Summary of Major Findings and Suggestions
Chapter - VII

SUMMARY OF MAJOR FINDINGS AND SUGGESTIONS

7.1 Introduction

Globalisation has integrated different economies of the world. Today, the development of any economy is viewed as a part of the global process. In this scenario, information and communication technology (ICT) can provide a wide range of benefits for the growth of the economy and become the driving force for the business and industry. More specifically, ICT can reduce business operating costs, improve productivity and strengthen growth possibilities. The adoption and implementation of ICT by firms can improve business cooperation, business relationships, quality and diffusion of knowledge. SMEs with an innovation philosophy can adopt ICT as a powerful strategic tool. ICT is not a strategic resource by itself, but can be a facilitator for growth of business and more specifically for the SMEs. For this reason, ICT has a complementary role and needs to be exploited along with the other business resources in order to get an optimised source of competitive advantage.

The analysis of the strategic value of ICT could include not only its own technological features but also the individual adjustments of the particular firm to the organizational structure, capabilities, resources, incentive system, facilitating interaction mechanisms to all elements of performance conditioners and the possible contribution to a competitive advantage.

Across the world, there is a growing recognition that small and medium enterprises (SMEs) have an important role to play by giving their greater resource-use efficiency, capacity for employment generation, technological innovation, promoting inter-sectoral linkages, raising exports and developing entrepreneurial skills. Their flexibility of location is an important advantage in reducing regional imbalances. In spite of its contribution to the economy, today it is getting lot of threats from its large-scale counterparts. The future of SMEs is of major policy concern given their strategic importance in any
discussion of reshaping the SME sector. This is more so in the case of India, which has one of the longest history of government support to the small-scale industrial sector compared to most of the other developing countries.

Given the above backdrop, the present study was undertaken to examine the status of IT implementation in small and medium enterprises in Orissa vis-a-vis India. The specific objectives were:

1. To study the growth and development of SMEs in Orissa
2. To examine the levels of IT interventions in SMEs in Orissa
3. To identify the factors which affect the adoption of IT in SMEs
4. To suggest a model for improvement of IT adoption by SMEs in Orissa

In order to accomplish the stated objectives, the relevant data were collected from owner / manager of registered SMEs operating in Orissa representing a sample size of 141 comprising of 111 male and 30 female respondents. The data were collected through a structured questionnaire on four major perceptual aspects of technology adoption, namely, ease of use, usefulness, benefits and barriers. The Technology Adoption Model (TAM) suggested by Davis (1996), Venkatesh (1997), and others were considered for the study.

The following hypotheses were formulated and tested for in order to validate the results of the study:

\( H_01: \) Gender and age of the sample respondents are independent of all the components of Perceived Strategic Value and adoption of e-Commerce.

\( H_02: \) There exists no correlation between the Perceived Strategic Value and the Adoption of e-Commerce.

\( H_03: \) Variables like organisational support (OS), managerial productivity (MP), and Strategic Decision Aids (DA) do not influence the perception of strategic value of e-Commerce by the entrepreneurs / managers.

\( H_04: \) Variables like organisational readiness (OR), eternal pressure (EP), compatibility (CC), perceived ease of use (EU), and perceived usefulness (PU) do not influence the adoption process of e-Commerce in the SMEs under study.

\( H_05: \) Perceived Strategic Value does not influence the adoption process of e-Commerce in the sample SMEs.
7.2 Major findings

The major findings of the study may be enumerated as follows:

7.2.1 Growth of SMEs in Orissa

- The industrial units existing in the State of Orissa prior to the Plan period were mainly in the unorganised sector in the form of small and cottage industries by the traditional craftsmen. During the First Plan (1951-56) period, the emphasis was on the development of infrastructure facilities, while the Second Plan (1956-61) laid the industrial foundation in the State. The State Government’s encouragement had attracted a large number of industrial units in private sector during the Third Plan Period (1961-66) and the industrial activities in the State moved at a slower pace from the Third Plan to till the end of the Fifth plan (1961-79).

- The industrial and entrepreneurial activities gained further momentum in the State in the early eighties with the declaration of Industrial Policy Resolution of the State in 1980. A total of 14,318 small scale units were set up during this period of 1980 to 1985 with an investment of Rs.133.52 crore, compared to only 9,119 units with an investment of Rs.68.95 crore prior to the said period.

