Chapter One: Introduction
1. Background

Today organisations of all types are utilising Information and Communication Technologies (ICT) around the globe, not only for cutting costs and improving efficiency, but also for providing better customer service. Governments too, around the world, are adopting ICT to provide better services to their citizens. The adoption of ICT by organisations requires a business environment encouraging open competition, trust and security, interoperability and standardisation and the availability of finance for ICT (UNCTAD, 2004).

Most of the large and international organisations in India have effective computer systems to efficiently conduct business. A number of large organisations have spent huge amount of money on installing computer systems to support their business processes. However, the situation has not been the same with Small and Medium-sized Enterprises (SMEs) similar to other parts of the world for various reasons (Parker and Castelman, 2007), (Shiels et. al., 2003), and (Fink and Distere, 2006).

SMEs have gradually recognised the positive impact ICTs, such as computer terminals, e-mail and the Internet and their applications can have on their business. In advanced OECD (Organisation for Economic Cooperation and Development) countries, most small firms, including micro-enterprises with fewer than ten employees, now have at least the computer terminal, usually with Internet access. Many types of business software can improve information and knowledge management within the firm, leading to more efficient business processes and better firm performance. Communication via e-mail and the Internet can help to improve external communication, in either Business-to-Commerce (B2C) or Business-to-Business (B2B) context, and may reduce transaction costs, increase transaction speed and reliability, and extract maximum value from each transaction in the value chain.

SMEs play an important role in economic development of a country. Several theories elaborate on connection between information technology, economic development and social change. Almost all agree on the importance of ICT adoption in SMEs, while the importance of SMEs as engines to economic growth is well acknowledged worldwide. SMEs would need as well as effective information systems to support and to deliver information to the different users. Such information systems would include those technology that support decision making, provide effective interface between users and computer technology and provide information for the managers on the day-to-day operations of the enterprises. Information is needed for various purposes and serves as an invaluable commodity or product. Information
is very important aspect of decision making in all levels of management in enterprises (Hicks, 1993), especially in competitive business environment and managers utilise information as a resource to plan, organise, and staff administer and control activities in ways that achieve the enterprises objectives. The ability of SME’s to realise their goals depends on how well the organisation acquires, interprets, synthesises, evaluate and understands information and how well its information channels supports organisational processes.

This technology will continue to enable the growth of global work, where SMEs operate across national boundaries. Today, new technologies, especially Internet technology are changing the global flows of information, trade and investment and the competitive advantage of industries, services and regions. These changes are requiring from all enterprises, no matter of their size to invest in the adoption of new technology. The ability of SMEs to survive in an increasingly competitive and global environment is largely influenced upon their capacity to access information as a resource and usage of new technologies. Greater use of these technologies is often associated with improved availability of information, quality of work, effectiveness and efficiency in accomplishing tasks.

As the digital economy blossoms, e-commerce and ICT have had a significant economic impact on enterprises and society as a whole. They are being applied in many areas such as manufacturing, procurement, distribution and financial services. They are a source of improvements in efficiency in these activities, in enterprise management and in workers’ skills. They also enhance the delivery of public services and access to social services such as education and health.

2. Statement of the problem

Most of the SMEs in India are in early stage of business networking as they have recently started adopting integrated information systems such as ICT, Enterprise Resource Planning (ERP). The business performance problems associated with the lack of such systems are discussed below.

- Problems due to lack of Integrated Transaction Information Systems

An integrated transaction oriented information systems (ISs) is concerned with the seamless flow of data and work flow among the business functions of the enterprise
resulting into improved administrative and operational efficiency in the organisation. The absence of such systems in the enterprise may result in to following business problems.

- High lead time in business processes
- High cycle time in business transactions
- High Inventory
- Poor utilisation of financial as other enterprise resources
- Poor productivity
- High stock outs

- **Problems due to lack of Planning and Control Oriented Information Systems**

  The planning and control oriented ISs are concerned with improved coordination and collaboration among different business functions enabling enterprise to be more dynamic and intelligent in decision making. The lack of such systems may results into the following business problems.

  - Poor utilisation of enterprise capacities and resources
  - Unsatisfied customers and suppliers
  - Unable to handle competitiveness
  - Poor flexibility in demand supply management
  - Unable to plan growth and future
  - Poor dynamism

  Even if SMEs are aware of the benefits of ICT, they will only adopt ICT if they can overcome the barriers to its adoption. The lack of affordable and accessible ICT infrastructure is the first obstacle that SMEs need to overcome, whether they are adopting basic ICT such as phones or more advanced ICT such as e-commerce. The next obstacle is human capacity. Users must understand how to use ICT and how it will change the way they do business. This obstacle is more prominent for advanced ICT such as e-commerce and ERP software than for basic ICT such as phone lines and fax. The third obstacle to overcome is financing. This is a problem for both basic and advanced ICT. Having the appropriate legal framework is the last obstacle to overcome because it mainly applies to online transactions. SMEs can still adopt phone lines, email, and many e-applications without a well-defined legal structure.

