

## **Barriers to Adopting E-business in SMEs in India: An Exploratory Study**

**Dr. Pooja Sharma**

*Assistant Professor in Commerce  
Government College, Panchkula (Haryana), India  
[poojavats@gmail.com](mailto:poojavats@gmail.com)*

### **Abstract**

The use of E-business in Small and Medium-sized Enterprises (SMEs) has been recently received an enormous attention in information systems research by both academic and practitioners. E-commerce has been empowering the small industry at a great speed and is becoming a widely spread opportunity for them to avail with the adoption of new and efficient technologies to enhance businesses; Indian SMEs should be able to compete worldwide. Due to limited research conducted in developing countries, our understanding of the nature and importance of barriers inhibiting E-commerce (EC) adoption among the small and medium-sized enterprises (SMEs) has been fragmented and incomplete. This paper aims at examining the main facilitators and barriers to the adoption of E-business technologies by the SMEs.

**Keywords:** E-business, SMEs, ICT.

### **I. INTRODUCTION**

Small and Medium Enterprises play a very important role in country's economic and industrial development. The importance of small –scale enterprises has been a global phenomenon encompassing both the developed and the developing countries. They have been providing immediate large-scale employment, offering a method of ensuring more equitable distribution of national income, facilitating an effective mobilisation of resources of capital and skill which might otherwise remain utilised, stimulating the growth of industrial entrepreneurship and promoting a more diffused pattern of ownership and location (**Desai, 2006**). The fast changes brought out by global trade and new marketing strategies over the past few years have necessitated bringing about structural changes affecting the micro, small, and medium enterprises throughout the world. The developing countries has evolved new policies to suit the

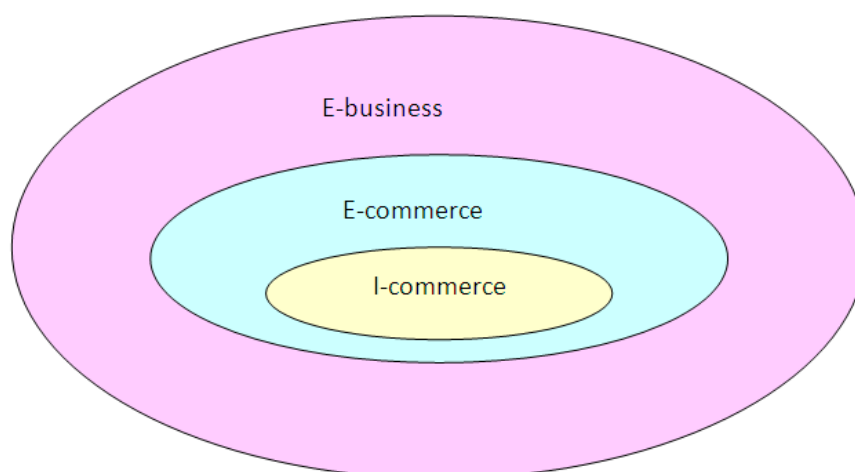
requirements of several changes in the field of industry and trade, besides entrepreneurs adjusting to the new environment. The distinction between domestic and international market has been getting blurred (**Prasad, 2004**). The SMEs which have strong technological base, international business outlook, competitive spirit and willingness to restructure themselves shall withstand the present challenges and come out with flying colours to make their own contribution to the Indian economy. SMEs have been enabling to take on the changes imposed to it by the process of on going globalisation. It has called for proper harnessing of the strengths; it has built over the last five decades and imbibing newer capabilities to meet emerging requirements of liberalisation, globalisation and privatization. SMEs have been responding in a positive way by adopting Internet and Communication Technologies (ICTs) in their working to face the challenges posed by the new economy.

The evolution of the Internet from a military tool to one that is available to organisations and individuals has opened many ways of doing e-commerce for SME's (Small and Medium Enterprises). With the benefit of using the Internet to cut costs, improving efficiency and reach a much wider market, productivity and profit margins can be improved dramatically (**Cloete, Eric, 2002**). The emergence of electronic commerce (EC) technologies has affected many industries and organisations. Small and Medium- sized Enterprises (SMEs) are increasingly realising the potential benefits of EC technologies (**Amit and Zott 2001**). The definition of SMEs varies in different countries and studies but is usually based on employment, assets, or a combination of the two.

