CHAPTER-II
CHAPTER-II

RESEARCH METHODOLOGY

2.1 SCOPE OF THE STUDY:

Management Information Systems have changed dramatically during the last 20 years as a result of an increased usage of computers by more and more number of organisations.\(^1\) The situation today is significantly different from that existing a decade ago. It is therefore necessary to conduct a careful study to see how it affects decisions made by a manager and draw lessons for the managers who are faced with a dynamic and fast changing business scenario.

Role of IS can be studied on a group of industries. On one hand its role on any one functional area for a group of industries can be sought to be formulated or on the other one can seek to trace its role in all functional areas with reference to a particular industry. However, the scope of research encompasses a much wider spectrum.
The present study is an attempt to trace its role in decision making in selected industries namely steel, aluminium, copper, oxygen, automobile, cable and heavy engineering.

The scope of the study is limited by the following factors:

(i) The present research study is confined to seven organisations only.

(ii) Organisation refers to both manufacturing as well as service organisations. Since the nature and therefore the requirements of service organisations is quite different from those of manufacturing organisations, only manufacturing organisations have been taken up for study. Hence in this study organisation refers to only manufacturing concerns. The seven organisations surveyed were:

(i) Indian Oxygen Limited, Jamshedpur
(ii) Tata-Robins-Frasers Limited, Jamshedpur
(iii) Tata Engineering and Locomotive Company, Jamshedpur.
(iv) Indian Cables Limited, Jamshedpur.
(v) Hindustan Copper Limited, Ghatshila.
(vi) Indian Aluminum Limited, Calcutta.
(vii) Indian Iron & Steel Company, Burnpur.

2.2 OBJECTIVE OF THE STUDY:

In different functional areas of a corporate enterprise engaged in the production of goods and services the managers at different levels of the organisation are called upon by the very nature of their job to make various kinds of decisions. Some of these decisions are tactical in nature others maybe for longer time applications. There are still others that have strategic perspective. Sometimes decisions maybe intuitive or based on hunch. The process of these decisions is known only to the decision maker. It cannot be explained nor can it form a precedent to be used for future guidance. In modern business enterprise the scope of decisions by hunch is limited.

The other kind of decision is rational in nature. There is a predictable process through which a rational decision is finally made. The basic input of all
decisions is information. Decision that is not based on verifiable unshakable facts cannot stand the test of rationality. The contemporary decisions in non proprietary concerns which have corporate ownership are rational. They are based on information collected from divergent sources.

The objective of this study is to find out the various information that is recommended in taking a decision in specific decision areas. The decision areas covered under study are production, finance, marketing and personnel.

**PRODUCTION SPECIFIC:**

(i) It seeks to investigate the information needs regarding scheduling and preparation of schedules like master schedule and process schedule.

(ii) It delves into the relevance of certain concepts and their applicability like Just-in-Time (JIT), Material Requirement Planning (MRP-I).

(iii) Information requirements of inventory and its types - raw materials, work-in-progress, finished
goods, normal inventory and buffer stock is also sought to be determined. Light is also thrown on use models like EOQ, and classification of inventory-VED, FSN, DSEG and ABC analysis.

(iv) The relevance of maintenance and its kinds - breakdown and preventive maintenance.

(v) Various aspects of quality, waste, spares their kinds and their control have also been dealt with.

**FINANCE-SPECIFIC:**

This investigates into the need and information requirements of total budget and its components - that is:

(i) Production Cost Budget

(ii) Administration Cost Budget

(iii) Cash Budget

(iv) Selling and Distribution Cost

(v) New Product Budget

(vi) Wage Budget

(vii) Salary Budget
MARKETING - SPECIFIC:

In the area of marketing, the information needed were listed as follows:

(i) Sales volume - information requirements for determining these were collected.

(ii) Sales Expense Budget - information regarding expenditure on advertising, and sales promotion were sought.

(iii) It seeks to determine factors which affect pricing of product, product cost, competitors price, prices of substitutes and product features.

(iv) Role of product variation and its impact is established.

(v) An attempt is also made to track customers attitude towards product and its effect on the saleability of the product.

(vi) Various aspects of warehousing and transportation have been dealt with.
PERSONNEL - SPECIFIC:

(i) This deals with manpower planning and its related issues like:

(a) Steps leading to recruitment, selection and placement & the associated costs.

(b) Expected departures and

(ii) It delves into issues relating to determination of wages and salary.