- The seventh Plan (1985-89) period was also another remarkable period in the industrial history of Orissa. This period witnessed further expansion and consolidation of industrial activities in the state in response to a more liberalized industrial policy announcement in 1986. In the small scale sector a total of 12,408 units were set up during this period, with an investment of Rs.233.09 crore that generated an employment potential for 83,195 persons.

- The industrial policies of 1992 and 2001 provided further boost to the SSI units in the State. During the Eighth Plan (1992-97) period, 12,360 SSI units were set up with an investment of Rs. 358.63 crore. These figures increased to 17,438 and Rs. 805.49 crore respectively, during the Ninth Plan (1997-2002) period. Establishment of SSI units further consolidated during the Tenth Plan (2002-07) period increasing to 22,292 units with an investment of Rs.1112.44 crore and generating an employment opportunities for 1,04,728 persons.
• The number of SSIs in Orissa has thus increased from 9,119 units to 22,292 units over a period of three decades from 1979 to 2007 registering a growth of two-and-half times, but the growth is more visible in the service sector compared to that of manufacturing sector.

7.2.2 Interrelationship among performance variables

• The analysis of the sample data reveals that the product category is significantly associated with the product type, location of the units, location of the market, and the marketing strategy and not significantly associated with ownership pattern of the units.

• The performance of the units in terms of production, capacity utilisation, turnover, growth in sales, and net profit is associated with the type of industry.

• The performance of the units in terms of generation of employment reveals that manufacturing industries provide higher employment followed by IT sector and differences in the generation of employment opportunities is statistically significant across the industry type.

• Investment (own capital investment) varies across the industry type which is statistically significant at 1 per cent level of significance.

• Number of PCs used in the firm and Internet browsing are associated with the product category. But Internet browsing is not associated with the location of the units as revealed from the sample data.

• Adoption of e-Commerce is associated with the location of the units, but not with the product category. Units adopting e-Commerce are mostly located in urban areas or in industrial estates.

• The provisions of Internet services are associated with both the location of the units and the product categories in the sample organisations.

7.2.3 Perception and adoption

• The sample respondents of the study across gender perceived the two constructs of e-Commerce adoption, i.e., the perceived strategic value and the ease of use as similar in seven out of the eight variables except 'external pressure' where the difference is statistically significant. The eight variables are Organisational Support (OS), Managerial Productivity (MP), and Strategic Decision Aids (DA), Organisational Readiness (OR),
Compatibility (CC), External Pressure (EP), Perceived Ease of Use (EU), and Perceived Usefulness (PU).

- Age has no bearing on the average scores of perception in respect of seven out of eight variables under study except the variable named 'perceived usefulness' as revealed from the sample data.
- The analysis of data across educational background indicates that the average scores differ significantly for the variables like 'organizational support', 'decision aids', 'compatibility' and 'ease of use'; whereas for the rest of the variables, the average scores do not have significant differences across four different educational backgrounds.
- There exists a significant difference in the average scores assigned by managers/entrepreneurs with different years of experience in the present position except for the variable 'external pressure' and 'perceived usefulness'.
- Average scores for the variables 'organizational support', 'managerial productivity', 'organizational readiness', and 'compatibility' are statistically significant at 5% level of significance. Accordingly, for the rest of the variables, i.e., 'decision aids', 'external pressure', 'ease of use', and 'perceived ease of use' there exists no significant difference in the average scores assigned by the managers with different years of presence in that company/firm.
- Average scores across the employment size for all the variables except for 'organizational readiness' are statistically significant indicating similarity across organizations.
- As regards technology adoption and position of the respondent, it is found that all the three variables under the perceived strategic value construct and the four primary variables of the adoption construct have statistically significant influence in the adoption decision.
- The sample data indicates a high degree of relationship between the two constructs in the study, i.e., 'perception of strategic value' and 'adoption of e-Commerce' (canonical correlation coefficient is greater than 0.75).
- External pressure (EP), organizational readiness (OR), ease of use (EU) and perceived usefulness (PU) are the primary criterion variables with compatibility (CC) making secondary contributions to the synthetic criterion variable. Regarding the predictor variable, only organizational
support (OS) is the primarily contributors to the predictor synthetic variable.

- For adoption construct, 'external pressure' is making the most primary contribution for male respondents. Whereas for female entrepreneurs / managers, this variable is least important and the primary variables are 'perceived usefulness' followed by 'organizational readiness'.

