We are going through an awareness curve, which will later turn into a learning curve and an implementation curve.

Chapter 7

SUMMARY, CONCLUSION AND SUGGESTIONS
Summary

In this chapter, an attempt has been made to highlights the summary of results and further concludes it by suggesting the strategies on the basis of problems identified by the present study for the successful implementation of e-commerce in India. This chapter has been divided into three sections. Section I, deals with the summary of results. Section II discusses the strategies suggested by the researcher for the successful introduction and implementation of e-commerce in India. Suggestions have been made for business organizations, customers and government; and Section III concludes the study.

The pervasiveness of information and communication technologies (especially Internet and its enabled technologies) in the last few years has revolutionized almost every aspect of our lives by making the things easier, faster, cheaper and more efficient than the past. It is not only changing the way of life, but also changing the face of business worldwide. The growth of Electronic Commerce (popularly known as E-Commerce) as a business technology in last decade is the result of such IT driven development, which is revolutionizing the business world. E-Commerce has produced a revolutionary new way for businesses to communicate and interact with the customers (B2C). E-Commerce technologies are also driving increase interactions among customers (C2C), businesses (B2B) and between customers and businesses (C2B). It has power to expand the businesses beyond the global boundaries by giving them a competitive edge in the global marketplace. Businesses around the world are embracing this technology with great zeal as they realize the potential it offers. The result has led to the emergence of e-commerce as a major business strategy.

No industry in the world history has achieved a rapid growth in as short time as e-commerce. Though only a few years old, e-commerce has taken off at an unprecedented speed despite much skepticism and some initial hesitation. It is universally accepted that world is in the grip of an e-commerce revolution. But, the hyper growth of e-commerce is still an American and European Countries phenomenon and e-commerce has not taken off in other parts of the globe, although some countries like Japan, Australia, Canada, New Zealand etc. are rapidly joining the bandwagon. India is one of the countries where this trend seems to be catching on. Indian companies are fast jumping into the e-commerce boom, and adopting e-commerce as a business technology in the same manner as in other parts of the world. The dawn of new era has already begun in India and the driving engine is information technology.

In India, history of e-commerce is just a decade old. First initiative was taken by Ministry of Commerce in 1994, by setting up of EDI (Electronic Data Interchange) Council. The EDI Council has promoted the introduction of EDI and e-commerce in the trade processes of various vital trading partners responsible for the regulation and facilitation of international trade. But, a revolution came in the Indian history of e-commerce when VSNL (Videsh Sanchar Nigam Limited) launched India's first dial up Internet access service in August 1995. But, Internet and e-commerce age did not really dawn in India till 1997. A landmark came in the Indian history of e-commerce, when, in November 1998, the government ended VSNL's monopoly and allowed provisioning of...
Internet services by private operators; and then Indian Parliament passed the Information Technology Act, 2000 to boost e-commerce and e-governance. By then, the net had changed everything. Indian companies started realizing the applications of ICTs and Internet and using these technologies as a part of their business strategy. Year 1999 and 2000 can be considered as a boom period of the Indian e-commerce and dotcom companies. During this period many Indian companies went online and many launched their website to play pure electronic game. And, today almost every Indian company has web presence.

As a result, e-commerce has registered rapid growth in India. Further, the studies revealed that e-commerce has very bright future in India. In India, most revenue from e-commerce transactions is generated by B2B and B2C models of e-commerce1. Thus, the new business philosophy is here to stay and it is evolving rapidly, creating a wave of change for the Indian businesses and organizations. Therefore, the present topic (E-Commerce: Business Applications, Strategies, Challenges and Opportunities in India) is quite interesting to study because of its relative newness and exploding growth rate in India.

The review of literature also highlights that this particular field need comprehensive study regarding many aspects of e-commerce pertaining business applications, challenges, opportunities and strategies in India. Therefore, the researcher has decided to work under the title “E-Commerce: Business Applications: Strategies, Challenges and Opportunities in India”. The present study has made an attempt to overcome almost all the limitations of the existing studies by taking into the consideration: all types of industries; all level of management; both primary and secondary data; and combination of behavioral, technical and managerial aspect of e-commerce. Above all, the study has followed a macro approach by studying economic implications of electronic commerce, electronic payment and security system and E-Commerce infrastructure, so that the results of this study can be generalized in Indian context. The broad objectives and hypothesis of the present study are as under:

**Objectives of the Study**

- To discuss the conceptual framework of e-commerce.
- To find out the various business applications of e-commerce in India
- To study the present status of e-commerce infrastructure in India.
- To discuss the framework of electronic payment systems and study the security schemes to secure electronic payment.
- To find out the opportunities and challenges of e-commerce in Indian business scenario.
- To study the economic and social implications of e-commerce.
- To find out as how e-commerce improves the quality of work
- To study the important aspects of e-commerce while entering in the world of e-commerce.
- To study the satisfaction level of Indian online customers towards the services of Indian dot com companies.

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1 For details, please see, Section II of Chapter 1.
Hypotheses of the Study

- There is no problem in the introducing/adoption of e-commerce in Indian firms.
- Adequate number of trained staff is not available to take care of e-commerce technology and transactions in Indian firms.
- There is relationship between e-commerce and economic development.
- The small-scale industry is going to be benefited more as the technology size is neutral.
- E-commerce will prove to be beneficial for the businesses, customers, employees, society and economy as a whole.
- Customers are not satisfied with the services provided by the Indian dot com companies.

Research Methodology

The present research is mainly of qualitative nature, as most of the findings of the present study are based on quantified measures. However, the researcher also manipulates the causality and consequences, which also represents a sign of qualitative research. In the present study, mainly exploratory research design has been adopted, as the main purpose of this study is to gain familiarity with the various aspects of e-commerce in Indian companies and to achieve new insights into it. Further, the study formulates more precise research problem by developing hypothesis. Since the scope of the study is very vast, the present study also represents some characteristics of descriptive research design. In the present study, both types of sampling techniques have been used. The selection of the units has been made on the basis of non-probability sampling technique, viz, 'convenience’ sampling. To obtain the information from the various respondents within the organizations (Top Management, Middle Management and Lower Management), stratified sampling, which is the form of probability sampling, has been used. Information from the customers has been collected by using non-probability convenience sampling, though mainly the use of mall intercept survey. The present study largely utilizes the primary data. Primary data has been collected through the well-structured comprehensive questionnaire. Sets of two questionnaires were prepared which have been given in Appendix I and II.

For analyzing the data, both simple and advanced statistical tools have been used. In some cases simple statistics like average, percentage and weightage average scores, mean score. The study also utilizes descriptive analysis to explain the selected variables and cross tabulation to examine the relationship between variables. Exploratory research,

2 For details, please see, Section 2 of Chapter 2.

3 50 units, (manufacturing, trading, and services industries) with the representatives from large scale, medium scale and small scale industries using e-commerce technology located in Haryana, Delhi and Noida were chosen. Some of these industries were highly advanced in the use of IT, while many others were not. The main respondents targeted were from the top management (President, Vice President, Chief-Executive Officer, Managing Director or other top most authority of concerned organization), middle management (Chief Information Officer, Chief Operation Officer, Head of Information Technology or other top authority which comes in the hierarchy) and lower management (employees involved in the process of electronic transactions, payment and handling e-commerce technology etc.). Total 150 concerned people were surveyed form the different type of organisations.

The survey targets a sample population drawn from consumers who have experienced online purchasing in India. To collect the information from the customers, 200 respondents were selected from Delhi, Haryana and Noida.
require some advanced tools; therefore to test the various hypothesis of the study, non-parametric statistical tests based on Chi-square have been used. A five point Likert scale has been used to measure the intensity of respondent’s attitudes towards the selected attributes. Likert scale is qualitative in nature; a scoring system was adopted to quantify them. The analysis has been also done by using SPSS statistical package.

Summary of Results

The present study provides a comprehensive view of e-commerce in India. The study provides an innovative application framework that guides the migration from a traditional business model to electronic commerce business model. It also provides a picture of opportunities and challenges of e-commerce that the Indian firms face. The study also incorporates the latest strategies and techniques gained from the experience of the first generation of e-commerce. Further, study discusses some integral aspects of e-commerce, like, business models of e-commerce, electronic payment and security systems and e-commerce infrastructure. An attempt has also been made to study the economic and social implications of e-commerce. The major strengths of the present study is the way it has put together everything one might wish to know about the e-commerce.

The main goal of the present research work was to study the ‘business application, strategies, challenges and opportunities of e-commerce in the Indian context’. To attain this goal, the present study carried 9 objectives and 6 hypotheses. A summary of results (objective-wise) obtained is given as under:

1 Concept and Business Applications of E-Commerce in India

\( O_1: \) To discuss the conceptual framework of e-commerce

- As a fairly recently adopted term, E-Commerce is interpreted differently by different experts and organizations. On the basis of review of various definitions of e-commerce, it is revealed that for most experts and organizations, e-commerce is: the electronic mode of buying and selling goods and services with or without the help of the Internet. To them, e-commerce is more about technology, than the business strategy. But, in reality e-commerce is more than that. The researcher has made an attempt to define electronic commerce in a comprehensive manner. According to the present study, e-commerce is lot more than computer, Internet, software etc. In fact, it is a part of how you run your business. Thus, definition that is likely to be acceptable by people involved in electronic commerce can be as followed: The use of electronic communication resources (telex, facsimile, electronic mails, telephone, computer, EDI, EFT, Internet etc.) especially Internet and its enabled technologies to engage in the exchange, including buying and selling of products and services requiring transportation, either physically or digitally from location to location, usually for money. In a very broad sense, e-commerce also refers to the effects that the electronic exchange of commercial information may have on the institutions and processes that support and govern the commercial activities. These includes organizational management, commercial negotiation and contracts, legal and regulatory framework and financial settlement arrangements among many others. But all these activities
cannot be measured exactly in terms of money. Therefore, all such activities cannot be covered under the concept of e-commerce, in a strict sense because transactions should be usually in terms of money. This is the basic condition for both traditional as well as e-commerce.