E-business is an electronic business and it can be linked from two angles. The first is the use of information technology in various business operations. Secondly, E-business means using the Internet as not only the medium of business but also as business in itself. Companies like Amazon.com has symbolised the new era of E-business (**Simpson and Docherty, 2004**). E-commerce is defined as the process of buying, selling, transferring or exchanging products, services and/or information via computer networks, including the Internet (**Turban et al 2008**). E-business has a much wider integrative purpose within an organisation, linking business systems together and is more sophisticated than E-commerce (**DTI, 2001**). Internet Commerce has been defined as the use of Internet technologies to enable E-commerce. Such technologies have becoming the key standards for intra and inter-organisational communication. (**Beynon-Davies et al., 2002**).

There have been many definitions of E-business and related terms: Internet business, Internet commerce, new economy, network economy and electronic commerce.

In the present study the term E-business, E-commerce, Information and Communication Technologies (ICTs) and Internet technologies have been used to avoid a narrow interpretation.



**Figure 1.1: Scope of E-business**

Source: Jones, Paul; Paul Beynon-Davies and Elizabeth Muir (2003), “E-Business Barriers to Growth within the SME Sector”, available on [http://www.business.ecu.edu.au/josit/7\(2\)%20special/Jones.pdf](http://www.business.ecu.edu.au/josit/7(2)%20special/Jones.pdf) accessed on 5th March, 2012.

## II. LITERATURE REVIEW

For the purpose of this study, an extensive literature review of E-Business adoption by SMEs in both developed and developing countries was undertaken to review commonly used factors in the adoption and to identify their limitations or barriers. **Santarelli and D’Altri; David and Wilson; Taylor and Murphy** observed the factors for the adoption of E-commerce as penetration into new markets; compete with larger companies, faster operation and dealing in exports. **Ghosh** provided several examples of US companies that adopted E-commerce because of competitive pressures. **Cloete; Courtney and Fintz (2002)** identified number of factors like owner’s perception, characteristics of the organisation, etc. that affect E-commerce adoption. Research works investigating the barriers that affect SMEs adoption of ICT and E-Commerce have identified a variety of factors which can be grouped into several categories like owner/manager characteristics, firm characteristics and cost and return on investment (**Kapurubandar and Lawson, 2006**). It was found that improved customer service, access to international markets, increased productivity and efficiency were the main key drivers for the e-commerce adoption and lack of skilled man power as the main inhibitors in the adoption of e-commerce technologies (**Pandit 2002**). **Jones et al (2003)** identified the barriers as deficiencies in financial resources, time, information and skills; concerns over security and legal issues and competition and doubts over the application of E-business to their business practices and cultural and infrastructural issues. **Windrum and Berranger (2003)** identified a number of potential factors that may affect adoption. These included internal and external business drivers, the CEO/ owner, firm’s absorptive capacity, firm size amongst SMEs and business activity. **Adi et al (2004)** developed a stage model in

analysing the inhibitors and drivers of E-business progression among SMEs. Pressure from customers, supply-partners E-business initiatives were the major drivers for E-business and expanding the infrastructure for E-business and access to technical skills and expertise were the major inhibitors for E-business. **Simpson and Docherty (2004)** investigated the reasons of moving SMEs from traditional commerce to E-commerce, the efficacy of support services and the barriers encountered by SMEs adopting E-commerce. **Looi (2004)** developed a model of factors motivating and inhibiting E-commerce adoption among SMEs (non-adopters and adopters) in Brunei Darussalam by considering innovation factors, managerial factors, environmental factors and organisational factors. It suggested owner's characteristics and environment characteristics as a significant motivation of E-commerce adoption. The fear of competitors and perceived benefits also acted as a catalyst in adoption of E-commerce. **Barsauskas and Sarapovas (2004)** analysed that the lack of understanding about usage of Internet technologies as the main barriers to E-business for SMEs. **Lal and Peedoly (2006)** analysed the cost of communication and lack of learning opportunities have been found as the major impediments in the adoption of ICTs. **Hunaiti et al (2009)** identified the security of money transactions on the internet and government policies as the main barriers in the adoption of electronic commerce in SMEs

### **III. SMEs IN INDIA**

The small sector constitutes an important segment of the Indian economy in terms of their contribution to the country's industrial production, exports, employment and creation of an entrepreneurial base. There has no universal definition of small and medium enterprises. In a study carried out by ILO, more than 50 definitions had been identified by 75 different countries, with considerable ambiguity in the terminology. There have different criteria for defining small and medium size enterprises in different countries. The definition used by the Indian authorities is based on the level of investment in plant and machinery or other fixed assets whether held on ownership, lease or hire purchase basis.

The Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 has seek to facilitate the development of these enterprises as also enhance their competitiveness. It has provided the first ever legal framework for recognition of the concept "Enterprise" which compromise both manufacturing and service entities. It has defined medium enterprises for the first time and integrated the three tiers of these enterprises, namely, micro, small and medium.

#### **A. Classification of Industries (Now Enterprises)**

Under the **MSMED ACT, 2006**, the earlier, rather limited, concept of 'Industries' has been widened to 'Enterprises'. The Micro, Small and Medium Enterprises (MSME) have classified in two. The limit for investment in plant and machinery/ equipment for manufacturing / service enterprises, as notified, vide S.O.1642 (E) dated 29-09-2006 has been as under:

**Table 3.1: Manufacturing Sector**

<b>Enterprises</b>	<b>Investment in Plant &amp; Machinery</b>
Micro Enterprises	Does not exceed twenty-five lakh rupees
Small Enterprises	More than twenty five lakh rupees but does exceed five crore rupees.
Medium Enterprises	More than five crore rupees but does not exceed ten crore rupees

**Source: Ministry of Small-scale Industries, Government of India**

**Table 3.2: Services Sector**

<b>Enterprises</b>	<b>Investment in Equipment</b>
Micro Enterprises	Does not exceed ten lakh rupees
Small Enterprises	More than ten lakh rupees but does exceed two crore rupees.
Medium Enterprises	More than two crore rupees but does not exceed five crore rupees

**Source: Ministry of Small-scale Industries, Government of India**

### **A. SMEs in Haryana**

Haryana has been heading towards the new horizons of industrial growth. Since its creation in 1966, it has emerged as a forefront progressive state in India which has a glaring example of planned economic development. Ranked first in per capita income, Haryana has combined growth with equity with minimum gap between rural and urban prosperity. The State Government has been formulating various industrial policies in favour of the SMEs to provide them necessary support to combat the challenges posed by the globalisation. It has recognised industrial and infrastructural development as a key facilitator in the progress of the state. The present Industrial Policy (IP) initiative has intended to capture the buoyant mood and supplement the efforts of Central Government. There has been an impressive growth in the investment, production and employment of small-scale sector after the implementation of IP 2005. Haryana has been progressing very fast due to cluster development programmes (CDP) and (IT) information technology programmes initiated by the Government of Haryana in the recent years. It has identified the various clusters on the basis of local agglomeration of SMEs. The state has made an attempt in developing IT, ITES, communication, robotics and other frontier technologies with the setting up of Department of Information Technology as a nodal agency to provide the adequate investment and infrastructural facility. It has started giving a boost to the growth of IT/ITES and E-com ensuring transparency with introduction of E-governance. The major step in this direction has been taken by launching of industries portal and introduction of common application form with online submission facility.

#### **IV. RESEARCH METHODOLOGY**

This research is investigating the barriers to adoption of ICT and e-business in SMEs in India. In the present study four districts of Haryana state have been identified. These districts have been selected due to their large industrial and investment base. All the four districts are the major economic hubs of Haryana and are identified as an industrial cluster by the Government through Integrated Infrastructure Development (IID) programme. Hence, the term cluster has been used in place of districts. In order to improve the global competitiveness of the domestic industries situated in clusters, state Government has been implementing the following four projects under the Government of India scheme of Industrial Infrastructure Up-gradation Scheme that was started in the year 2004-05. The data about the selected four clusters has been taken from the report of National Productivity Council and District Industry Centres (DICs) of selected districts.

1. Light Engineering Goods Cluster, Faridabad
2. Auto Parts Cluster, Gurgaon
3. Textile Cluster, Panipat
4. Scientific Instruments Cluster, Ambala

##### **A. Objectives of the study**

The main objectives of the present study are as follows:

1. To study the factors facilitating the adoption and use of E-business technologies
2. To examine the barriers/difficulties in implementation of E-business technologies.
3. To suggest measures to strengthen the competitiveness of E-business in today's global environment.

The sample has been selected on the basis of two parameters. An attempt has been made to select only those units which have their own website and then further selection has been done on the basis of sales turnover. The industries which have sales above Rs. 50 lakhs have been chosen. In this way, total 200 industries have been selected.