- Decision aids is the primary variable for the construct "perceived strategic value" for the respondents within the age group of 35 years, whereas managerial productivity is the primary variable for the entrepreneurs/managers in the age group '35 - 45' years and 'above 45' years. 'External pressure' is the primary variable for the respondents in the age group 'up to 35' years and between '35 to 45' years under adoption construct.

- In the study, managers / entrepreneurs with educational qualification 'graduation' viewed managerial productivity as the primary factor for the perceived value construct. On the other hand, decision aids was considered as the primary variable by the entrepreneurs having 'post graduation' qualification.

- Sample respondents having more than 10 years of experience in the present position, viewed all the three variables under perceived strategic value as primary. As regards adoption construct, persons having more than 10 years of experience as the decision maker rate all the five variables, i.e., organizational readiness, compatibility, external pressure, ease of use and perceived usefulness as primary.

- All the variables under the two constructs (i.e., perceived strategic value and adoption) were contributing heavily to these constructs in case of the companies / firms, where the managers / entrepreneurs were in those organisations for 'more than 10 years'. SME units in the study, 'employing 20 to 50 persons', took all the variables under both perceived strategic value and adoption constructs as primary to these constructs.

7.2.4 Barriers and benefits

- The sample respondents viewed 'privacy of data and security issues' and 'inadequate legal protection for e-Commerce transaction' as the major barriers for adoption of e-Commerce.
• Respondents across gender, education, type of industry, present position in year and years with present company / firm behave similarly in their perception about the barriers on adoption of e-Commerce.

• Sample respondents within the age-group 35 - 45 perceive 'customers are not comfortable with the new technology', 'finding start with the e-Commerce expertise', 'cost of implementing and e-Commerce web portal', and 'cost of supporting infrastructure and Internet access' as the major barriers for adoption of e-Commerce.

• Similarly, 'enhanced customer support system', 'better communication with the customers' and 'greater access to international business' was perceived as the major benefits of adoption of e-Commerce.

• Respondents across gender, age, education, type of industry, present position in year and years with present company / firm behave similarly in their perception about the benefits on adoption of e-Commerce.

• Training programmes for SME managers and employees focusing on both technical and managerial skills need to be provided in cooperation with business and sector organisations, training institution and commercial training services.

• In general, the barriers and benefits of adoption of e-Commerce are perceived similarly by the respondents in demographic variations. However, the average score of benefits is greater than the average scores of barriers suggesting higher perceived benefits from e-Commerce adoption by the sample respondents.

7.3 Suggestions

Based on the findings from the research, the following suggestions are given for greater adoption of e-Commerce by the SMEs:

• Efforts and initiatives may be taken at the government and administrative level to provide incentives to SMEs through simplifying the administrative procedures, reducing the cost of implementation and allowing them to enter new markets through e-procurement.

• More attention of the policy makers needs to be given to address the human resources issues in implementation of e-Commerce in SMEs. Training programmes for SME managers and employees need to be
designed to improve their abilities to use and derive benefits from e-
Business strategies.

- The structural model adopted in the study, suggests that an
improvement in the adoption process in terms of perceived strategic
value can be more convenient for owners and the managers because the
perceived ease of use and perceived usefulness as latent variables
having the greatest effect on adoption process of IT in SMEs.

- The study also suggests a change in existing culture, values, preferred
work practices and technology infrastructure of the SME units, since the
factor 'Compatibility' had secondary contribution to the adoption of e-
Commerce.

- The government would take the lead in improving the infrastructural
factors for data communication and interchange of information with
suppliers and with government / local administration by providing a
secured and faster platform for the users and thereby improving their
confidence.

- Specific IT policy may be pronounced by the State as well as by the
Central Government for faster and easier use of e-Commerce by the
SMEs in Orissa.

7.4 Proposed model of e-Commerce adoption for SMEs

It is believed that the Internet will eventually be an extremely
important vehicle for commercial and consumer transactions by any
business. Moreover, early adopters of e-Commerce have found that
customers have been slow to accept the technology and therefore, with few
exceptions, the benefits of early adoption have not been realized. The
above suggestions can be best implemented through developing a
model for adoption of e-Commerce by SMEs.