(iii) It investigates the various types of training imparted to different levels.

(iv) Information requirement of turnover is also dealt with.

(v) Lastly, the common amenities provided with special reference to health, safety and education is also taken up.

3. CHOICE OF COMPANIES:

The researcher collected information by administering questionnaire on managers from selected organisations. The organisations undertaken for survey were seven in number. They all belonged to the core sector industries. Further they covered only
manufacturing organisations; and service organisations because of a difference in nature of products produced, were excluded from its perview.

The organisations were:

1. INDIAN ALUMINIUM LIMITED (INDAL), CALCUTTA
2. INDIAN CABLES LIMITED (INCAB), JAMSHEDPUR
3. INDIAN IRON & STEEL COMPANY (IISCO) BURNPUR
4. INDIAN OXYGEN LIMITED (IOL), JAMSHEDPUR
5. HINDUSTAN COPPER LIMITED (HCL), GHATSHILA
6. TATA ENGINEERING & LOCOMOTIVE COMPANY LIMITED (TELCO), JAMSHEDPUR
7. TATA-ROBINS-FRASER LIMITED (TRF), JAMSHEDPUR

A brief profile of the organisations have been presented in the pages that follow.

INDIAN ALUMINIUM LIMITED (INDAL):

Indal (Indian Aluminium Company Limited), established in 1938, pioneered the aluminium industry in India. It is an associate company of the Alcan Aluminium of Canada and holds nearly 40% of the company’s equity. Starting as the nation’s pioneer and today the premier
aluminium company, Indal’s successful business approach has also manifested itself in key growth businesses - professional grade electronics, captive power generation, exports, financial services and deodorising equipment for edible oil refining.

Its success is exemplified by its sales turnover continuously escalating over the years. Even more creditably, its exports have been, on an average, consistently rising by 24% each year, over the last five years (Source: Indal Facts 1993).

Its sales turnover and capital employed in 1992-93 were Rs.7785.282 million and Rs.5358.094 million respectively. (Source: Indal Annual Report 1992-93).

INDAL’S PRODUCT PROFILE

ROLLED PRODUCTS (Capacity: sheet - 85000 tpa; foil 6,000 tpa*)

Litho sheets
foilstock

* tonne per annum
closure stock
lamp cap stock
Circles, flooring & building sheet
aircraft and strong alloy sheets & plate
slugs, sheets & coils for electrical, air conditioning & consumer durable industries

FOIL PRODUCTS
pharmaceutical
cigarette foil
cable wrap
household foil
lidding foil

Metal (Capacity 44,000 tpa)
EC wire rods
alloy ingots
carbon electrode paste
cathode carbon blocks

EXTRUSIONS (Capacity: 8000 tpa)
arclitectural sections - windows, doors, shop fronts, curtain walling
defence requirements --
structural members of bus bodies - 'Max Loader'
aluminium truck bodies, energy kits for state transport undertakings.

'Alhex' special alloy tubes for sugar mills to speciality forging stock for tank wheels.

Hared alloy extrusions for track blocks, heat sinks & motor & pump housings.

**ALUMINA (Capacity: 295,000 tpa)**

alumina products

alumina hydrate products in diversified industries like plastics, paper, conveyor belting, refractories, ceramics, cryolite, glass.

**PRINTED CIRCUIT BOARDS (capacity: 30,000 sq. m/yr*)**

- Used in manufacture of computers
- telecommunication equipment
- analytical & process control machines
- instruments used in engineering
- medicine
- power management

(Source: Indal Facts 1993)

* square meter per year.
INDIAN CABLES LIMITED (INCAB):

Incab, Indian cables, is one of the first companies to manufacture cables in India. It was founded in 1920 to manufacture cables at its works in Jamshedpur. At present, it has two plants, one in Jamshedpur and the other at Pune.

Presently, Incab produces more than 400 different varieties of cables in over 5000 different sizes. Its range covers almost all types of cables which are permitted to manufacture in the private sector. Apart from power cables, Incab manufactures certain cables and wires for very special uses such as those used widely by the Defence Department, the Space Research Organisation, the oil exploration industry, and it also supplies regularly to the Railways. All Jaguar aircraft manufactured in India have Incab cables. Some very special cables are manufactured by Incab for the Indian Navy. Now, a further step ahead is the manufacture of an even more specialized cables in this field - the Fibre Optic.