##### **B. Data collection**

The data has collected through primary and secondary sources. Questionnaire was the main instrument of this research study and was designed after going through a few similar research studies on SMEs in developed and developing countries. A survey instrument with questions using Likert scales was developed and pilot tested to capture the information, reflections and perceptions of the SME owners/managers. The data collection took considerable time and was done from March, 2012 to August, 2012. The questionnaire was sent to 200 owners/managers of selected small and medium sized enterprises in Haryana taking 50 industries from each district. Out of 200 businesses in our sample, only 110 responses were received. Out of 114 responses 14 responses were invalid as the questionnaires were not complete. Only 100 responses were found to be usable by taking 25 industries from each district. There is a 50% response rate.

Secondary data has been collected through various journals, newspapers, publications from the Industries Department, Haryana, PHDCCI, National Productivity Council, Chandigarh, HSIIDC, Central Statistical Organization and Annual Reports of Ministry of Micro, Small and Medium Enterprises, SIDBI, Economic Survey of Haryana, Statistical Abstract of Haryana, Economic Survey of India and various Official Websites etc.

### C. Analysis

Different tests and techniques have been applied to achieve objectives of the study.

To assess the factors facilitating and the barriers/difficulties in implementation of E-business technologies, descriptive statistics has been used to get the ascending mean value and standard deviation.

## V. SOME PRELIMINARY RESULTS

In the present research, hundred industries in the four districts have been surveyed in order to know the main facilitators/ barriers or difficulties in the adoption of E-business by SMEs. A number of factors have been taken to find out the important factor that might facilitate adoption and use of Internet technologies. Descriptive statistics has been used to find out the importance of factors that facilitate adoption and the use of the Internet in the firm.

### A: Main factors/facilitators in the adoption of internet and communication technologies

Table 5.1 shows the importance of those factors that facilitate the adoption and the use of E-business in an industry with their corresponding mean value.

**Table 5.1: District-wise Descriptive of Factors Facilitating Adoption of E-business**

Factors	Faridabad		Gurgaon		Ambala		Panipat	
	Mean (St. dev.)	Rank	Mean (St. dev.)	Rank	Mean (St. dev.)	Rank	Mean (St. dev.)	Rank
Nature of goods/ services	3.48 (.918)	6	4.28 (.792)	4	3.52 (1.005)	5	3.52 (.841)	2
Possibility to access new markets	3.76 (.663)	2	4.52 (.512)	1	4.08 (1.077)	2	3.92 (.812)	3
Competitive threats/ Pressures	3.52 (.823)	5	3.80 (1.041)	6	3.52 (1.005)	4	3.84 (.800)	5
Demanding customers/ Suppliers	3.36 (.810)	9	4.28 (.792)	3	3.92 (.759)	3	3.88 (.726)	4
Capability to manage technical change	3.44 (.961)	7	3.68 (.852)	8	3.36 (1.186)	8	3.32 (.690)	6

Management effectiveness	3.64 (.810)	4	3.84 (.800)	5	3.36 (.952)	7	3.12 (1.186)	8
Access to specialized suppliers	3.46 (.757)	3	3.76 (1.200)	7	3.48 (1.005)	6	2.92 (.640)	9
Access to financial resources	3.40 (.816)	8	3.64 (.952)	9	3.20 (1.155)	9	3.12 (.726)	7
Dealing in exports	4.04 (.978)	1	4.48 (.714)	2	4.40 (.957)	1	4.40 (.764)	1

It reveals that the factor dealing in exports has the highest mean score of 4.04 in Faridabad and mean value of 4.40 in Ambala and Panipat which means that this is the most important factor in determining the adoption of Internet technologies in industries of these three districts. **Stockdale and Standing, 2004** found that access to wide range of markets is the important factor in facilitation of Internet technology. The adoption and use of Internet technology does not help in accessing new financial resources. Demanding customers/ suppliers has also been an important factor in the adoption of Internet technologies for three districts namely, Gurgaon, Ambala and Panipat. Pressure from customers is the determining factor in the adoption and the use of Internet technology in any firm (**Adi et al, 2004**). **Damaskopoulos and Evgeniou** found search of new markets and competition as the important factors in the adoption of E-business technology.

### **B: Main barriers/ difficulties in the adoption of internet and communication technologies**

Table 5.2 identifies the main barriers in the adoption of internet and e-business technologies by the selected industries.