Using theoretical foundations from established information systems
implementation research, innovation diffusion theories, e-Commerce and
small business literature, this research seeks to explain e-Commerce
implementation success by examining factors that may be associated with
the adoption of e-Commerce within organisations and between its business
partners. The relationships of these factors with the adoption of e-
Commerce are shown in the figure 7.1.
Figure 7.1  Suggested e-Commerce adoption model for SMEs

The suggested model proposes five types of factors that are to be considered for the adoption of e-Commerce in SME sector. These factors are illustrated in figure 7.1. Some of these factors may be more important at the time the organisation is deciding whether to adopt e-Commerce technology than in influencing the extent to which e-Commerce is implemented in the organisation. On the other hand, some other factors may be important both in the adoption decision and in the subsequent implementation. Many of the factors identified here are suggested in the literature, which attempts to distinguish adopters from non-adopters; many of these factors may also impact the adoption decision and the extent to which e-Commerce is implemented.
7.5 Action Plan for adoption of e-Commerce in SMEs

The above suggestions can be best implemented through an action plan for adoption of e-Commerce by SMEs in Orissa. It is believed that the Internet will eventually be an extremely important vehicle for commercial and consumer transactions. However, SMEs have been slow to adopt the technology till date. Most of the firms today in Orissa have an Internet presence in the form of a corporate Web-site. Few SMEs use Internet to conduct transactions with customers and suppliers. The following points may be taken into consideration while developing an action plan for adoption of e-Commerce in SMEs in Orissa:

7.5.1 Action plan for the Organisation

To reap the benefits of adoption of e-Commerce the following changes may be made in the organisation:

- The work practices be changed to an online system, with procurement to sale made online.
- The supportive systems like 'supply chain management' be adopted to facilitate online practices both at the up-stream and down-stream level.
- Adequate training be provided to the existing employees to go for online operations. Technical manpower be inducted to supplement and complement the existing employees.
- The organisation culture be modified for adoption of e-Commerce, which would be based on willingness of the top management for change, mutual trust and cooperation of the employees and reduction of rules, regulations and procedure.

7.5.2 Action plan for the Government and the policy makers

The adoption of e-Commerce will be facilitated with the following changes at the policy level:

- The Government may provide an IT infrastructure or improve the existing one to attract more and more SMEs to go for e-Commerce adoption. The Government may play the role of a facilitator to the organisations by providing the 'broad infrastructure interface'.
- The government and administration may provide incentives to SMEs through simplifying the administrative procedures, reducing the cost
of implementation and allowing them to enter into new markets through e-Procurement.

7.6 Conclusion

This research has aimed to gain an understanding of the perception of the SMEs to e-Business technology and its adoption to serve its business objectives. Electronic commerce covers many other applications besides Internet e-Commerce. The adoption of e-Commerce in SMEs mostly confined to business-to-business (B2B) and business-to-customer (B2C) applications. Various factors influencing the perception and adoption of e-Commerce have been analysed and an action plan has been suggested for successful implementation of e-Commerce in SMEs.

Evolution of a conducive climate needs to be fostered for the commercial application of a broader range of e-Commerce technologies to a wide range of business enterprises. The Government and private organisations including industrial houses need to promote the off-the-shelf e-Commerce technologies both Internet and non-Internet based for SMEs.

The small and medium enterprise needs to examine its value system to ascertain the most effective use of the Internet to support its business. An investment in Internet by one SME may open up new global markets, but not necessarily provide benefit to other SMEs. Therefore, collaborative approaches need to be considered for benefit of the SME cluster.

SMEs may consider their current status of business partnerships to support the development and on-going maintenance of web based applications and e-Commerce initiatives. Therefore, the SMEs need to examine all possible applications of e-Commerce and assess their applicability for adding values to their individual business.

7.7 Scope for further research

Further research may be conducted in the following dimensions:

i) Research can be taken up to investigate other aspects of technology adoption like information management systems, office automation processes, official communication systems, online maintenance of records and inventories, contracts and tenders management along
with the online financial management systems, human resource practices beyond e-Commerce and e-Business.

ii) Research may also be oriented towards understanding the motivations of organisations to go for ICT adoption and understanding the situational factors which influence the adoption of e-Commerce.

iii) The influences of personal characteristics of the owners / managers may also be investigated to develop an optimised model.

iv) The role of organisational factors, role of leadership and cultural context in supporting the decision for adoption of e-Commerce by SMEs may be taken up.