Apart from the manufacture and supply of cables, Incab also undertakes cable laying contracts and
contracts for installation of electrical equipment, both at home and overseas. The entire cable network and its installation for the Metro Railway in Calcutta was carried out by INCAB.

INCAB PRODUCT PROFILE

SYNTHETIC RUBBER INSULATED CABLES

Incab manufactures elastomer insulated cables: VIR butyl rubber ethylene propylene rubber silicon rubber with heat, oil and fire resisting sheaths like PCP NBR/PVC CSP/EVA for welding, wiring crane wiring boiler house and furnace wiring ship wiring trailing cables for mines & quarries locomotives oil rigs
CABLES FOR FIRE PRONE AREAS

Flame Retardant Low Smoke (FRLS) cables

JELLY FILLED TELECOMMUNICATION CABLES

SPECIAL CABLES FOR DEFENCE & OTHER HIGH-TECH AREAS

Specialized cables for use in MIRAGE, JAGUAR & MIG AIRCRAFT

Electromechanical cables

Guidance Wires for Navy

Digital Cables for electronic exchanges

Cables for use in computers.

POWER AND CONTROL CABLES

Paper Insulated Lead Covered Cables (PILC)

XLPE INSULATED POWER CABLES

PVC POWER CABLES

Mining cables

Armoured Communication Cables

Control Cables

(Source: Incab Publication No.990 R/90)

INDIAN IRON AND STEEL COMPANY (IISCO):

The Indian Iron and Steel Company had its origin from Bengal Iron Works which was founded way back in 1870 at Kulti. The construction of the factory at Kulti
began in 1872 and production of pig iron from two 20
tonne Blast furnaces started in 1875. The Company was
subsequently renamed as Bengal Iron and Steel Company.
Thereafter, on 11 March 1918 an industrial enterprise
named The Indian Iron and Steel Company was incorporated
and promoted by Burn and company. After the formation of
the new factory was set up at Hirapur, a place a few
kilometers east of Kulti nearer to Asansol town.

The production of ingot steel reached its peak in
1963-64 and recorded production as high as 1026786
tonnes. However, the pinnacle of glory remained for too
short a period and a rapid fall started thereafter. So
on 14 July, 1972 the Government of India took over the
management of IISCO.

In 1978 restructuring of the steel and allied
companies in the Public Sector took place and IISCO was
brought under the purview of SAIL and became one of its
subsidiaries.

The present status of the company is as under:
(i) An integrated steel plant at Burnpur, West
Bengal.
(ii) A foundary and spun plant at Kulti, West Bengal

(iii) A registered office at Calcutta and six branch offices at different cities.

The capital employed (estimated) in 1993-94 is Rs.46 crores.

**IISCO’S PRODUCT PROFILE**

- Coke (Dry)
- Hot Metal
- Pig Iron
- Ingot Steel
- Bars
- Structural-Heavy
- Structural-Medium
- Structural-Light

**By-Products:**

- Coal Tar
- Ammonium Sulphate
- Crude Benzol
- Benzene
- Toluene
- L.S. Naphtha
- Acid
- Granulated Slag

**INDIAN OXYGEN LIMITED (IOL):**

Indian Oxygen Limited (IOL), a member of the British Oxygen Company (BOC Group), completed 58 years in 1993. Its a pioneer in industrial gases, welding product, health care, cryogenic technology and liquid
oxygen explosives, the company is continuing its efforts to remain the industry leader. To remain in the forefront of welding technology, IOL has recently collaborated with Japanese industrial giant Matsuhita Industrial Equipment Company Limited. It has its registered office at Oxygen House, Taratala, Calcutta and its plants spread all over India like Jamshedpur, Asansol, Tarapur, Taloja to name a few. Recently, IOL received the ITC Award 1992-1993 for best safety performance from Confederation of Indian Industry, Eastern Region. Its total turnover stood at Rs.151.80 crores in 1993.

IOL'S PRODUCT PROFILE

LIQUID OXYGEN EXPLOSIVES (LOX)

PLANTS

Plants

Compressors

Associated Cryogenic Equipment

Erection Contracts

HEALTH CARE

Medical gases

Medical Equipment & Accessories
WELDING
Gas welding & cutting Equipment
Welding Rods & Fluxes
Electric Welding Equipment
Electrodes & Welding Accessories
INDUSTRIAL GASES
Oxygen
Nitrogen
Argon
Dissolved Acetylene
Hydrogen
Special gases
Distribution Systems & other Services.