- After studying the various definitions of e-commerce, it is also observed that concept of e-commerce in India is same as in other parts of the world and Indian business organization is using e-commerce as a business technology in much the same manner as in many other developing and developed countries. However, a developing country like India has its own harsh reality regarding the implications of e-commerce in India, and these aspects definitely have direct or indirect impact on the mind of individuals and organizations, thereby on the meaning of e-commerce. As far as concept of e-commerce is concerned researcher can conclude that, India is neither far behind from other countries nor advanced; we are fully able to understand this new business technology and able to keep pace with time and technology.

- Like traditional forms of commerce, there are variety of different types of e-commerce and many different ways to characterize these types. Studies suggested that there are at least nine different categories of e-commerce models. These are: These are: (I) B2B (II) B2C (III) C2B (IV) C2C (V) G2B (VI) B2G (VII) G2C (VIII) C2G and (IX) G2G. Among all, B2B is the most popular model (in the terms of total volume) of e-commerce. In fact, it is the oldest forms of e-commerce business models. B2C is the second most popular (in terms of total volume) and number one (in terms of number of transactions) forms of e-commerce business models. The B2B and B2C forms of e-commerce covers 95 per cent of global volume and C2B and C2C forms of e-commerce cover very insignificant 5 per cent of global commerce.

- Firms are interested in e-commerce because, quite simply, it can help increase profits. All the advantages of e-commerce can be summarized in one statement: e-commerce can reduce costs, increase sales and profits. These advantages are the principle drivers of e-commerce adoption in the modern business organizations.

- In India, companies from various segments have actively prompted Internet usage and e-commerce application. B2B e-commerce in India has registered a very rapid growth in India within few years. This market is reinventing new business models and has already begun to offer end-to-end e-commerce platform for the entire buy cycle to business users. At the same time end users are also forcing vendors to expand their service mix and to adopt new business models. The growth of B2C is comparatively slow than the growth of B2B Model of e-commerce. But, this is not to say that B2C e-commerce scenario has been bad in India as heavily successful players like e-bay, indiatimes, naukri, shaddi, makemytrip, rediff, yahoo, indiabulls, ICICI Direct and Indiamart has already proved their potential. Growth in IT enabled sector like online stock trading, online advertisings and BPO has been remarkable.

- On the basis of survey results, it is revealed that e-commerce is in its emerging stages in India. More than half (52 per cent) of the surveyed firms introduced e-commerce technology in their firms during the period of 1999-2002. Thus, in real sense, this period is said to be the starting period of e-commerce in India.
Study also revealed that, most of the surveyed firms (78 per cent) introduced e-commerce technology in a formal manner. Thus, for most of the Indian firms, adoption of e-commerce is a formal process. Further, the study also concluded that, for most of these organizations (64 per cent), introduction of e-commerce was a process of between 6 to 18 months. It is observed that it is not only the sizes of firms, which can be held responsible for the time taken into introduction of e-commerce technology. but also the other factors like: nature of adoption, level of adoption and overall capacity of the firm to launch e-commerce in their organisations.

II

Business Applications of E-Commerce in India

O2. To find out the various business applications of e-commerce in India

Section II and section III of the questionnaire I, included several questions regarding the adoption/introduction and business application of e-commerce among the surveyed firms. To identify the present status and application level of e-commerce in India, several key parameters were gathered on the basis of literature review and experts opinions. The responses to these parameters were collected, coded, tabulated and analyzed. A summary of the results obtained from the analysis of data is give as under.

- Transactions Level: Most of the surveyed firms (44+22=66 per cent) reported that, the level of e-commerce transactions has increased in the comparison to the year of introduction of this technology in their firms. This growth lie in between the 0-20 per cent and 20-40 per cent in the ratio of 2:1. The study also identified the ranges of e-commerce transactions in Indian firms. It is revealed that, most of the Indian firms (80 per cent) transact electronically between the ranges of 0-25 per cent of the total commercial transactions. One interesting result can be drawn that, larger the size of the firms, more the electronic transactions. During the survey it was found that large firms have more capacity to conduct business electronically, as e-commerce requires huge investment and manpower to handle e-commerce technology and transactions. And generally, it is out of the capacity of the especially medium and small firms.

- Key Reasons: To increase the sale, lowering the overall costs of operations and accessing and expanding the market reach are found key reasons behind the adoption/applications of e-commerce in Indian firms. But, this is partially true in the context of MNCs. To them accessing and expanding the market reach are the most important reasons behind the adoption of e-commerce. Lowering the costs of operations is found less important for MNCs as compared to the other types of the firms.

- Participation levels of MNCs are highest (89 per cent) in using e-commerce technologies. Participation levels of Indian large-scale companies are found high (about 72 per cent). Middle scale firms are poorly participating (36 per cent) and participation level of small-scale firms are very poor (only 19 per cent). An overall participation level of Indian firms in these facilities is 48.66 per cent. Based on the intensity of usage of these facilities, it is revealed that FAX, which is the most traditional technology for conducting business electronically, is highly used among all types of firms. 90 per cent of the surveyed firms having this facility. Internet (70 per cent) and e-mail (68 per cent) is followed by FAX.
Participation level towards the advance technologies like: ERP, Video/Teleconferencing and Shopping Cards/Interactive Chat are most poorly used facilities among medium and small-scale industries. No surveyed firms from small-scale sector participate in these technologies. Participation levels in these technologies among MNCs are good and encouraging among the Indian large-scale firms.

- **Applications Level:** The study revealed that, MNCs are having very high level of applications (99 per cent) of e-commerce technologies. Application level is found high (76 percent) among the Indian large-scale firms. Medium scale firms are having poor application level (29 per cent) and small-scale firms are having very poor application level (13 per cent). An overall application level of these technologies is 47.6 per cent.

Further, individual intensity of various parameters were measured and it is found that, displaying the catalogue of online products and services (64 per cent) is the major business applications for Indian firms. Exchanging data and information (58 per cent) is again a very important business application of e-commerce. B2C and B2B applications of e-commerce are followed by the exchanging data and information. 56 per cent sample firms are using e-commerce for B2C and 54 per cent are using e-commerce as B2B mode. It is also revealed that medium and small-scale firms are poorly engaged in the advance applications like electronic payment system, electronic order to from suppliers and C2B.

### III

**E-Commerce and Working Efficiency**

**O3: To find out as how e-commerce improves the quality of work**

- The study revealed that, e-commerce improves the quality of work mainly by cutting down of meetings, saving time and energy and providing better quality information. It is also revealed that e-commerce is less helpful in improving the management functions like specialization, directing, co-coordinating and controlling.

- Further, it is identified, if not implemented properly, the results may be adverse. Based on the opinion of surveyed firms, reduced level of working efficiency has been observed. However, very few firms reported that e-commerce has negative impact of the working efficiency. These firms reported very low level of (0-5 per cent) negative impact of e-commerce technology on the working efficiency. The firms belong to this category was mainly from the small scale.

- On the basis of survey result, it is also revealed that majority of the respondents (53 per cent) did not experience any problems while working with e-commerce technology.

- The study also identified the problems of employees while working with e-commerce technology. High costs of operations of e-commerce technologies, lack of skilled manpower to handle e-commerce technology and transactions, lack of secrecy and lack of availability of quality devices are the major problems identified by the study.
While studying the e-commerce facilitators, it was identified that e-commerce improved the overall business process flow and save time. Improved internal functions were also identified as important facilitators.

During the survey it was observed that improving the quality of work is the most important aspect of electronic commerce, and one of the main reasons behind the adoption of e-commerce in any organizations. But, this aspect of e-commerce is not gaining very popularity, due to the lack of concept of money measurement.

IV

E-Commerce Infrastructure in India

04: To study the present status of e-commerce infrastructure in India

To facilitate the proliferation of e-commerce, sound infrastructure, which mainly, consists of technical, telecom and legal are required. Thus, with an objective to study the present infrastructure of e-commerce in India in a systematic manner, e-commerce infrastructure has been divided into three categories:

• A number of technologies are have converged to facilitate the proliferation of e-commerce. Networking, computing, messaging and electronic payment systems are at the core of e-commerce, where the most commonly used infrastructure is Internet, Intranet, Extranet, Firewalls etc. However, these technologies are not sufficient for e-commerce proliferation. Proper management of enterprise information security resources is the need of hour. It is important to note that technologies used in e-commerce are almost same in all the countries, however does vary because of the availability of telecom infrastructure and adoption level of e-commerce in any organization.

• Telecom infrastructure has registered rapid growth in India, within few years. No doubt, government policies have had a very positive impact on the development of e-commerce telecom infrastructure. However, still, even among many developing courtiers, India’s telecom infrastructure is very poor. This is especially true in the context of Internet penetration. In the world’s pie our share is almost negligible. Even with the tremendous growth of telecom infrastructure, India still lagged behind even among the Asia-Pacific Countries. But, the poor status of telecom infrastructure also indicates that India has significant scope to grow, where many other countries do not have so much. To maximize the efficiency of every possible medium of transmission, including copper cable, fiber optic cables, radio, Internet, telephone and satellite communications, the whole purpose of enabling telecommunications need to be reexamined.

