

CHAPTER ONE



RESEARCH DESIGN

1.1 INTRODUCTION:

Almost a century ago, a spate of inventions ushered in the first Industrial Revolution. Within a short span of time, many countries became industrialised. Now we are in the beginning of yet another Industrial Revolution. The major cause of this second Industrial Revolution is the invention of computers. Man has invented many electronic devices, but the computer has made a greater impact on the society than any other single device. Computers have made a potentially significant contribution to the society during the last three decades.

The spate of innovations and inventions in computer technology during the last decade has led to the development of micro- and personal- computers. They are so versatile that they have become indispensable to engineers, scientists, business-executives, managers, administrators, accountants, teachers and students. They have strengthened man's powers in numerical computations and information-processing and thereby have increased the effectiveness of organizations.

Modern computers possess certain characteristics and abilities peculiar to them. They can:

1. Perform complex and repetitive calculations rapidly and accurately;
2. Store large amounts of data and information for subsequent use;
3. Hold a program of a model which can be explored in many different ways;

4. Make decisions;
5. Provide information to the user;
6. Automatically correct or modify by providing signals to certain parameters of a system under control;
7. Help in design and draw and print graphs, etc.
8. Converse with users through terminals.

Engineers and scientists make use of the high speed computing capability of computers to solve complex research and design problems. Many calculations that were previously beyond contemplation have now become possible.

Computers have helped automation of many industrial and business systems. They are used extensively in manufacturing and processing industries, power distribution systems, airline reservation systems, transportation systems, banking systems, and so on. Computer-Aided Design (CAD) and Computer-Aided Manufacture (CAM) are becoming popular among large industrial establishments.

Modelling and simulation is another area where computers are being increasingly used. This has greatly accelerated research in such areas as physical and social sciences, medicine, astronomy and meteorology.

Business and commercial organizations need to store and maintain voluminous records and use them for various purposes such as inventory control, sales analysis, purchase order processing, payroll, accounting, financial systems, resources scheduling, production planning and control, fixed deposit schemes, billing system, generation of management reports, etc. Computers can store and maintain files and sort, merge or update them, as and when necessary.

With the introduction of word-processing software, computers have recently been applied to the automation of office tasks and procedures. This is aimed at improving the productivity of both clerical and managerial staff.

The ability of computers to store large amounts of data has led to their application in libraries, documentation centres, employment exchanges, Police departments, hospitals and other similar establishments. Computers are used in international games such as the Olympics and the Asiad, to keep track of events and to provide timely and reliable information and documentation of all concerned.

Since computers can bank a variety of information and converse with the user, they are being used as resources in teaching and learning at all levels of education and training. This process is known as computer assisted learning (CAL). Here, learners can sit at teletypewriter like terminals and communicate directly with a computer in a conversational mode. Using this mode, a learner can learn a topic in his own time and pace.

Computers are also used to manage the learning processes. This is called computer-managed learning (CML). Computers can store student responses, evaluate his performance and then direct him to the next learning unit.

The areas of computer applications are literally too numerous to mention. Computers have become an integral part of man's everyday life. They continue to grow and open new horizons of discovery and applications such as an electronic office or the home computer centre.

It must be remembered that computers are machines created and managed by men. A computer has no brain of its own. Anything it does is like an obedient slave which carries out the master's orders as long as it can understand them, no matter whether they are right or wrong; in other words, computer lacks common sense.

1.2 OBJECTIVES OF THE STUDY:

The present study has been undertaken with the following objectives:

- (1) To study the computer systems adopted by the EDP Departments in Kolhapur city;
- (2) To study the input considerations of the data collected;
- (3) To study the processing considerations of the data;
- (4) To analyse the output considerations;
- (5) To identify the central measures adopted by the EDP Departments;
- (6) To identify the weaknesses in the adopted computer systems;
- (7) To suggest remedial measures for effective system of analysis and design.

1.3 METHODOLOGY AND DATA COLLECTION:

In order to accomplish the above objectives and to conduct this study, basically the survey method was adopted. A survey was carried out by personally visiting the EDP Departments spread out in Kolhapur City. The data was collected by administering an interview schedule.

Observation method too was adopted in the present study. Observations were made with respect to the arrangement of the CPU (central processing unit), the infrastructure created, hardware and

software used and the data storage facilities at the EDP Departments.

Primary data were collected through discussions, personal interviews, observations and an interview schedule. Secondary data were readily available through published and unpublished sources.

