CHAPTER 5

Research Methodology
In this chapter, researcher explains various steps adopted in studying the research problem along with the logic behind them. This includes the objective of the study, plan and structure of investigation, hypothesis generated, tools used, sources and methods of data collection, study area and limitations of the study.

5.1 Objectives of the research:

The following are the objectives

1. to study ERP software implemented by SME firms
2. to study the spending on ERP software
3. to study the growth in sales and profit of the SMEs and its impact on ERP implementation
4. to study the influence of ERP implementation on inventory turnover ratio, debtor turnover ratio and working capital turnover ratio
5. to study the influence of ERP implementation on non financial benefits like quality, communication, customer satisfaction and utilization of facilities.
6. to study the contribution of non financial factors in financial performance of SMEs

5.2 Scope of the study:

ERP softwares are usually implemented by usually large enterprises to have upto date information and enable better decision making. The huge turnover and profit potential of the enterprises will overcome the critical factor of huge cost involved in ERP software implementation. The SMEs are equally important in contributing to total industrial output and have lot of potential in technology
adoption. As SMEs are cost conscious and cannot spend huge amount on ERP, the softwares suited for SMEs have been implemented.

The need of the hour is to study financial implications of ERP implementation in SMEs and also to understand how non financial parameters influence financial performance of SMEs

5.3 Population

The population consists of all the SMEs in Karnataka which have implemented ERP software.

5.4 Sample design and sample size

The statistics available on SMEs which have implemented ERP software in Karnataka are quite a few. The data about the number of small and medium industries in Karnataka is obtained from the Department of industries, Government of Karnataka. Following is the list of industry houses and Government agencies which provided information about the SMEs in Karnataka:

1. Karnataka Small Scale Industries Association (KASSIA ) Bangalore
2. Peenya Industry Association (PIA) Peenya Bangalore.
3. Bommasandra Industries Association (BIA), Bommasandra Bangalore.
4. Belgaum Chamber of Commerce and Industries, Udyambag Belgaum.
5. Deputy Director, Ministry of Micro, Small and Medium Industries (MSME), Government of India, Rajajinagar Bangalore.
6. Karnataka Chamber of Commerce and Industries Hubli.
5.5 Research Design

Descriptive research decision was taken up to study the financial implications of ERP software in small and medium industries in Karnataka. Based on recommendations from the secretaries of above industry houses the researcher contacted a few SME units located in different industrial estates in Karnataka.

5.6 Sampling Technique

For collecting the sample data the researcher used snow ball sampling method. There are a number of industrial estates (18) in Karnataka: Among them the researcher has selected the following areas for the study.

A. Bangalore

1. Rajajinagar
2. Peenya
3. Yeshwantpur
4. Kamakshipalya Magadi road,
5. Jigani, 6. Hosur road/Bommasanda
7. Jigani Bommasandra Road
8. BEL industrial area Jalahalli
9. Whitefield

B. Hospet

1. Koppal Road,

18. Source: MSME Development Institute, Ministry of MSME, Govt. of India, 2012.
C. Belgaum

1. Udyambag
2. Machche
3. Waghavade road

D. Hubli

1. Gokul Road

E. Shimoga

1 Machenahalli

The selection of above five study areas is completely based on the level of industrialisation activities and their importance in the regional development.

5.7 Sources of data

The data is collected from primary and secondary sources.

**Primary source of data:** The data collected by the researcher is directly from the sources such as executives, managers or employees of the organizations. It is collected through questionnaire by post, email or interview method.

Before the questionnaire was prepared a discussion was held by the researcher with some senior executives/managers of the manufacturing firms which had implemented ERP software. Discussions were helpful in preparing a questionnaire.

The questionnaire was personally handed over to the executives /managers selected SMEs. Sufficient time was given to the respondents so that they can understand and prepare the responses. Later the researcher collected the data.
Secondary source:

The following sources of secondary data have been used for the research: Newspapers, Magazines, and Journals, Surveys conducted by the government or private agencies.

Other sources of secondary data include reports published by Ministry of industries, publication by Centre for Monitoring Indian Economy (CMIE), Reserve Bank of India, Security Exchange Board of India (SEBI) etc. The researcher has also collected data from journals, websites and text books.

5.8 Duration of study

The study was conducted from February 1, 2010 to March 30, 2012 in Karnataka.

The location of five study areas is shown in the fig no 5.1
Fig no 5.1: Karnataka map

(Source: mapsofindia.com 2012)

1. Belgaum
2. Bangalore
3. Hubli
4. Hospet
5. Shimoga
5.9 Limitations of the study

The technical details of ERP software, hardware and implementation aspects are not studied by the researcher. It is also difficult to collect financial data in depth because, many firms did not wish to reveal the profit details. Only the manufacturing industries are considered for the study.

Firms under study did not reveal the exact spending on ERP and did not provide cost sheet. The respondents were not willing to furnish their internal reports to the researcher for the study purpose. The study is carried out with help of questionnaires which may not cover all the details required to study financial implications. Accuracy and correctness of responses was not cross verified.

The respondents have given data for the three years after implementation of ERP software. Some of respondents have furnished data only for a single year. In that case they are requested to furnish their expectations in the next two years.

Some firms have not mentioned the years to which their responses belong. Some of the firms have developed their own ERP software whose technical evaluation is not done. For financial performance only the net profit, sales revenue, lead time reduction and working capital turnover ratios are considered which may not broadly cover financial analysis of firms. Financial statements like balance sheet, funds flow and cash flow statement are necessary.

Firms under the study are not ready to reveal the data regarding balance sheet, funds flow and cash flow statement. Non financial parameters which are qualitative in nature like quality, customer satisfaction and information flow and capacity utilization only are considered.