• India is among the first few countries, which have passed a separate law enabling e-commerce and other IT enabled services. The IT Act, 2000 is quite comprehensive and well defined. But there are many important issues of e-commerce (e.g. Intellectual Property Rights, Data Protection, Domain Names Disputes, Electronic Payment System, Data Protection, Protection of E-Consumers, Privacy and E-Taxation), which are important for the development of this new business technology, but not covered by the IT Act 2000. Added to these issues, the Act is a set too far, the over complex provisions relating to contract formation, the ties to particular technology in the regulation of digital signatures, the over elaborate mechanisms for controlling certification authorities
and the attempts to define the technology stand in stark contrast to more minimalist approaches adopted in other jurisdictions. Unless all these legal issues are dealt with, e-commerce cannot really take off in India.

- On the basis, of responses of 150 respondents, it is revealed that the present status of e-commerce infrastructure is of average level (52 per cent). In reality, Indian government has taken number of initiatives to boost e-commerce infrastructure and most of them were successful.
- Further, the study identified that the role of Indian government in boosting e-commerce is active and supportive (58 per cent). But, it is poorly cooperative with the market conditions.

IV Challenges and Opportunities of E-Commerce in India

O5: To find out the opportunities and challenges of e-commerce in Indian business scenario

As the present study identified that e-commerce is still a new phenomena, Indian firms faces many challenges regarding the introduction and successful implementation of e-commerce in India. Some of the challenges identified by the present study are:

- It is identified that, planning regarding the introduction of e-commerce is not any easy task among the surveyed firms. The study identified that, financial burden (36 per cent) and psychological barriers (32 per cent) barriers are the major challenges in the planning of e-commerce initiative. Lack of advice regarding the planning of e-commerce initiative (14 per cent) is also identified as a major problem in the planning of e-commerce initiative.
- Despite high perceived benefits and optimism, the level of adoption of e-commerce by the Indian is very low. This could be due to a number of constraints and barriers faced by them such as: lack of knowledge, security and privacy, stringent requirement of the technology skills. To test this assumption empirically, a null hypothesis was formulated. The responses to this hypothesis was gathered and tested empirically by applying Chi Square ($\chi^2$) Test. The result is given as under:

**Hypothesis 1: There is no problem in the introducing/adoption of e-commerce in Indian firms.**

| Calculated Value of $\chi^2$ | : 40.56 |
| Table Value of $\chi^2$ at 5 % Level | : 3.84 |
| Degree of Freedom (df) | : 1 |

Result: Since the calculated value of $\chi^2$ (40.56) is much larger than the table value of $\chi^2$ at 5 % level of significance for 1 degree of freedom (3.84), therefore the null hypothesis is rejected and it is concluded that: there is problem in the introduction/adoPTION of e-commerce in Indian large scale, medium and small scale firms.

Further to study the association between level of management and problems of e-commerce, $\chi^2$ Test was applied on the responses of different levels of management. The result is given as under:
Hypothesis 1 (a): There is association between the level of management and problems of e-commerce.

- Calculated Value of $\chi^2$ : 1.535
- Table Value of $\chi^2$ at 5 % Level : 5.99
- Degree of Freedom (df) : 2

Result: Since the calculated value of $\chi^2$ (1.535) is smaller than the tabulated value of $\chi^2$ at 5% level of significance for 2 degree of freedom (5.99), therefore, the hypothesis is rejected and it is concluded that: there is no association between the level of management and problems of e-commerce. Thus, the problems of e-commerce exist in all level of management. It is not specific to any particular level of management.

From the analysis of data, it is concluded that, there is problem in the introduction of e-commerce technology in the Indian organizations. To identify the most dominating inhibitors in the introduction/adoption of e-commerce in the Indian firms, 15 key parameters were identified on the basis of literature review. The responses to these parameters were gathered, coded, tabulated and weightage average of each parameter has been calculated.

From the ranking of the weightage average score in the table, top five inhibitors factors are identified. These are: (1) Difficulty in keeping pace up with changing technology; (2) Difficulty in shifting mindset in using e-commerce technology; (3) Difficulty in assessing tangible benefits accrued by e-commerce mode of transactions; (4) Overall poor IT infrastructure and (5) High set up cost of e-commerce system. Low level of readiness of major e-commerce institutions and long implementation time has been identified as least inhibitor factors in the implementation of e-commerce in the Indian firms. It is interesting to observe that, three main problems (which are ranked at number 1, 2, and 3) are more psychological than the technological or strategical. Further it is also revealed that security and privacy is not the major issue of concerns for these firms.

- Studies indicate that availability of trained staff to handle e-commerce transactions and technology is also a considerable problem for the Indian firms. 
  To test this assumption empirically, a Null Hypothesis was formulated. The responses to this hypothesis was gathered and tested empirically by applying Chi Square ($\chi^2$) Test. The result is given as under:

Hypothesis 2: Adequate number of trained staff is not available to take care of e-commerce technology and transactions in Indian firms.

- Calculated Value of $\chi^2$ : 2.16
- Table Value of $\chi^2$ at 5 % Level : 3.84
- Degree of Freedom (df) : 1

Result: Since the calculated value of $\chi^2$ (2.16) is less than the table value of $\chi^2$ at 5 % level of significance for 1 degree of freedom (3.84), therefore the null hypothesis is accepted and it is concluded that: adequate number of trained staff is not there to take care of e-commerce in Indian firms.

Further to study the association between the level of management and problems availability of staff, $\chi^2$ Test was applied on the responses of different level of management. The result is given as under:
Hypothesis 3 (a): There is association between the level of management and problems of availability of trained staff

Calculated Value of $\chi^2$ : 3.084
Table Value of $\chi^2$ at 5 % Level : 5.99
Degree of Freedom (df) : 2

Result: Since the calculated value of $\chi^2$ (3.084) is less than the table value of $\chi^2$ at 5 % level of significance for 2 degree of freedom (5.99), therefore the hypothesis is rejected and it is concluded that: there is no association between level of management and problems of availability of trained staff.

From the analysis of data it is revealed that there is lack of trained staff in the Indian firms to handle e-commerce transactions and technology. To identify the most responsible factors behind this problem, 7 parameters were gathered on the basis of literature review. Responses to these parameters were gathered from top management; middle and lower management. Their responses were gathered and analyzed.

On the basis of ranking, 5 key reasons were identified behind the poor availability of trained staff to handle e-commerce transactions and technology. These are: (1) high cost of training; (2) staff is not qualified enough to adopt and learn new technologies (3) reluctance of staff to adopt latest technologies; (4) low stability ratio of trained staff and (5) problems in keeping up pace with the changing technology.

Opportunities of E-Commerce

In the present study, e-commerce opportunities have been studied in section IV of questionnaire 1. Several past studies revealed that, e-commerce can offer huge opportunities for the Indian corporate sectors in the coming year and predict that e-commerce is expecting to have bright future in India. Based on this assumption, several key parameters were identified and responses to these parameters were gathered, coded, tabulated and analyzed. A summary of the results obtained from the analysis of data is given as under:

- From the ranking of the mean scores, three key reasons can be identified behind the opportunities offered by e-commerce among the Indian firms are : (1) More and more customers are shifting to the Internet/other ICTs for buying (2) Internal benefits of using e-commerce technologies are motivating Indian firms to reap the benefits of e-commerce and (3) Greater reach and easy accessibility of Internet and other electronic communication resources will help Indian companies tap the untapped Indian market. It is also found that encouragement of government is least important reasons behind the opportunity offered by e-commerce in India.

- In order to analyze the key facilitators behind the adoption and implementation of e-commerce in Indian firms, 20 facilitators from the review of literature and experts opinions, were used and data from 150 respondents were gathered on a 5-point Likert scale. From the ranking of the mean scores, top 5 e-commerce facilitators were identified. These are: Improved overall business process flow and save time ($D_3$); reduced sales costs ($A_2$); reduced marketing and distribution cost; ($A_1$); pressure and insistence for Electronic Commerce/mode by competitors and foreign buyers ($C_1$) and improved internal functions ($A_3$). Readiness of concerned government agencies is found the least important facilitators behind the application of e-commerce among all 20 facilitators.
In order to identify the dominating cluster of facilitators, these facilitators were divided into 4 broad categories. These are: cost reduction facilitators (A) market facilitators (B) community and process driven facilitators (C) and technology and organizational driven facilitators (D). From the ranking of the total mean score of each cluster, it is identified that the cost reduction facilitators is the most dominating facilitator behind the application of e-commerce among the Indian firms. Technology and organizational facilitators is followed by cost driven facilitators. In short, it is concluded application of e-commerce is facilitate more by cost driven facilitators than the others.

Past studies revealed that e-commerce is more beneficial for the small scale firms as compared to the other types of firms. To test this assumption empirically, a hypothesis was formulated. The responses to this hypothesis was gathered and tested empirically by applying Chi Square ($\chi^2$) Test. The result is given as under:

**Hypothesis 3: The small-scale industry is going to be benefited more as the technology size is neutral**

<table>
<thead>
<tr>
<th>Calculated Value of $\chi^2$</th>
<th>0.96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Value of $\chi^2$ at 5 % Level</td>
<td>3.84</td>
</tr>
<tr>
<td>Degree of Freedom (df)</td>
<td>1</td>
</tr>
</tbody>
</table>

Result: Since the calculated value of $\chi^2$ (0.96) is smaller than the table value of $\chi^2$ at 5 % level of significance for 1 degree of freedom (3.84), therefore the hypothesis is rejected and it is concluded that: small scale industry is not going to be benefited more over the other types of industry as the technology size is neutral.

Further, to identify the areas where small scale firms can enjoy the benefits of e-commerce over the other industries, 10 key parameters were identified on the basis of literature review. The responses to these parameters were gathered on 5 point scale.