Primary Data:

The primary data were collected through the following methods:

- Questionnaire: A detailed and comprehensive questionnaire was prepared and a pilot-study conducted. After this pre-testing, the questionnaire was suitably redrafted and the necessary information collected.
- Discussions and Interviews: Detailed discussions were held with the persons directly and indirectly related with the EDP centres. These persons were variously EDP managers, marketing managers, programmers, systems analysts, etc. In the interview, open-ended questions were asked to gather the information (which was rather difficult to collect with the help of schedule). The interviews thus conducted were unstructured.

Secondary Data:

Regarding theoretical basis, secondary sources were made use of.

For this purpose, the following libraries were visited:

- Chh. Shahu Central Institute of Business Education & Research, Kolhapur;
- Barr. Balasaheb Khardekar Library, Shivaji University, Kolhapur;
- Deshbhakta Ratnappa Kumbhar College, Kolhapur;
- The New College Library, Kolhapur.

1.4 SAMPLE DESIGN:

The study was conducted with special reference to Kolhapur City and the data was collected from 20 EDP Departments operating in five major sectors, namely, industrial, cooperative, government, educational and banking.

These units were selected on the basis of purposive sampling technique. While arriving at the sample size, two important criteria were used; firstly, those major EDP Departments from five sectors that employed full-time programmers and analysts were selected; and secondly, the departments having efficient hardware facilities like PC/XT, PC/AT, -286, -386, -486, LAN, UNIX system (having batch processing, time-sharing, real-time, remote batch processing, multi-processing, multi-programming, on-line subsystems and also distributed and centralized data processing systems) were selected. The sectoral breakdown of the sample units is indicated in Table below:

Table 1.1
Sectoral Breakdown of Sample Units

Organization Type	Total no.of each Organization	Percentage
Industrial Sector	10	50
Educational Sector	4	20
Cooperative Sector	2	10
Government Sector	2	10
Banking Sector	2	10

1.5 SIGNIFICANCE OF THE STUDY:

The present study is expected to yield information about the new ways and means to improve the working and effectiveness of the present system. The findings may also help future researchers in having adequate information about the various aspects of computers systems in order to conduct further research. The study may further enlighten the administrators, EDP managers and planners as also systems analysts about the shortcomings, if any, in the appropriate selection of beneficiaries and the procedural lacunae in getting benefits from the computer systems. The study will also be useful to know the various system's effectiveness at the implementation level.

1.6 LIMITATIONS OF THE STUDY:

Following limitations were encountered while conducting the present study:

- (1) The findings of the study are based on the expressed opinions of the respondents. Although every effort was made to secure accurate information from the respondents, the possibility of a respondent giving biased information cannot be completely ruled out in an attempt to keep back certain vital/confidential information about the EDP centre;
- (2) Due to the highly technical nature of questions asked, the researcher found that some of the questions were not answered confidently by the respondents. In such cases, it is likely that exact information might not have been tendered by the respondents.

- (3) The present study is conducted in Kolhapur city only and the data collected by the researcher is from restricted sectors. Thus, the findings of the study may not be suitable for the EDP centres operating in other sectors.
- (4) (It was found that most of the units had adopted more than one system and subsystems.) In such case, only the general system concept is considered. The data is collected, considered, analysed and interpreted accordingly.

1.7 OUTLINE OF THE STUDY:

The present study is divided in Five Chapters, the outline of which is as mentioned below.

Chapter-1:

The First Chapter highlights the objectives of the study, the methodology adopted for data collection, significance of the study, sample design and the chapter scheme.

Chapter-2:

The Second Chapter of the study deals with the theoretical concepts relating to the study.

Chapter-3:

The Third Chapter of the study spells out the detailed profile of Kolhapur City.

Chapter-4:

In the Fourth Chapter, the collected data has been presented in simple tabular and percentile form together with its analysis and interpretation.

Chapter-5:

The Fifth Chapter of the study summarises the conclusions and presents the suggestions that have been drawn.

The questionnaire used for collecting the primary data is reproduced in the Appendix and the Dissertation concludes with a comprehensive Bibliography.

REFERENCES:

1. Kothari, C.R. : "Research Methodology Methods and Techniques", 2nd edn., Wiley Eastern Limited, 1985.
2. Michael, V.P. : "Research Methodology in Management", 2nd edn., Himalaya Publishing House, 1985.

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