  The lack of ICT literacy is a major problem affecting all sectors of the economy in every part of the world. When business and technology are managed on two different tracks, companies spend a large part of their revenues on technology, and most of them are not
satisfied with the return on their investment. Such expensive failures have led many observers to question whether ICT can ever produce a defensible long-term competitive advantage. While any business today should take full account of the impact of advances in ICT, the organisation’s ICT strategy should be dominated by its business vision and strategic direction. Business principles, from which ICT implications can be drawn, should form the basis of the organisation’s ICT policies and investment guidelines.

**The Role of SMEs in the Karnataka Economy**

In recent years there has been increasing awareness by governments in the developing world of the role played by SMEs and their contribution to the economy. The importance of the small business sector is also recognised internationally in terms of its contribution to employment creation, Gross Domestic Product (GDP) and innovation. In the Indian situation, the development of the small business sector is regarded as crucial for the achievement of broader development objectives. These objectives include poverty alleviation, spreading employment to rural areas, improving the situation of women and increasing indigenous ownership of investment in the economy (Nyoni, 2004). Factors of the contribution the SMEs sector to the Karnataka economy follows below:

1. SMEs creates employment opportunities

   Since the opportunities on formal employment are shrinking globally, there is a need to turn the focus to the SMEs sector as the potential for investment and for making a meaningful contribution to employment generation. As conventional sources of employment are shrinking, formal employment opportunities are becoming increasingly limited in Karnataka.

   The lack of employment opportunities in India turns the focus of the SMEs sector as the potential for investment and for making a meaningful and substantial contribution to employment generation. As the primary employment-creating sector of the Karnataka economy, small businesses are responsible for the livelihood of millions of Karnataka as they employ the largest number of people which result in them having disposable income. The availability of disposable income will therefore enable people to purchase goods and services which they need for their day-to-day survival.

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2. Contribution of the SMEs sector to the economy

Potential benefits of SMEs development are:

- Mobilising and stimulating the vast potential for entrepreneurship
- Facilitating a wide economic base and the creation of wealth
- Increasing the nation’s wealth through fuller utilisation of all the country’s human resources capabilities
- Developing an economic structure that is self-sustaining with a high degree of sectorial linkages; and
- Increasing indigenous ownership of investment in the economy.

*Micro, Small and Medium-sized Enterprises (MSME) in Karnataka state*

MSME contributes significantly to the prime social objective of providing employment opportunities to millions of people across the State. The MSME sector has been contributing significantly to industrial production, exports and Gross State Domestic Product (GSDP). The Government had formulated a comprehensive new Industrial Policy in 2006 and has adopted the new industrial policy for the period 2009-14. Under the new policy in order to make the State more attractive and investor friendly, there was a need to focus more on inclusive industrial development, comprehensive Human Resource Development (HRD) programmes, special attention towards development of sector specific attention towards development of sector specific zones, classification of taluks according to Dr. D.M. Nanjundapa Committee Report, attractive package of incentives and concessions, encouragement of existing Industries to take up expansion, modernisation and diversification etc. The State also understands the need to provide stimulus measures for industries to combat the prevailing financial crisis. Keeping these points in view, the state intends to formulate a new industrial policy with a determination to provide level playing field to all investors. This policy framed with the broad guiding principles of certain of employment, development of backward regions and value addition to local resources. Under the new policy, it is envisaged to provide preferential treatment for MSME sector enabling to meet the global challenges and to lay thrust on development of MSME sector through attractive package of incentives and concessions.

MSM enterprises have been categorised broadly into those engaged in manufacturing and providing/rendering services. Both categories have been further classified into MSME based
on their investment in plant and machinery in case of manufacturing enterprises and on equipment in case of service enterprises with a focus on harnessing resources of MSM sector to its optimality and to make provision for private sector participation.

In 2008-09, 15705 MSME Units have been registered in the State with an investment of Rs. 101617 lack by providing employment to 105034 persons. In the first eight months of the current year (April to Nov. 2009) 10081 Units have been registered with an investment of Rs. 70550 lack by providing employment to 67162 persons. Under this, 9465 Micro units, 603 Small and 13 Medium industries have been registered with an investment of Rs. 2226440 lack, Rs. 4055130 lack and Rs. 773417 lack respectively, by providing employment to 4719119123 and 848 persons respectively. When compared to the same period of previous year 2008-09, there is 8.53% increase in number of units registered, 13.27% and 5.0% increase in investment and number of persons employments employed respectively. Details are given in table 1.