From the ranking of the mean score, top 5 parameters were identified, where the small scale firms can enjoy the special benefits over the other industries. These are: (1) Making it Easier for the Artisans to access B2C World Market; (2) Disintermediation (3) Increase Turnover; (4) Stay Ahead of Competitors and (5)Reduced Working Capital and Inventory Requirement.

The present study identified that; e-commerce has bright future in India, as he number of internet users are growing rapidly and customers and companies are shifting to the Internet for buying and selling. It is concluded that Indian firms are very optimistic regarding the future opportunities of e-commerce in India. Highest 51 per cent respondents reported that e-commerce is expected to offer huge business opportunities in the coming five years. It is also observed that MNCs and Indian Large Scale firms are more optimistic regarding the future opportunities of e-commerce in India. However, the observed (expected by the respondents) growth level is not very attractive. Highest 61 per cent respondents reported the future growth of e-commerce between the range of 0-25 per cent to the current transactions.

B2B (56.66 per cent) and B2C (33.33 per cent) model of e-commerce is expecting to offer huge business opportunity in the coming five years. It is really very interesting to note that Small Scale Firms are expecting high growth opportunity in B2C models of e-commerce compared to MNCs, Indian Large Scale and Middle Scale Firms.
Further, it is also revealed that B2B model of e-commerce is going to offer huge business opportunities for the manufacturing sector, as majority of the respondents (48 per cent) reported the same. Service sector is followed by manufacturing sector, ranked at number 2. It is also observed that MNCs are very positive in all sectors, as little variation is noticed in their opinions. But high variations is noticed in the opinions of Small firms, and it is observed that manufacturing firms are expecting huge opportunities in B2B models of e-commerce compared to service and other types of industries.

- In B2C model of e-commerce, highest opportunity is expected in the Airline/Railway Tickets Reservations sector. It is ranked at number 1. This is followed by Books, ranked at number 2. Musical products (CDs, Cassettes and online music) are also expected to offer good opportunity in the coming years, for the firms especially engaging in the B2C model of e-commerce. It is interesting to observe that Videos/DVDs/Games, which are generally considered to offer huge opportunity in the coming year, are ranked at number 7. Computer hardware and software is also expected offer good opportunity in the coming years.

- Generally, it is stated that e-commerce is beneficial not only for the businesses, but also have very positive impact on the other sector of society. To test this assumption empirically, a hypothesis was formulated. The responses to this hypothesis was gathered and tested by applying Chi Square ($\chi^2$) Test. The result is given as under:

**Hypothesis 4: E-Commerce will prove to be beneficial for the businesses, customers, employees, society and economy as a whole**

| Calculated Value of $\chi^2$ | 6.82 |
| Table Value of $\chi^2$ at 5 % Level | 3.84 |
| Degree of Freedom (df) | 1 |

Result: Since the calculated value of $\chi^2$ (6.82) is much larger than the table value of $\chi^2$ at 5 % level of significance for 1 degree of freedom (3.84), therefore the hypothesis is accepted and it is concluded that: e-commerce will prove to be beneficial for the businesses, customers, employees, society and economy as a whole.

From the analysis of data, it is concluded that respondents feel that e-commerce will prove beneficial for the businesses, customers, employees, society and whole economy. To identify the segment of Indian economy, where the positive impact of e-commerce can largely be noticed, 5 key parameters were gathered on the basis of review of literature. The responses to these parameters were gathered on the 5 point scale.

From the ranking of the mean score, top three segments were identified. Theses are: (1) E-commerce will prove to be beneficial for the businesses; (2) E-commerce will prove to be beneficial for the customers and (3) E-commerce will prove to be beneficial for the whole economy.

V

**Economic and Social Implications**

O6: To study the economic and social implications of e-commerce

- The present study identified that, the emergence and rapid growth of Internet and E-Commerce has strong implications on economic and social activities. It is quite possible that these new technologies might transform the future of economic and social landscape. At the economic front, there is a clear evidence that
E-Commerce and Internet technology have positive impact. To study the economic implications of e-commerce, few areas of economy (transportation, Intermediation, Agriculture, Labour Market, Taxation, Cost, Price and Competition, and money) has been selected. On the basis of various studies it is revealed that e-commerce technology have strong economic implications. At the general level, there are two types of potential economic gains from the use of E-commerce and IT enabled technologies. First, are the gains in efficiency, both in static and dynamic. Static gains are one-time, and come from more efficient use of scarce resources, allowing higher consumption in the present. Dynamics gains come from higher growth, potentially raising the entire future stream of consumption and population. Efficiency gains of e-commerce also come about through the enabling of new digitized goods and services. The second type of potential benefits comes from cost reduction. Studies indicate that e-commerce is helpful in reduction of search cost, administration cost, distribution cost and even the labour costs.

• However, all these opportunities are yet to materialize in to profitability i.e. in agricultural sector, benefits of e-commerce exists, but, only theoretically; not practically, as the implementation of e-commerce technology in agricultural sector has certain challenges. Adhes to this, e-commerce based economic models has also posed number of challenges before the concerned people and community. The area of e-taxation is one of the best example and most controversial issue all over the world. As e-commerce transcends the barriers of geographical boundaries, the concept like the place of transactions and place of consumption become immaterial. With the emergence and growth of digital money in the economy, the chances of frauds have also increased. Another most difficult issue is the planning regarding the adoption and implementation of e-commerce technology in the various economic activities. In nutshell, with the e-commerce based economic models, there is little to lose and more to gain.

• At the social front, e-commerce and ICTs can definitely empower the poor, give them a voice and connect them to the global world. These technologies can also help in attaining a minimum level of education, health and nutrition. The ability to participate in democratic decision making can also fall into this category. But it is difficult to predict the extent to which these technologies will transform the developing countries. On the basis of various studies, it is observed that, there is very high costs and relatively low benefits of the direct Internet and e-commerce technologies to the poor or the other needy people. Access to radio and telephone services show a higher benefit cost ratio and lower the overall costs as the alternatives to and intermediaries for the Internet and e-commerce in poverty alleviation and other social upliftment programmes.

• In a developing country such as India, it is of particular interest whether such benefits can reach to the poor and even help directly or indirectly reducing the deprivations associated with poverty. For example, better access to education, agricultural market, information or to government services may be relatively more valuable for the poor people who cannot afford to use the traditional methods or
communications media, or to pay for the services of traditional facilitating intermediaries.

- In short, development of e-commerce and IT has great significance not only in the economic growth, but also in human and social development. It boost social as well economic infrastructure, generate revenue, provides employment and many more. But the development of these technologies would remain uncomplete, unless the benefits of these technologies reaches to the common man.

- These technological developments (especially Internet) not only open the barriers to the business community, society as well as the whole economy, they also create a thousand areas where crimes can proliferate. But, net can not be held responsible for the cybercrime. In fact, it is the first global communication that can be exploited in various ways. However, studies indicates that there is positive correlation between the growth of Internet and crime, but, in reality poor security system, lack of awarenss, and poor legale system is the most responsible factors for the growth of cyber crime. Therefore, there is a strong need for a dedicated, continuous, updated training of the cyber law enforcement agancies. At the same time it, it is necessary to train a pool of expertise so that necessary skills are developed by all those who have to grapple with the problem of cyber crime including the policy maker, framers the judges, the lawyers and the administravtive. All the more, the change will come only with awarenss.

- Literature review strongly indicated that there is relationship between e-commerce and economic development. To test this assumption empirically, a hypothesis was formulated. The responses to this hypothesis was gathered and tested empirically by applying Chi Square ($\chi^2$) Test. The result is given as under:

**Hypothesis 5: There is relationship between e-commerce and economic development**

<table>
<thead>
<tr>
<th>Calculated Value of $\chi^2$</th>
<th>4.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Value of $\chi^2$ at 5 % Level</td>
<td>3.84</td>
</tr>
<tr>
<td>Degree of Freedom (df)</td>
<td>1</td>
</tr>
</tbody>
</table>

Result: Since the calculated value of $\chi^2$ (4.50) is larger than the table value of $\chi^2$ at 5 % level of significance for 1 degree of freedom (3.84), therefore the hypothesis is accepted and it is concluded that: there is relationship between e-commerce and economic development.

From the analysis of data, it is concluded that there is relationship between e-commerce and economic development. To identify the areas of Indian economy where the relationship between these two factors can largely be seen, 12 key parameters were gathered on the basis of literature review and experts opinions. The responses to these parameters were gathered on 5 point scale.

From the ranking of the mean score, top five areas of Indian economy were identified, where relationship of these parameters with e-commerce can largely be seen. These areas are: (1) Reducing the Role of Intermediaries; (2) Export Opportunities; (3) Development of Economic Infrastructure; (4) Overall Improvement in Economic Efficiency and Productivity and (5) Increase in Employment Opportunities.
VI

Electronic Payment and Security Systems

O2: To discuss the framework of electronic payment system and study the security schemes to secure electronic payment

- The present study revealed many electronic payment systems and broadly these electronic payment systems can be grouped or classified into four categories: (1) Online Credit Card Payment System (2) Online Electronic Cash System (3) Electronic Cheque System and (4) Smart Cards based Electronic Payment System. These payment systems have numbers of requirements: e.g. security, acceptability, convenience, cost, anonymity, control, and traceability.

- Credit card is the most popular methods of payment over Internet. Internet buyers seem to prefer credit cards to other electronic payment system that have been made available to them. One reason may be the simple familiarity with the credit card, as it is the oldest form of electronic payment system.

- On the basis of analysis it is concluded that, smart cards based electronic payment system is best. It has numerous advantages over the other electronic payment systems. It is expected that in the future smart cards will eventually replace the other electronic payment systems.