**Table 5.2: District-wise Descriptive of Barriers in the Adoption of E-business Technologies**

Factors	Faridabad		Gurgaon		Ambala		Panipat	
	Mean (St. dev.)	Rank	Mean (St. dev.)	Rank	Mean (St. dev.)	Rank	Mean (St. dev.)	Rank
Lack of financial resources and high cost	3.32 (.852)	5	3.20 (1.323)	7	2.40 (.8160)	10	2.44 (.712)	7
Insufficient time and amount of work required to maintain e-commerce	2.80 (.764)	9	2.72 (1.173)	10	2.60 (.957)	9	2.40 (.816)	8
Lack of IT expertise/skills/training/personnel	2.68 (.802)	10	3.36 (1.221)	5	3.12 (.881)	7	2.64 (.907)	6
Concern about competitors analyzing company information	3.20 (.913)	7	3.04 (1.098)	8	3.16 (.943)	6	2.28 (.980)	10
Fears and concerns over security	3.64 (.569)	1	3.28 (1.173)	6	3.80 (.866)	1	2.32 (.988)	9



Low use by customers and suppliers	3.40 (.748)	3	3.40 (1.190)	2	3.44 (1.261)	3	3.68 (.627)	1
Reluctant to use new system by employees	3.32 (.748)	4	3.36 (1.221)	3	3.48 (.918)	2	3.60 (.645)	2
Insufficient education/ and uncertainty on how to implement	3.00 (.816)	8	3.52 (.963)	1	3.40 (.764)	4	3.28 (.614)	4
Organisational structure and culture	3.20 (5.00)	6	3.36 (.995)	4	3.20 (.913)	5	3.16 (.473)	5
Govt. Policies	3.48 (.714)	2	3.00 (.816)	9	3.08 (.909)	8	3.28 (.792)	3

Fears and concerns over the security have come out to be main barrier with highest mean value of 3.64 and 3.80 in selected industries of Faridabad and Ambala respectively.

The results show that most of the entrepreneurs consider that employee's reluctance to use new systems is also one of the main barriers. It shows that customers are not using E-business at a high rate that's why entrepreneurs are finding it difficult to implement it. In Gurgaon, Ambala and Panipat districts, it has been found that insufficient education/ information about benefits and uncertainty on how to implement E-business are the main barriers in the adoption of E-business (**Kapurubandara and Lawson**). Next important barrier is the low use by customers and suppliers that has been considered vital by all the respondents in the selected districts.

## VI. FINDINGS AND CONCLUSION

Results show that all the selected districts adopt and use almost all the Internet technologies. **Akkeren and Cavaye** stated that the adoption of E-commerce practices is a progression and therefore sophisticated technologies are unlikely to be adopted before entry level technologies have been successfully adopted. Adoption of Internet and E-business technologies is thought to progress through several stages. Initially firm use some basic Internet tools such as e-mail, website before moving to next stage- transacting business. It is actually a move from simple commerce to E-commerce and then to E-business, where industries use advanced E-business technologies as a strategic tool (**Levy and Powell**).

The present study reveals the important factors affecting the adoption and use of Internet and E-business technologies as dealing in exports, possibility to access new markets and demanding customers/ suppliers. E-commerce enables SMEs to be more responsive to and interact with customer needs (**IDB-ADB**) and it enlarges geographical markets. **Santarelli and D'Altri; David and Wilson; Taylor and Murphy** observed the factors for the adoption of E-commerce as penetration into new markets; compete with larger companies, faster operation and dealing in exports. The rate of diffusion of new technologies is positively related to the level of competitive activity. A competitive environment is more likely to lead a firm to investing in Information and Communication Technologies (ICT), as a way to strengthen

performance and survive than a more sheltered environment. **Ghosh** provided several examples of US companies that adopted E-commerce because of competitive pressures.

Survey information on the barriers to Internet commerce provides further insights. These suggest that legal uncertainties (uncertainty overpayments, contracts, terms of delivery and guarantees) remain important in all the four districts. The research studies show that the main barriers/ difficulties in the adoption of E-business technologies are fears and concerns over security, Government policies, reluctance to use new systems by employees and low use by customers/suppliers in the four districts. The results support the views of various researchers that have been done in the same field. Common barriers for SMEs include lack of skilled personnel, security concerns and reliability of E-commerce system and legal framework (**OECD; Oliver and Damaskopoulos**). Major inhibitors to implementation include the low customer's use of E-commerce, uncertainty of the financial benefits, technical skills, small size; high costs (**Bowden et al; Wymer and Regan**). The major barriers in all the clusters confirmed the results of previous researches that security concerns including legal issue, privacy etc., (**Santarelli and D'Altri; Hunaiti et al**) difficulties in implementation, lack of skills/expertise (**Adi et al; Taylor and Murphy**) uncertainties regarding the costs and benefits of E-commerce, lack of information and education, low use by customers (**Barsaukaus and Sarapovas; Kapurubandara and Lawson; Cloete et al**).