<table>
<thead>
<tr>
<th>Item</th>
<th>2007-08</th>
<th>2008-09</th>
<th>April to Nov 2008</th>
<th>April to Nov 2009</th>
<th>Percentage variation 2009 over 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MSMEs (SSIs) Registered</td>
<td>14984 (19.10)</td>
<td>15705 (4.80)</td>
<td>9289</td>
<td>10081</td>
<td>8.53</td>
</tr>
<tr>
<td>2. Investment (Rs. lack)</td>
<td>112659 (142.10)</td>
<td>101617 (-9.80)</td>
<td>62287</td>
<td>70550</td>
<td>13.27</td>
</tr>
<tr>
<td>3. Employment</td>
<td>123399 (114.50)</td>
<td>105034 (-14.88)</td>
<td>63961</td>
<td>67162</td>
<td>5.00</td>
</tr>
</tbody>
</table>

*Table 1-1: Registration of MSM Enterprises in Karnataka 2007-08 to 2009-10*

Source: Directorate of Industries and Commerce, Bangalore

*Definitions of MSME*

In accordance with the provision of Micro, Small & Medium Enterprises Development (MSMED) Act, 2006 the MSME are classified in two Classes:

- **Manufacturing Enterprises**: The enterprises engaged in the manufacture or production of goods pertaining to any industry specified in the first schedule to the industries (Development and regulation) Act, 1951.

  The Manufacturing Enterprise is defined in terms of investment in plant and machinery.
• **Service Enterprises:** The enterprises engaged in providing or rendering of services and are **defined in terms of investment in equipment.**

The limit for investment in plant and machinery / equipment for manufacturing / service enterprises, as notified, *vide S.O. 1642(E) dt.29-09-2006* are as under:

<table>
<thead>
<tr>
<th><strong>Manufacturing Sector</strong></th>
<th><strong>Investment in plant &amp; machinery</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro Enterprises</td>
<td>Does not exceed twenty five lakh rupees</td>
</tr>
<tr>
<td>Small Enterprises</td>
<td>More than twenty five lakh rupees but does not exceed five crore rupees</td>
</tr>
<tr>
<td>Medium Enterprises</td>
<td>More than five crore rupees but does not exceed ten crore rupees</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Service Sector</strong></th>
<th><strong>Investment in equipments</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro Enterprises</td>
<td>Does not exceed ten lakh rupees:</td>
</tr>
<tr>
<td>Small Enterprises</td>
<td>More than ten lakh rupees but does not exceed two crore rupees</td>
</tr>
<tr>
<td>Medium Enterprises</td>
<td>More than two crore rupees but does not exceed five core rupees</td>
</tr>
</tbody>
</table>

**Need for impact of ICT on performance of SMEs**

The rapid advances in ICTs have far-reaching effects on both government and business operations. SMEs need to have access to adequate information to enhance productivity and facilitate market access. However, in most developing countries, the SME sector is suffering from inadequacies in the provision of business information, which is only available from stand-alone institution, often slow and cumbersome to access, limited in scope and not provided in an integrated manner. Moreover, access to information is insufficient; SMEs need tailor-made information solutions, i.e. business information services that assess, verify and apply information to a specific business problem. Since globalisation, SMEs would have undergone a significant change in the background of emerging issues and challenges. The new environment demands a coordinated and consortium approach in which case there is strong need for promoting SMEs.

In order to respond to the specific needs of SMEs, the business information services programme of United Nations Industrial Development Organisation (UNIDO) creates value added by bringing together information from different sources and transforming that information into solutions, including ICT and e-business support, in order to enable the integration of SMEs in national and global value chains. As called for in the United Nations Millennium Declaration, the programme involves the private sector in partnerships for

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development. There is a large potential to synergise with other national and international information networking initiatives, which should be pursued in the context of knowledge management and information sharing.

- Reduced technical barriers, and decision making processes;
- Shared industrial and market information to facilitate production, industrial investments, exports, and decision making processes;
- Enhanced information flow within and outside the country;
- Active public and private sector cooperation;
- Growing availability and quality of the telecommunication infrastructure;
- Growing willingness of SMEs to pay for tailor made information;
- Growing acceptance that information is an essential input in the business process

3. **Objectives**
- To analyse the impact of ICT on business performance/improvement of SMEs in Karnataka.
- To investigate how the SMEs can use ICT as part of their business strategy to gain a competitive business advantage.
- To analyse the impact of ICT on the profitability and employment creation in the SMEs of Karnataka.
- To assess the barriers faced by SMEs in optimising the use of different ICTs and understanding the role of business support services.
- To analyse the relationship between ICT and organisational productivity of SMEs.