- Monetary value, convenience, authorization, security, authentication, non-refutability, accessibility and reliability and anonymity are the most desirable properties of any electronic payment system. Functionally, money technologies also need to achieve these operating characteristics: privacy, reliability, scalability, ease of use, personalize-able, seamlessness, interoperability, and cost effectiveness.

- It is also observed that different countries prefer the different forms of electronic payment system. For most of the Indian online customers credit card was the most used methods of payments, which is ranked at number 1. Debit card was also highly used method of payment after credit card. Cash-on-Delivery was also found very popular among the Indian online customers. In short, it is revealed that for online buying, most of the customers use electronic method of payment. Cash-on-Delivery is most popular method of payment among the non-electronic payment methods.

Security Schemes/Systems

- Security of electronic payment in the e-commerce is the biggest issue of concern not only for the developed world where most of the payment are made through Internet; but also for the developing countries like India where very few people are using electronic payment tools like credit cards etc. In the developed world problem of security exists mainly due to high technological advancement whereas in the developing country it is due to the lack of secure technologies and poor awareness among the user and the companies.

- As the chances of risks are high and many in electronic payment system; it is quite impossible to eradicate security breaches mainly because of majority of them are as a result of human malice, error or lack of awareness. But this can be minimized by introducing different layers of security in an organization to ensure that, once all the measures are in place, if one layer is breached then the next layer
will stand up and so on, until either the impact of the breach is at best detected and disarmed or at worst cause minimum damage.

- Survey reports and personal experience repeatedly shows that many of the security breaches that occur are as a result of people and most of the time they are from the inside of company. Therefore, a general observation regarding the behavior of employees should be considered as important tool of security. However for the best result consumers (users), businesses, software developers and government have to work together to make this new form of payment a reality.

- An appropriate legal framework is very important for the development of this new form of payment. Most of the counties of the world still do not have any law regarding the protection of consumers in the age of e-commerce. Fortunately we (India) do have, but our Information Technology Act, 2000 is silent about the issue of electronic payment system. Therefore there is strong need to introduce new laws regarding electronic payment and amendment is required in the existing laws to create the trust among the users of new payment tools, which is the fundamental condition for security. As there is no boundary in electronic transactions (payments), action at international level is also needed to make the electronic payment a reality all over the world.

VII

E-Commerce Strategies

- On the basis of the literature survey and experts opinions gathered during interview, 12 management strategies were identified which were indicated as primarily guiding e-commerce development in any organization. The response of these strategies was gathered on a 5-point scale. From the ranking of the mean scores, top 5 strategies were identified. These are: (1) E-commerce implementation is perceived to increase organization’s competitive edge (2) e-commerce implementation is determined by the top management (3) e-commerce implementation is determined by the consultant (4) large investments are made for e-commerce implementation and (5) e-commerce implementation is determined by the middle management.

In order to identify the dominating cluster strategies, these strategies were divided into 4 broad categories. These are: (1) CEO driven strategy (2) fall in line and network driven strategy (3) middle management and customer driven strategy and (4) investment driven and BPR driven strategy. From the ranking of total mean score of each cluster, it is identified that CEO driven strategy are most used in the Indian organizations which is followed by middle management and customer driven strategy

- On the basis of literature of review and experts opinions, 10 internal factors of strategic importance for the success of e-commerce were identified. The responses to these factors were gathered from 5-point scale. From the ranking of the mean scores, three key internal factors of strategic importance were identified. These are: (1) security and privacy of payment and information; (2) human resources and (3) quality of goods and services.
Online Shoppers Behaviors and Satisfaction

Hypothesis 6: Customers are not satisfied with the services provided by the Indian Dot Com Companies

<table>
<thead>
<tr>
<th>Calculated Value of $\chi^2$</th>
<th>7.22</th>
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<tbody>
<tr>
<td>Table Value of $\chi^2$ at 5 % Level</td>
<td>3.84</td>
</tr>
<tr>
<td>Degree of Freedom (df)</td>
<td>1</td>
</tr>
</tbody>
</table>

Result: Since the calculated value of $\chi^2$ (7.22) is much larger than the table value of $\chi^2$ at 5 % level of significance for 1 degree of freedom (3.84), therefore the null hypothesis is rejected and it is concluded that customers are satisfied with the services provided by the Indian Dot Com Companies.
privacy factor’. The responses to these factors were gathered on the 5 point Likert scale. Score 5, labeled, for the respondents who were strongly agreed; 4 for who were agreed; 3 for neither agreed nor disagreed; 2 for disagreed and 1 for strongly disagreed.

From the ranking of the mean score, top 5 factors were identified regarding which, the India online customers were highly satisfied. These are: (1) the dot com companies provides in depth information of product and services they offered (2) The company is willing and ready to respond to customer needs (3) the website understands the customers needs (4) online customers feel comfortable in surfing and (5) Enquiries are answered promptly. It is also revealed that all three variables related to privacy security are having least mean score. Therefore this problem is considered as most important. ‘The product that came was represented accurately by the companies’ this variable is ranked at 15 on the basis of mean score.

From the ranking of the total mean score of each factor, following conclusion are drawn. First, online Indian buyers rated the website design factors the highest mean score, which implied that online buyers were highly satisfied with this area of service. This factor (A) had very high mean score of 3.88 than the overall mean score of 3.785. Second, website reliability and fulfillment factors rated at 3.77, which was slightly lower than the overall mean score of 3.785. The satisfactions level regarding this factor is ranked at number 3. Third, customer service factors rated at 3.83, which was slightly higher than the overall mean score of 3.785, which implied that the customers are, satisfied with this area of service. Fourthly, compared with the perceived overall perception of a website with a mean score of 3.785, online Indian customers rated the website privacy and security factor at a considerable lower mean score of 3.66. The considerably lower mean score of the privacy and security factor suggest that consumers considered that factor to be possible obstacles in their online purchasing.
Suggestions

The studies reviewed so far (Mukhopadhyay, 2002; Arora and Banwet, 2003; Sumanjeet, 2003; Sumanjeet, 2004; Arora, 1995; Sawhney and Kaul, 2001; Pani, 2002; Singh and Singh, 2004; Sengupta, 2004) and data revealed from present study are able to indicate that e-commerce can offer huge opportunities for Indian firms in the coming years. To capitalize these opportunities offered by e-commerce in any organization requires sound e-commerce strategy, which may not be the same as the traditional business strategy and further its successful implementation in any organization. But, the successful implementation of e-commerce strategy is not an easy task. Between 2001-02 several thousand Indian dot com companies died, mainly because of the reason of poor implementation of e-commerce strategy and technology. In the present study, the problems regarding the successful implementation of e-commerce has been studied under two categories: (1) problems regarding planning/introduction/initiation of e-commerce in any organizations (2) problems after the introduction of e-commerce in any organization. Thus, two types of strategies are needed for the success of e-commerce.

I

Strategies before the Introduction of E-Commerce

In the present study the researcher has made an attempt to suggest broadly two types of e-commerce strategies. First is directed towards the strategies which one should keep in mind before entering in the world of e-commerce and second is directed towards the successful implementation of e-commerce technology after its introduction in any organization. Some strategies, which one should keep in mind before entering in the world of e-commerce, are given as under:

O9: To study the important aspects of e-commerce while entering in the world of e-commerce.

3 Sumanjeet (2003), 'E-Commerce', M.Phil. Dissertation submitted to Department of Commerce, Maharshi Dayanand University, Rohtak, Haryana.
The concept of electronic commerce has just arrived in India; therefore there is strong need to understand the concept of e-commerce in its real sense. To many Indian firms e-commerce is just a technology. But in reality, e-commerce is lot more than Internet, software and hardware or other technologies. In fact, it is all about the way of conduction of any business with technologies. Remember that, e-commerce is a true modern business strategy—the web or other technologies has not changed the fundamental of business, but only expanded its scope. Therefore, it is suggested, that any firm that wants to start business online must remember that the e-commerce strategy is to use and expose existing systems and processes, rather than build an isolated e-business system to do business online. Traditional rules of commerce still apply and should be used within e-commerce, which should be integrated with traditional business processes and must be seen as technology helping to make the business more effective, efficient and easy to use.

E-commerce can be more than technology, and if used as a strategic tool; it can provide organizational benefits though gains in productivity, marketshare or even bottom-line profitability. At the same time, if e-commerce is not suitable for a company and yet it decides to maintain a presence, it can lead the firm to financial ruin. Therefore before entering the e-commerce marketplace, a firm must considered what business value it holds. To ascertain just how the e-commerce technology fits, firms need to put in place sense making approaches that look beyond the simplistic views and strategies of bubble years. They need to be able to answer fundamental questions such as:

1. Does the Internet suit the nature of product and appeal?
2. Can the brand of firm attract customers to the website?
3. What are the savings in transaction cost?
4. What value added service and technologies can be used to encourage 'lock in'
5. What is required relationship between offline and online activities?
6. How to minimize the conflicts with traditional value chain partners?
7. How to establish the appropriate internal incentives for the online businesses to flourish without damaging the existing business?

The crash of 2000 has provided welcome breathing space for established firms to work out their answers to these and many other questions of e-commerce strategy. In forming these strategies firms’ must focus more on traditional rules and theories of business and pay less attention to traditional IT gurus and consultants.

Slywotzky (2000)10 revealed that adoption of e-commerce is necessity for the future business. In fact, it is a change and it will surely come. It is immaterial to think that whether a firm likes it or not. It is necessary for the survival and growth of business in the future. Therefore, the firm want to introduce e-commerce should have a very positive attitude11 regarding the benefits of e-commerce after its introduction. The present study identified two major psychological barriers in the planning/introduction of e-commerce. Such types of barrier should be

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11 Indian firms are not convinced with the benefits of e-commerce and it was difficult for the Indian firms to change their mind for the change.