HINDUSTAN COPPER LIMITED (HCL):
Copper, the oldest metal known to mankind, has seen the foundation of many a civilisation. Even in this modern electronic age copper has been able to retain its pre-eminent position owing to its unique properties like good-solid solution characteristics high electrical and thermal conductivity, corrosion resistance, good ductility and malleability, pleasing colour, non-magnetic behaviour, to name a few.
Hindustan Copper Limited was incorporated on November 9, 1967. It is a Public Sector Enterprise under the Department of Mines, Ministry of Steel and Mines, Government of India. HCL is the sole producer of primary copper in the country. It has been entrusted with the responsibilities of fulfilling the long term objective of the Nation for development and growth of copper industry on sound lines by adopting appropriate and modern technology so as to maximise the indigenous production of copper.

The company is operating the following projects:
2. Indian Copper Complex, Distt. Singhbhum, Bihar.
3. Rakha Copper Project, Distt. Singhbhum, Bihar.
4. Dariba Copper Project, Distt. Alwar, Rajasthan.
7. Taloja Copper Project, Distt Raigad, Maharastra.
PRODUCT PROFILE:

MAIN PRODUCTS:

CATHODES
WIRE BARS
CONTINUOUS CAST RODS
HOT ROLLED RODS

ALLIED PRODUCTS:

GOLD
SILVER
BRASS
FERTILIZER
SULPHURIC ACID
NICKLE SULPHATE
COPPER SULPHATE
SELENIUM
KYANITE

NEW PRODUCTS:

OXYGEN FREE HIGH CONDUCTIVITY COPPER
BERYLLIUM COPPER
DE-OXIDISED HIGH PHOSPHOROUS COPPER
DAP FERTILER
USES OF COPPER:

By and large the following sectors make use of copper:

ELECTRICAL INDUSTRY:

Conductors
Cables
Winding Wires
Strips

TRANSPORTATION

Automobile parts and ancillaries
Rail transportation
Ship building

AIR CONDITIONING & REFRIGERATION EQUIPMENTS

MINTS FOR COINS

BUILDING CONSTRUCTION & HARDWARES

DEFENCE

Ordinance Factories for the manufacture of gun shells and cartridges

COPPER CHEMICALS

TATA ENGINEERING & LOCOMOTIVE COMPANY LIMITED (TELCO)

The Tata Engineering and Locomotive Company Limited (TELCO) commenced operations on 1st September,
1945 when TATA SONS purchased from the Government of India the Tatanagar Shops of the East India Railways situated at Jamshedpur. The main product to be manufactured was locomotives.

In 1954, the company embarked on the manufacture of Diesel Commercial Vehicles in technical and financial collaboration with M/s Daimler Benz A.G., Germany, makers by famous Mercedes Benz Vehicles. This collaboration however ended in 1969, after which vehicles were marketed under the brand name TATA and the emblem as against the earlier emblem. Production of vehicles started from 1954 with an initial capacity of 3000 vehicles per annum.

Having started with a modest initial annual capacity, Telco has grown to be one of the largest Indian companies in the private sector in terms of sales gross profit and capital employed.

**PRODUCT PROFILE**

Every 7 minutes, a vehicle rolls off its assembly line which has a length of 165 metres and 18 stations where aggregates are fitted on the chassis.
It manufactures some 1500 components some of which include:

from AUTOMOBILE DIVISION
- engines
- gearboxes
- axles
- propellor shafts
- cabs
- cowls
- steerings

from FOUNDRY DIVISION
- high grade SG Iron Castings for automobile components
- high grade steel castings for excavators

from FORGE DIVISION
- crank shafts
- front axle beams
- steering rods, etc.

from EXCAVATOR DIVISION
- shovels
- backhoes
- cranes
- draglines, etc.

[Source: TELCO'S MILLION, JANUARY 1993]
TATA-ROBINS-FRASER LIMITED (TRF):

Tata-Robins - Fraser Limited (TRF) was established in 1962 by the Tata Iron and Steel Company Limited and Associated Cement Companies Limited in partnership with Litton Systems Inc., Hewitt Robins, U.S.A. and GEC Mechanical Handling Limited, U.K.

TRF is an engineering company with expertise of over quarter of a century in the field of Bulk Material Handling and Processing. Its wide-ranging activities and dependable technology have made TRF one of the leading companies in India catering to the growing and rapidly changing needs of the core industries - coal, Cement, Power, Ports, Mining, Fertilizers and Steel Plants.