4. **Hypotheses**
- \( H_1 \): ICTs can enhance SMEs performance through indirect cost saving such as labour costs and increased labour productivity, and direct cost reduction of firm’s input such as information costs.
- \( H_2 \): The competitive strategy of SMEs is to provide high quality products and services to customers and to establish long term relationship with customers.
- \( H_3 \): Many of the SMEs entrepreneurs are thinking that ICT could improve their business.
• **H4:** There is a positive relationship between profitability of SMEs and ICT.

5. **Methodology**

Robson (2002) defined exploratory research as a valuable means of finding out what is happening to seek new insights; to ask questions and to assess phenomena in a new light. The aim of this type of study, according to Collis and Hussey (2003), is to look for patterns, ideas or hypotheses, rather than testing or confirming hypotheses.

The data will be collected, according to Collis and Hussey (2003), is often quantitative using statistical techniques that go further in examining a problem than exploratory research.

The research process will be described in terms of a critical analysis of relevant research approaches. A multi-method paradigm will be selected to observe social reality to develop knowledge through the testing of the data generated. The research design and methods will be described to the research aims and objectives. Primary and secondary data collection methods will be explored, and the interview and questionnaire approaches will be clarified. Research methods also defined the interview sample and data analysis which will be involved the use of computerised software package to organise the data will be gathered.

For this research study an exploratory research approach will be adopted to achieve the study’s aim and objectives and to maximise the benefit of quantitative and qualitative methods. From a qualitative standpoint the research will be conduct semi-interview and will be closed questionnaire from quantitative aspect.

Both of these methods require data collection involving primary and secondary data collection methods. Primary sources include questionnaire, observation, and interviews. Secondary sources include books, journals, government publications and survey, world statistics.

To explain the degree of relationship between the variables Correlation co-efficient analysis ([Std. Deviation/Average]*100) will be used. To analyse the attributes of the respondents the Chi-square test (conducted to know the association or independence of the qualitative variable) will be conducted, where parametric analysis is not possible. On the other hand t-test and ANOVA (conducted to know the significant difference among groups) will be used if the data follows the normal distribution. To aggregates and statistical results, researcher will be Excel software and Statistical Package for Social Sciences (SPSS) software.
6. **Limitations of the study**

The study involves the use of the primary and secondary data; hence, there are some limitations in the research. The access of data in SMEs will be one of them as many of them are not practicing proper information system. Moreover, since the study area is confined to only Karnataka state and since staffs' and customers' behaviour may differ in other states or countries, this might be another limitation of this study research for the generalization of the results.

7. **Scope of the Study**

In the present research, the researcher is going to deal with potential for analysis of impact of information and communication technology (ICT) on performance of small and medium-sized enterprises (SMEs) in Karnataka state. Since it is not possible to cover the entire state of Karnataka, a sample of selected SMEs in Bangalore and Mysore will be considered for the study. The cases selected will be those SMEs which plan to go for E-business and those service and manufacturing enterprises in which E-business is in practice.

8. **Organisation of study**

The thesis is organised into six chapters.

- **Chapter I.** First chapter is introduction, which illustrates some initial studies that represent the background of the ICT and SMEs. Moreover, this chapter consists of the objectives of the study, Methodology, Statistical Method and Hypotheses development, Scope of the Research.
- **Chapter II.** Second chapter refers to the review of literature, presenting the related studies in the areas of the related topics. It presents a vast study performed on or about the relevant topic. It has been tried to include all the related topics to the objectives of the study, arranged in chronological order.
- **Chapter III.** This chapter explains the impact of ICT on performance of SMEs with special focus on profitability, Competitive strategy, Barriers to ICT investment, Realisation of business performance improvement.
- **Chapter IV.** This chapter is provides an overview of the growth of ICT on performance of SMEs in Karnataka and field study conducted in Bangalore and Mysore districts.
• Chapter V. Chapter five consists of the analysis and interpretation of the data. In this chapter the data is analysed using SPSS Statistical Software, and Excel Statistical Software, to present reliable analysis of the data at hand.

• Chapter VI. The last chapter tries to present reliable and fact-related findings. Moreover, the chapter presents suggestions based on the findings and finally it presents some conclusions.