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removed. This can easily be done by understanding the financial and non-financial benefits of e-commerce; top management by convincing their employees about the advantages of e-commerce at their work and by motivating lectures to adopt new technology and above all by providing training to use these technologies. Therefore, it is suggested for the firms to remove all the psychological barriers before introducing e-commerce. This problem looks simple, but the consequences are very real because unless you have faith you can not believe and unless you believe, you can not work for that.

- Today, the question for the Indian business is no longer whether or not to do e-commerce, but how to do e-commerce the right way. And what is the right way? The answer is a solid business planning. A crystal clear planning is needed for the success of e-commerce. Before introducing e-commerce, identify the need for an online presence. Figure out the long-term goal and always keep that in mind. After the goal fixation, a firm needs to decide what are the available options? A company may decide: (1) not to go in for e-commerce, at least for the time of being (2) to use the web just as a means of advertising (3) to open online web stores complement existing stores (4) to establish a separate online division within the company and (5) to dissolve their regular business and go for a full online business operation. The choice depends not only on the nature of business, but also on the environment it operates in, internal resources available and the company’s position and initiatives. Thus, before introducing e-commerce, a firm should identify which of the five options best suited to the overall company vision. Thus, planning, clear thinking are important to the success of e-commerce initiative.

- Once the aims and objectives for e-commerce are clear, the company needs to carry out a feasibility study and analyze that is it possible for the organization to offer online services with the available resources. It is suggested for the firms that want to introduce e-commerce technology to examine the financial, human as well as technological aspects, looking at the benefits of e-commerce and analyzing the risks and pitfalls. Financial factors should be given due consideration as introduction of e-commerce technology require huge funds. Added to this, such high tech and innovative ideas are basically risky in nature.

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12 Training is the best way to realize the employees about the advantage so e-commerce.

13 Studies revealed that businesses that lose track of the business, reasons behind an e-commerce strategy never have a fast or easy time going.

14 The goals behind an e-commerce strategy should include some or all of the following.

- Expand geographical reach
- Expand into new markets
- Increase revenue and market share
- Improve customer services and interaction
- Increase brand awareness and awareness of the company
- Reduced operating costs
- Compete with bigger rivals
- Be seen as innovative and progressive company though being an e-commerce leader.

15 This option is quite popular as it involves low costs, no costs of security, payment web hosting etc.

16 In the present study, financial burden was identified as a major barrier in the introduction of e-commerce in any organisations.
Therefore, a firm should think very cautionally before investing their funds in e-commerce. For this a company should carry out SWOT analysis. By mapping out the weakness and opportunities, risks can be identified and action planned to reduce the risks so that advantage can be taken of the opportunities.

- Coordination and integration is the key. It is complex and involves virtually every group with business from IT to marketing and sales to HR to accounting. To roll out an e-commerce strategy that is effective from the start, all internal functions of the business must be coordinated, both with respect to the process and timing. Companies must also decide whether to create a separate unit for e-commerce or try to infuse it into all company operations. Many companies are blending both approaches in order to build speed and agility while maintaining corporate unity. Thus, companies' with a bricks-and-mortar presence wanting to offer e-commerce must consider that it is not sufficient to have a world beating website. Organizations must ensure the whole business functions in an integrated manner with the visible front end.

II Strategies after Introduction of E-Commerce Technology

Ideas, plans and strategies are one thing-implementation is something entirely different. In other words, a strategy is nothing without implementation. Implementation of e-commerce strategy is neither straightforward nor cheap, for example it comprises a complete rethinking of traditional modes of behaviour. There is need to involve internal staff and external suppliers and customers rights from the conceptual stage, need to re-evaluate a company’s core competences and substantial investment in IT. Many of the advantages of e-commerce will be lost if it is implemented in isolation. On the basis of the problems identified by the present study, some suggestions towards the successful implementation of e-commerce are given as under:

- Present study identified that most of the Indian firms are not generating value from e-commerce investment that they could be. The companies that manage their e-commerce investments most successfully generate returns than those of their competitors. While a number of factors distinguish these top-performing companies, most important is the senior managers take a leadership role in a handful of e-commerce decisions. By, contrast when senior management abdicates responsibility for those decisions to e-commerce implementation,

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18 A good website should include some or all of the following qualities:

- Website should give professional appearance. Expert web development, striking graphics and logos, economic layout, planning colour schemes and professional web design add up to a motivating shopping experience for the online customers.
- Electronic payment system should be safe, secure and reliable.
- Slow loading web pages will derive online shoppers away in droves. Optimum pages for fast loads and choose state of the art hosting.
- Streamlined, intuitive navigation is essential. Solid design means clear business.
- From the mission statements to the product descriptions, compelling, clear professional written copy is utmost important.

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disaster often ensues. To help the senior managers avoid e-commerce disaster—and more important, to help them generate real value from their e-commerce investments, the researcher offers a list of six decisions for which they would be wise to take leadership responsibility. The first three have to do with e-commerce strategy; and last three relate to the execution. Each is a decision that IT people of people concerned with e-commerce should not making—because in the end it is not their job. it is the job of senior managers. These are:

1. How much one should spend on e-commerce technology
2. Decisions regarding which e-commerce initiatives will and will not be funded
3. How good do e-commerce services really need to be
4. What security and privacy risks will accept
5. What IT capabilities need to be company wide
6. Whom to blame, if e-commerce initiative fails

The present study reveals that, e-commerce firms in India are facing a talent crunch, the problems of lack of skilled manpower and experienced professionals, and high attrition. Best way to manage the knowledge workers is to provide them lots of freedom and same time load them with challenges and problems. Style of total transparency and knowledge transfer and social focus can ensure the knowledge workers to dedicate them to the organizational goals. Respect and provide the best to employees and colleagues (tech knowledge and financial benefits), create value for customers, create employment for the needy people and follow the rules and be ethical. It will make the employees more productive and their jobs more rewarding with immediate access to corporate customers and personal information and improved work process. To make the existing employees more loyal to the organization and to attract the skilled manpower, use the concept of employees’ relationship management (ERM). Further, follow

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19 The best strategy as some companies follows is that first they determine the strategic role that e-commerce will play in their organizations, as only then do they establish a company wide funding level that will enable technology to fulfill these objectives.

20 A lack of focus overwhelms the IT unit, which tries to deliver many projects they may have little company wide value or can not be implemented well simultaneously.

21 An overemphasis on security and privacy may inconveniences customers, employees and suppliers; an underemphasize may make data unlnerable.

22 Sharing and creating knowledge motivates employees to learn and think in terms of a learning community. Collective learning fosters coping skills and builds change-resilience skills in a fast changing new environment. ERM is a system and a collection of tools that:

- Strengthen corporate communication and culture
- Foster learning - about company products, services and customers in a single personalized and easily accessible format through an enterprise portal.
- Help customer-facing employees become more competent to handle customer interactions
- Establish new communication channels - mail, shared folders, mail filters, web mail, calendar and mailing lists.
- Newer communication methods like open talk forum management
- Enables efficient project management
socially motivated HR Policy to retain people and keep the attrition much lower than the industry standards.

- Trust is the essential for the successful implementation of e-commerce. A key reason for the people’s lack of willingness to provide information or shop online is ‘the fundamental lack of trust/faith between most businesses and customers on the web’. Thus, trust is essential for ‘online relationship exchanges’ involving personal and financial information, which take place in a virtual environment characterized by uncertainty, lack of control and potential opportunism. Hence, a key question for e-commerce success from a human-computer interaction perspectives: How can e-commerce technology be engineered to inspire consumer trust? There are some suggestions to build trust among the companies and between companies and customers.

To build the trust, consumer satisfaction is utmost important. ‘Consumer’ concerns with payment security and information privacy are two key hurdles identified by the present study. To overcome these hurdles, website design should help to create and establish a climate of the trust. With regard to website content, the literature has highlighted guidelines that help foster consumer trust. These are:

1. Provide identity of company (Integrity)
2. Disclose performance history (Competence)
3. Post a clear Security and Privacy Policy (Integrity)
4. Provide comprehensive and accurate information of product and pricing (Integrity)

- Smooth workflow management – Forms creation, process management that links applications and processes
- Real time access to company training
- Targets information to employees based on their interests and needs – User personalization
- Reduces time spent in searching for information – unified search tools
- Streamlines performance management
- Manages resources creatively
- Encourages loyalty and commitment from employees
- Frees HR department to concentrate on more strategic tasks
- Raises productivity
- Encourages innovation levels
- Reduces turnover

Lack of trust is directly concerned with the problems of security and privacy. Not only present, but may other past studies (Hoffman et al., 1999; Bhattacherjee, 2002 and Keen, 1997), revealed that directly or indirectly lack of trust between businesses and customers is the most significant long term barriers for the e-commerce.

This finding is also supported by the study of Hoffman, Novak and Peralta, 1990.

These two hurdles are also identified as major problems in the successful implementation by the study of Cox, 1999; Ernst and Young, 2001 and Swaminathan, 1999.
5. Disclose all aspects of customer relationship up-front (Integrity and Benevolence)
6. Reliable and secure technology (Integrity)
7. Timely and professional website design (Integrity and Competence)
8. Use third party services (Integrity)

- Despite some renowned success stories, a lot of Indian firms and private clients are still very reluctant to venture into e-commerce. The present study identified the lack of apparent security as main barriers. It is important to mention that some of these security doubts are justified, others are exaggerated. During the survey, it was identified that for most of the Indian firms' security means technology, use of latest software and techniques. But, in reality security begins with the employees. Many of the attacks taking place today feed on employees and their lack of knowledge about security. Security should be a critical part of employees’ education process. Employees should understand different methods of intrusion, what security risks they may be presented with, and how to eliminate the chance for intrusion. Existing security infrastructure must be severely scrutinized in order to prevent the infiltration of viruses and hacker intrusions into corporate networks. In addition, a well documented security procedures plan should be developed.

