18 per cent and will go further. As per the latest research by Forrester (Wigder et al., 2012), India is poised to grow the fastest within Asia-Pacific region at a CAGR of more than 57% during 2012-2016. The e-commerce sales in India will exceed US$ 1billion for the first time this year and reach $ 8.8 billion by 2016. (Wigder *et al.*, 2012). According to another research report (Research and Markets 2012), e-commerce industry in India is expected to grow at a CAGR of 40% from US $ 5.9 billion in 2010 to US $ 34.2 billion in 2015.

Triggers and barriers

In a survey conducted by the Internet and Mobile Association of India (IAMAI) and IMRB International (IMRB 2006/07), *Triggers* and *Barriers* have been identified which affect e-commerce in India. Triggers support the e-commerce while barriers hamper it. As per this report, the foremost reason for online shopping is that it saves time and efforts. It is followed successively by convenience of shopping at home, availability of wide variety of products, good discounts, access to the detailed information about the product and possibility of comparison of various models/brands. In coming years with the increasing pressure of vehicles on the roads of metros, driving will become more strenuous and health hazard and it will be more difficult to find the parking place for the traditional shopping [Pucher *et al.*, 2004; Singh, 2005; Tiwari, 2003]. These factors are expected to drive more customers to the online shopping.

As there is no space constraint on online stores, a wide variety of the products can be displayed and online customers have an opportunity of wider choice. On the other hand, real-estate prices have already sky-rocketed in the metros of India, which puts constraints on the brick and mortar stores.

Online businesses save much overhead expenses and are in a position to offer attractive deals to the customers.

As regards the *barriers* to the e-shopping (IMRB 2006/07), the most important reason is the sense of insecurity about the quality of the product, which is followed by the absence of the possibility of bargaining/negotiations. Furthermore, in online shopping, touch-feel-try factor is missing. Other important inhibitions for e-shopping are the absence of significant discounts and a long wait for the delivery.

In India, shopping is is often mixed with entertainment and it is considered an opportunity to get a break from the household chores. Indian buyer traditionally enjoys doing bargaining, negotiations, touch-feel-try, etc. Indian woman feels a sort of thrill in trying "saree" on her and then getting it approved by the fellow shoppers. All these experiences are missing in online shopping.

It will be interesting to mention briefly the results of another comprehensive survey conducted by Internet & Online Association of India (IOAI, 1999) about the online shoppers in India. Fifty-five percent of the visitors to e-commerce sites have adopted the Internet as a shopping medium. Highest percentage (46%) of the online shoppers fall in the age group of 26-35 years. As regards the educational background, 83 percent of the online shoppers are graduates or postgraduates. Thus e-commerce addresses mainly the educated class. In India, the highest percentage of the online shoppers is in Maharashtra (29 percent); of these, 24 per cent come from Mumbai alone. Of the products purchased online, books constitute 41 percent, followed by electronic gadgets, 40 percent. Surprisingly, the percentage of the sports goods is lowest (7%). According to this study, following are the top five reasons of the online shopping:

70%	Home delivery
62%	Time saving
60%	24 x 7, i.e. possibility of 24 hours shopping
45%	Ease-of-use
39%	More products comparison

Some successful e-commerce enterprises in India

According to a study by web shopping firm eBay India (eBay India Census, 2011), there are 3,311 e-commerce hubs in India. The five key trends identified in 2011 and beyond are i) women are fast becoming e-shoppers, ii) savvy online shoppers are buying increasingly fashion items and gadgets, iii) Rural India and 2nd and 3rd tier towns are firmly on e-commerce map, key driver being the access to the products that are not physically available at their places, iv) consumers are increasingly accessing Internet on their mobile and v) Indian sellers are really entrepreneurial and are increasingly exporting handicraft items.

The success of the government owned IRCTC website (see below) for online train ticketing is just one of the cases in point that give a glimpse of the potential of e-commerce in India.