**Table 6.1 Main Barriers in the Adoption of E-business**

	<b>Faridabad</b>	<b>Gurgaon</b>	<b>Ambala</b>	<b>Panipat</b>
Main Barriers in the Adoption of E-business	Fears and concerns over security	Insufficient education about implementation	Fears and concerns over security	Low use by customers/suppliers
	Govt. Policies	Low use by customers/suppliers	Reluctance to use new system by employees	Reluctance to use new system by employees
	Low use by customers/suppliers	Reluctance to use new system by employees	Low use by customers/suppliers	Government policies
	Reluctance to use new systems	Organization system/ culture	Insufficient education about implementation	Insufficient education about implementation

The barriers have been presented in table on the basis of rank given by the industries in selected four districts. E-business is considered as a value for money by most of the respondents. For small firms to adopt E-business and E-commerce strategies and tools, benefits must outweigh investment and maintenance costs (**OECD**)

E-business has changed the dynamics of business and SMEs are not immune to its impacts. The firms started adopting new technologies with the liberalisation of

Indian economy in 1991. Firms might have adopted ICTs due to competitive pressures from MNCs that were allowed to enter into the Indian market in 1991 (**Lal**). They appear to be receiving some benefit from E-commerce and they recognise the importance of E-commerce to their organisation survival (**Lomerson et al**). The lack of computer literacy of the owner and a lack of knowledge on how to use the technology results in the business being less likely to adopt E-commerce. **Akkeren and Cavaye** have found the main inhibitor to E-commerce adoption amongst SMEs as being the low use of E-commerce by their main customers and suppliers and concern about security aspects. E-commerce has been acknowledged as a tool for small businesses to trade and compete globally. It allows small firms to sell directly into global markets. E-commerce is changing the way organisation interacts with customers, suppliers and other business stakeholders.

## **VII. RECOMMENDATIONS**

E-business is opening up new opportunities for entrepreneurship whereas, in the early stages of the commercial Internet, the main focus is on investing in ICT infrastructure; the challenge now is to use the Internet as a new business tool. The research studies show that getting into E-business remains a difficult step for many SMEs. It requires substantial investment, Government support, critical technical and managerial skills and risks. Based on the observations of the study the following recommendations are proposed.

- SMEs need institutional support for their survival in the era of globalisation. The Government of India has to take initiative for providing uninterrupted utility services so that SMEs can become more competitive in international markets. Government can have significant effect on adoption rates of E-commerce by implementing various aid packages and incentives scheme.
- There should be facility of providing E-awareness and the provision of training and skill to SMEs. Managers also need to be trained on IT skills through workshops and seminars to develop their technical abilities. E-business technologies are closely linked to the ability of firms to innovate, i.e., introduce new products, services, business processes and applications. To strengthen innovation, SMEs need to frame business policy that gives priority to fundamental research and promotes the flow of knowledge.

The present study shows that SMEs resist adopting Internet technologies because there is no strong and sound legal base for Internet technologies. So Government should take necessary steps to strengthen legal framework for the E-business transactions.

## **VIII. SCOPE FOR FUTURE RESEARCH**

Further research in various areas of E-commerce will provide useful information to businesses planning to adopt E-commerce. The findings of the study investigated the adoption pattern of E-business and Internet technologies in the four districts of

Haryana. The generalisability of the present results could be further confirmed by replication of the study in other states and other industries as well.

Various performance indicators can be studied to find out the impact of E-business and Internet technologies on the performance of SMEs like on rate of return, sales etc.

A comparison of impact of E-business on large industries and small industries can be examined so that size factor can be determined. An examination of business-to-business E-commerce and new supply chain relationships between SMEs and large firms that are facilitated through E-commerce would provide important guidance for SMEs in their adoption decision.

Studies to determine best practices and examples of success stories can be used to assist SMEs in their adoption of E-commerce.

Future research can further extend the scope of the present study to other industries as well as geographical domains.

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