- Keeping up pace with the changing technology is another most important challenges identified by the present study. There is need for a continuous upgrading of technology. It is necessary for the Indian firms to be aware of changing technology and methods. Such information sourced on the web should be addressed from specialist websites and portals, and should be specific to individual sectors. Use e-mail and the web to contact with the specialist organization. To keep pace with the changing technology, few companies, especially large scales can afford to develop internally all the technologies that might provide an advantage in the future. But, ideally, a mix strategy is needed. Some technologies can be purchased from other companies; others can be acquired from licenses, partnerships and alliances; and still other critical technologies should be developed internally. Getting the right balance is again very crucial for the success.

- With the large investments in e-commerce technology, and critical risks involved, there is growing necessity for the senior executives and boards of the directors to put e-commerce firmly on the boards’ agenda. Boards and executive management need to explode governance to e-commerce technology. E-commerce governance entails several activities for the board members and executive management, such as being informed of the role and impact of IT on enterprises assigning responsibilities, defining constraints within which to operate, measuring performance, managing risks and obtaining assurance. At its core, e-commerce is concerned about two responsibilities. First, e-commerce technology must deliver the value to the business and second, e-commerce risk...
should be mitigated. Both of these areas need measurement. The board must
direct management to deliver measurable value through:
1. Delivering on time and in budget
2. Enhancing reputation, product leadership and cost efficiency
3. Providing customer trust and competitive time-to-time market.
The board should also drive business alignment by:
1. Ascertaining that e-commerce strategy is aligned with business
   strategy.
2. Ascertaining that e-commerce delivers against the strategy though clear
   expectations and measurement.
3. Directing e-commerce strategy to balance investments between
   systems that support the enterprise as is, transform the enterprise or
   create an infrastructure that enables the business to grow and compete
   in new arenas.
4. Making considered decisions about focus of e-commerce resources:
   break into new markets, drive competitive strategies, increase overall
   revenue generation, improved customer satisfaction, assure customer
   retention.

- There is big difference between spending money on customers and products
  making it all work. As many businesses are shifting their marketing battle
  from traditional commerce to electronic commerce, certain issues of creating
  satisfied customers, retaining the customers and more importantly building the
  loyal customers are emerging. Therefore, every business, B2B or B2C must
  focus on the needs of its customers and practice effective customer
  relationship management. The e-CRM is just what the e-commerce business
  needs. E-CRM is premised on the belief that developing the relationship
  with the customers is the best way to get them to become loyal and loyal
  customers are more profitable than the non-loyal customers. In fact, it is an
  excellent concept if implemented successfully. It is a part of e-commerce
  strategy and therefore requires the direction and engagement of the senior
  management to be successful. Senior management must have a broad
  understanding of the capabilities of these technologies and than translate them
  into specific opportunities that leverage the competitive advantage. Further,
  e-CRM can not be operated in an institutional vacuum, it requires
  development of a set of integrated software applications with all aspects of
  customer interaction i.e., e-mail management, interactive voice responses,
  knowledge management, instant online querying through chat, call centers etc.
  Indian e-commerce firms must carefully calculate and understand the benefits

27 Managing customer relationship effectively and efficiently boosts customer satisfaction and retention
   rates (Richheld, 1996; Jackson, 1994 and Levin, 1993)
   56-59.
   Marketing Journal, August, pp 45-54.
28 For details, please see, Sumanjeet (2005), “E-CRM: Building the Loyal Customers in the Age of

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they will gain and must realize that CRM and e-CRM investments may not show quantifiable benefits in the short term. A healthy balance of hard and soft benefits is a sign of a well thought out justification for pursing e-CRM.

- In this rapidly changing competitive scenario, where companies are fighting for a higher market share and margins, e-marketing is the frontline of any corporate strategy. Smith and Chaffey (2001) found that internet technology can be used to identifying, anticipating and satisfying the customers’ needs. Therefore it is suggested to have a sound e-marketing strategy. There are some suggestions one need to consider when market product or services online. There are:

1. Study the online demand for the firm’s product and where that demand lies. One can be pretty certain that specific demographic group can be easily located on the internet using the expertise developed over years of market research. In short, a firm should know their customers and give them the product they want.

2. The most important e-marketing related issues are pricing. There are different models of pricing goods on the Internet. An interesting model of pricing for goods sold over Internet is through offers made by customers. As the price is extremely important for e-commerce, firms engaged in e-commerce must also develop value based pricing strategies, which call for increasing perceived value and then setting the price at a level compatible with the value.

3. Besides registering catchy and memorable domain names consider brand and visual image. Think about attractive logos, visual imagery, web design formatting, packaging, and business cards anything that can transmit a memorable message about your internet business presence.

4. Once the company gets the customers to website keeps bringing them back with dynamic content, rotating product promotions, freebies and contest etc., and one owns content-rich company newsletter.

5. For e-marketing mix, a firm can think of six ‘I’s framework that summaries how IT can impact the marketing functions, and hence provides a basis for identifying opportunities and predicting future changes. These six ‘I’s shows the levers that are available for the e-marketing manager to pull through the use of IT. It may be necessary to pull all the levers in every situation. The six ‘I’s are: (1) Integration (2) Interactivity (3) Individualization (4) Independence of Location (5) Industry restructuring and (6) Intelligence.

- Creating the customers is the most important objective of the companies. In fact, customers are the most valuable assets of any company. Therefore, it is

29 Smith, P.R. and Chaffey, D. (2001), *E-Marketing Excellence at the Heart of E-Business*, Butterworth: Oxford. Further, Smith and Chaffey also provide 5 Ss as a useful mnemonic for how the internet can be applied by all organizations or for different e-marketing tactics. The 5 Ss are: Save (Save the Costs); Sell (Grow Sale); Serve (Add Value); Speak (Get Closer to the Customers) and Sizzle (Extend the Brand Online).

30 www.priceline.com allows buyers to request their own price for airline tickets, hotel reservations, cars and financing.
the responsibility of every company to protect their customers and make their online transactions safe and secure. There are some guidelines for the e-commerce firms to make their online customer safest and happiest.

1. Clear and sufficient information should be provided so that consumers can make an informed choice.
2. Advertising should be clearly identifiable. Business should respect consumers’ choice not to receive e-mail they don’t want. Businesses should take special care when targeting children and others who may lack the capacity to understand the information as presented.
3. Payment system needs to be secure and easy to use.
4. Personal information of the customers should be protected.
5. There should be access to fair, timely and affordable method to resolve transaction problems.
6. No spam
7. The confirmation process for a sale should give the consumer a chance to see what he/she has agreed to buy and to change his mind if he/she wants before the purchase is completed.
8. Online disclosures should include complete and accurate information about the business, about the goods or services for sale and about how the transaction is made.

III

Suggestions for Online Customers

E-commerce poses some genuinely new challenges regarding consumer protection. It enables consumers to purchase from a remote, and may be unknown location, which is not under the human control during the course of transactions, opening up new possibilities for errors, flaws and fraud. Consumers require a level of certainty, which gives them confidence in the process used, bona fides of the apparent trader, and the underlying security of their data and money. Indeed there is high risk in online shopping and law alone cannot remove all the risks. Add to this, in developing countries like India laws are not strong enough to tackle the problem of consumer protection in the electronic commerce age. Thus, again principle of Caveat Emptor applies on online shopping. So consumers can and should alert to these risks. There are some general guidelines for the consumers for a safe and satisfying online buying experience:

1. Read the privacy statement of vendors, especially in the case where consumers are not familiar with the vendor, verify the validity of information, as well as reputation of the company. A privacy statement is the legal binding document that describes the personal information and dissemination practices of a web site.
2. Before revealing personal identifying information online, find out how it will be used and by whom.

In the present study security and privacy factors are identified as major barriers in the successful implementation of e-commerce. Indian customers were least satisfied about this factor.
3. Many e-commerce sites require a password for online buying. If consumer have accounts at more than one site, make sure each password is different. For maximum security do not use password such as, (1) consumer’s telephone number (2) birth date and (3) any other easily identifiable attribute. Finally, consumers should not share his/her password with any other. Change the password frequently and memorize them.

4. Make a print out of all the web pages or e-mail directly related to purchase, so that the consumer will have complete records on the event of any problem. It would be advisable to print out copies of web pages that include product identification and descriptions, return policies, completed transaction forms, and confirmation notices. Be sure that the print outs include the date and time.

5. Understand all the terms of sale. If consumer is unsure or uncertain of any details, call or e-mail the company and ask question. If the consumer is not satisfied with the answer or response, shop elsewhere.

6. Consumer should give credit card details only over a secure connection. Consumer can check this in three ways: first, the address will be given in https rather than http. Second, a padlock symbol will appear at the bottom of the browser window. Third, a message will pop up when consumer switch between a secure and a insecure site, although this can be disabled. Never send credit card details by e-mail. Pay attention to credit card billing cycles, and follow up with creditors if bills do not arrive on time. This could be a sign that someone has changed the address or other information from consumer file to hide illegal changes from consumer.

7. When shopping online, check the lock or key icons on the screen to make sure that the site is secure. A broken icon indicates that the site is not secure.