In two sectors, namely travel and matrimony, e-commerce has become very popular and it has percolated even to the lower strata of the Indian society. Now let us examine the success stories of a few popular e-commerce sectors in India.

Online tours and travels

In India, Air Deccan for the first time took a cue from the low cost Ryan Airlines and introduced the online sale of air tickets starting from Re.1. Sometimes, the airfare between major Indian cities was less than or comparable to the train fare. It became a roaring success as it provided the opportunity to many people of the lower middle class of fulfilling their dream of sitting in an aero plane. Soon the other airlines also fell in line. Then the tour operators started offering online tour packages, both domestic as well as international, by combining air travel with hotel accommodation and sight- seeing. Over the years, this sector has become very popular among the Indian middle class and the facility of “leave travel scheme” offered by the Central government and many State governments to their employees also contributed to the success of these travel & tour packages. It is estimated that a total annual turnover of this sector is around 1200 billion US $ with a growth rate of more than 100 per cent.

Online ticket booking by Indian railways
Indian Railways (IR), the premier transport organization of the country, is the longest network in Asia (108,706 km) and the world's second longest. It runs 7,000 passenger trains every day and 13 million passengers travel daily (IR 2011). In the year 2001, IR formed Indian Railway Catering & Tourism Corporation (IRCTC) and launched its website to sell railway tickets online (IR, 2001). It was a straight away success. As per the figures available for 2006, it was selling 13,000 tickets per day online and within 3 years its database had 1.3 million registered travelers (IR 2008). The IRCTC later allowed travel agents to trade in the railway tickets on a nominal charge and it is growing at a rate of 200% per cent per year. According to a press release (IR, 2008), there were 16,000 agents selling online tickets that totaled 1,00,000 (1,80,000 passengers) in a day with a target of 3,00,000 passengers per day by the year 2009.

Matrimony portals
As mentioned earlier, these portals have become very popular in Indian society as they offer services relevant to the Indian traditions. On these websites, depending on one's requirement, matches can be searched in specific religions, castes, professions, etc. Besides, allied services such as astrological compatibility of the matches, legal issues, and secret services for investigating the backgrounds of the prospective matches, wedding arrangements, etc. are also offered.

Employment portals
These websites are helpful to the job seekers. The service is normally free to the persons who seek job, but the websites charge from the employers.

Stocks and shares
During the last few years, several stock brokers have made these services available to the potential investors.

Gifts
After tours and travels, the websites offering a variety of gifts including bouquets are very popular. The sellers make arrangements, if wished, for the delivery of the gifts for specific purposes and on specific occasions.

In summary, e-commerce is fast becoming a part of the urban life in India also. The government has realized that ignoring e-commerce would be as good as ignoring the World Trade Organization. E-commerce is the wave of the future and a country like India, which aspires to become a world economic power, cannot afford to ignore it. Though started late, it is gathering momentum very fast. As per the Foreign Trade Policy 2009-14 announced on Aug. 27, 2009, Ministry of Commerce, Government of India has initiated an e-Trade project (Government of India, 2009). The objectives of this project are to facilitate electronic delivery of services, to simplify procedures, to provide 24 hour access to the users with their partners, to make procedure transparent, to reduce the transactions cost and time and to introduce international standards and best practices.

Conclusion

During the last decade, the scenario of e-commerce in India has undergone sea-change. Discarding its shyness and inhibitions, Indian society, particularly in metros and sub-metros, is accepting the e-shopping as a part of their daily life. In future, several factors, such as increasing pressure of vehicles on the roads and migration of the rural population to the urban cities, increased penetration of broadband in homes would drive large number of people to the Internet shopping; devising and implementing more secure methods of the electronic payment would help allay the apprehensions of the e-shoppers and inculcate confidence in them. Thus, the prospects of the development of e-commerce in India appear to be bright with great promise, both for the shoppers as well as the sellers.

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