8. The order form that consumer submit should reliably secure.

IV

Recommendation for Policy Making

At the government front, there is also strong need to take some vibrant step. The present study indicates that the role of Indian government is not very encouraging in boosting e-commerce in India. However, government of India has taken number of initiatives to boost e-commerce in India. Among them most were successful, and in some sense we have achieved significantly. But still the present status of e-commerce in India is very poor. There are still number of areas and aspects of e-commerce, where the strong concern of Indian government is needed. On the basis of present study, researcher is recommending the following points to consider:

- The Indian government should develop a ‘National E-Commerce Policy’ without delay. Under this policy the government should help in creating e-commerce driven opportunities in India by establishing a dedicated section in the trade department to focus on opportunities presented by e-commerce; create B2G portals allowing enterprises to tender online, thereby creating a reason for Indian firms especially SMEs to become e-commerce enabled; support the establishment of business oriented telecentres by means of financial and technical assistance thereby fast tracking the rural connectivity.
and link in with international initiatives such as that of the e-commerce section of UNCTAD.

- To make e-commerce a reality in India, there is strong need to bridge the gap of digital divide. The first step towards bridging the digital divide is to understand the divide itself, what it is? where it it? How it is? and what are the affects? The legislatures should formulate the Digital Divide Council of India to ensure that citizens and business community have reasonable access to technology. In addition, technology training is needed to develop the knowledge and skills required to enhance the quality of life.

- Telecommunication infrastructure is the backbone of e-commerce. The present study identified that India's telecommunication infrastructure is very poor as compared to many developing and developed countries. Therefore it is recommended that government of India should take some vibrant step in this direction to boost e-commerce in India. In the Indian context following strategies should be adopted to promote e-commerce infrastructure.
  1. With a view to developing the ICT in the country; it is important that the government plays an active role as ‘enabler’ of ICT development. The government should focus on facilitating the entry of smaller, underprivileged players into the marketplace and work on public-private partnership for increasing investment in this sector.
  2. The Indian telecommunications system continues to be governed by the provisions of The Indian Telegraph Act (ITA) 1885 and the Indian Wireless Act 1993. Substantial changes have been taken place in the telecommunication sector since 1992. Therefore, ITA 1885 needs to be replaced with more forward looking policy/act. The new policy framework should focus on creating an environment, which enables continued attraction of the investment in the sector and allows creation of communication infrastructure by leveraging on technological development.
  3. With a view to promoting indigenous telecom equipment manufacturer for both domestic use and export, the government should provide the necessary support and encouragement to the sector, including suitable incentives to the service providers utilizing indigenous equipment.
  4. Human resources are considered more vital than physical resources. Emphasis should be placed on the development of the human resources for all fields related to the telecommunication and the dispersal of this expertise to the related fields. Such expertise should also be made available to the other countries.
  5. Recognizing that telecommunications is a prime pre requisite for the development of e-commerce, telecommunication related research and development (R&D) activities should be encouraged. Government should ensure that the industry invests adequately in R&D for service provision as well as manufacturing.

- A facilitative legal framework is a sine qua non for the promotion and development of technology like e-commerce. As e-commerce is gaining
popularity in India; it is essential that all players know where they stand vis-à-vis the law of land. The IT Act, 2000, has been addressed to a considerable extent the legal questions involved in adoption the cyber mediums of communication, contracts and commerce. But, still there are many important issues of e-commerce in India, which are not covered by the IT Act, 2000. It is clear from the reading various provisions of IT Act, 2000 that there is nothing in the Act to protect the consumers from false and untrue advertisement or presentation of online information to the consumer and redressal of consumer disputes arising out of E-commerce transactions. The other important aspects of e-commerce in India are certain financial issues such as customs and taxation in relation to the sale of consumer goods. Added to these, many other important issues like electronic payment systems, intellectual property rights, right and liabilities of domain name holders, privacy, wap and mobile commerce are not covered by the Act. Such issue needs to be resolved at the earliest to promote systematic growth of e-commerce in India and for giving full effect to the provisions of the Act. For this, there is strong need to amend the not only IT Act, but also other related laws such as Intellectual property rights, Indian Panel Code etc. In short, keeping in view the emergence, growth and growing ramification, this law will need constant modification to be at par with the existing requirements of modern day post-globalize world.

Last but not the least; government should create an e-commerce friendly environment. In this direction first, there is need to promote a strategy to educate people to become the knowledge worker and IT savvy citizens to take the advantages of e-commerce. There is need to join the hands with international institution (UNCTAD, World Bank and ITC) working in the direction to promote e-commerce. Further, government of India should encourage content creation in the areas where country like Indian has advantage such as traditional art, music software products. Government should also create awareness about the benefits of e-commerce and should also promote the Indian companies to join B2B at an international level.
The application of information technology in business has undergone a paradigm shift since its evolution. Electronic Commerce (E-Commerce) is possibly the most promising information technology application that enterprises have seen in the recent years. The benefits of e-commerce have been recognized by the businesses throughout the world. It has completely transformed how businesses join buyers and sellers, manage supply chains and bring products and services to the marketplace without the hindrance of time and distance. Further, it can reduce costs, increase sales and profits. Despite of many challenges, e-commerce offers huge business opportunities, which are not available through the brick-and-mortar. In fact, applications of e-commerce models have become very important, not only for the growth of business, but also for the survival in the liberalized, globalized and high-tech business environment. In short, e-commerce has become an integral part of corporate strategy all over the world today and it will become more critical in the days to come. India is one of the few countries where this trend seems to be catching on.

In India, e-commerce is still in embryonic stage, while in the other parts of the world it has already taken deep roots. It accounts for a very small proportion of business even in those sectors where it is growing fastest. But, it is the rate of expansion; in many areas it is growing exponentially. In India, most of the e-commerce transactions are limited to the B2B and B2C models of e-commerce. Among the Indian companies B2B is fast flourishing and registered rapid growth in India within few years. However, B2B in the past few years was limited to the Indian buying sites of other countries, which denotes the outflow of cash. As compared to B2B e-commerce, the share of B2C is very small in India.

Today, e-commerce is becoming all pervasive and is having deep impact on the Indian trading, services as well as manufacturing sector. But, perhaps nowhere else is the impact of e-commerce in India felt as much as in the service sector. The e-commerce technology has come up with many channels for service delivery, offered like never before convenience to the customers. Therefore, Indian companies are also positioning themselves as e-service companies. Online stock trading, which is most amenable to e-enablement has registered very impressive growth in India. But, if we compare the present situation of Indian e-commerce industry with other countries, the situation is far below the level of satisfaction.

In short, e-commerce industry in India has not taken off as expected. Despite the perceived benefits and optimism, e-commerce adoption was hindered by number of constraints. Some of the most important challenges in the introduction and successful implementation of e-commerce, as identified by the present study are: psychological barriers; financial burden; lack of skilled manpower to handle e-commerce transactions and technology and poor IT infrastructure. Added to these, certain technological, legal, as well as economic constraints are impending the growth of e-commerce in India. The study also revealed that ‘security and privacy concerns’ are not inhibitors for Indian firms; but for the Indian customers. However, for Indian firms, this issue is always a prime factor of internal strategic importance, followed by human resources and quality of goods and services. Regarding the satisfaction of Indian online customers, study
revealed that Indian online customers are highly satisfied with ‘website design factor’ than the other factors like ‘website reliability and fulfillment’, ‘customer services’ and website privacy and security factors’. Further on the strategic part, study identified that ‘CEO driven strategies’ are most used in Indian organizations, which is followed by ‘middle management’ and ‘customer driven strategies’.

In India, e-commerce represents tremendous challenges, but also great opportunities for the growth and development. Though the sample firms felt that e-commerce was beneficial to the business in general, they were uncertain as to how it would benefit their actual business operations. The study identified the important facilitators behind the adoption of e-commerce. Some of the most important are: improved business process flow and save time; reduced sales costs; reduced marketing and distribution costs; and pressure and insistence for electronic commerce mode by competitors and foreign buyers. Further, study revealed that, in Indian firms, e-commerce is more facilitated by ‘cost driven facilitators’ than the ‘technology’ and ‘organizational’. Study also suggest that small scale firms can enjoy the benefits through e-commerce technology by having an access to the international market; disintermediation process; increase turnover and stay ahead of the competitors.

As far as future of e-commerce in India is concerned, it looks very bright; however the observed ‘expected growth level’ of e-commerce in India is not very attractive. But, still in a developing countries like India, where market size is very large, transactional costs are high, customer services are poor, paper work is more, business require huge investment, internet users are growing rapidly and where information and knowledge based industries still needs to open, e-commerce has huge potential. The study revealed that, following the past trend B2B and B2C model of e-commerce is expected to offer huge business opportunities in the coming years. In B2B e-commerce, highest opportunities are expected in the manufacturing sector, followed by services sector. In B2C e-commerce highest opportunities are expected in the ‘airline/railway ticket reservations’, followed by books and musical products. Further, the study revealed that, e-commerce will prove to be beneficial for the business, customers, employees, society and economy as a whole. Thus, the study revealed that e-commerce can offer huge business opportunities for the Indian firms in the coming years. To capitalize these opportunities offered by e-commerce in any organization requires sound strategy, which may not be the same as the traditional business strategy and further its successful implementation in any organization. Thus, if the Indian firms want to develop effective strategies for competing in the new economy (digital economy), they must understand the fundamental structure of the next generation of e-corporation built on the interconnected web of the enterprise applications.

At the government front, Indian government has already taken number of initiatives to boost e-commerce. But, there are many areas and issues where strong concern of Indian government is needed. There is strong need to boost the IT infrastructure and bridge the gap of digital divide. Further, there is an urgent need to address the tedious issues relating to security of payment and information, e-taxation, customers protection. Last but not the least; government of Indian should create an e-commerce friendly environment. All the more, change will come only by awareness at all levels.

In short, this is a substantive research effort. It should provide both qualitative and quantitative insights for those embarking on or pursuing e-commerce in practices for the years to come.