TRF's integrated capabilities encompassing comprehensive project management, engineering, manufacturing and construction activities backed by reliable after-sales services, have resulted in its proven track record of several successfully executed large and sophisticated turnkey systems. They specialize in systems contracts for:

- All types of handling and processing plants for bulk materials.
- One dressing plants including heavy and other separation processes for benefication.
- Coal preparation plants including coal washeries.
- Stockpiling, blending and reclaiming systems including radial blending systems.
- Ship loading and unloading systems at ports.
- Portable crushing and screening plants for various minerals.

The sales, turnover and capital employed in 1992-93 were Rs.8502.34 lakhs and Rs.2190.20 lakhs respectively. (Source TRF annual report 1992-93).

**PRODUCT PROFILE**

TRF's product range include:

CONVEYOR IDLERS

CONVEYOR PULLEYS

VIBRATING EQUIPMENT

- MECHANICAL

Vibrating Screens
Scalpers
Vibrating Feeders
Dewaterizers
Desliming Screens
Slurry Screens
Foundry Shakeouts

VIBRATING EQUIPMENT
- ELECTROMAGNETIC

Electropulse Feeders
Bin Vibrators

CONVEYOR TRIPPERS
Motorised and Belt Driven

WOVEN WIRE SCREEN CLOTH CRUSHERS
Jaw Crushers
Hammer Mills
Ring Granulators
Impactors
Pulverisers
Roll Crushers
Rotary Breakers
Ball Mills

UNDERGROUND MINING VEHICLES
LOAD Haul Dumpers
Side Dump Loaders
COAL CUTTERS
MINE WINDERS
SHIP LOADERS
SHIP UNLOADERS
STACKERS
RECLAIMERS
STACKER -CUM-RECLAIMERS
WAGON TIPPLERS
WAGON LOADERS
BELT & CHAIN ELEVATORS
SCREW CONVEYORS
APRON FEEDERS
MINE CAR TIPPLERS
RECIPROCATING PLATE FEEDERS
PLOUGH FEEDERS
ROTARY TABLE FEEDERS
(Source: TRF - 25 years of Growth & Specialisation).

2.4 RESEARCH DESIGN:
Research design is simply the framework or plan for a study used as a guide in collecting and analyzing
data. It is the blueprint that is followed in completing a study.\textsuperscript{2} It helps a researcher solve a problem as accurately and objectively as possible.

\subsection*{2.5 Nature of Research:}

Research design can be classified into three basic types in terms of the fundamental objective of the research: exploratory, descriptive and causal.\textsuperscript{3} The major emphasis in exploratory research is on the discovery of ideas and insights.\textsuperscript{4} Descriptive is focussed on accurate description of the variable in the problem model.\textsuperscript{5} A causal research design is concerned with determining cause and effect relationships.\textsuperscript{6}

The nature of this research study is not to establish any relationship between the effects emerging out of various causes nor at an elaborate description of variables in the problem in question. Instead, this study lays emphasis on the relevance and need of decisions in every enterprise irrespective of the nature of the organisation. It does not proceed to advance any theory or minutely describe problem situation: keeping in view the nature of research, exploratory research
design is resorted to. It seeks to ascertain scientific information required for decisions pertaining to the different functional areas.

The research design appropriate for exploratory studies must be flexible enough to provide opportunity for considering different aspects of the problem under study. Formal design is conspicuous by its absence in exploratory studies. Hence, exploratory research design is found appropriate (or suitable) for the present study.

2.6 RESEARCH METHOD:

The present study is based on primary data collected. When the data needed already exists in an accessible form, it is referred to as secondary data. They might be present in the organisation's internal record or in the external sources like the trade associations, government or trade publications. If data is found in existing source, the researcher is saved the time and cost of generating it. Moreover he may have to be careful in evaluating it as it might have been collected for a different purpose and in different
conditions. This is collected for some purpose other than solving the current problems.⁹

There are many data which does not exist in an accessible form - this could be of a quantitative or qualitative nature like scheduling, quality control. In such case data has to be created. This is primary data. The methods for creation of data are many of which the survey research is the most common. This is an effective way of gathering information.

The present study covers various quantitative and qualitative data which are not found in an accessible form within or outside the organisation. As such survey research was undertaken. For this purpose, an information sheet in the form of a questionnaire for different functional areas were prepared and administered on selected personnel holding managerial positions in their respective spheres in the mentioned organisations. Decisional needs in different functional areas were listed in different information sheets (refer Annexure-I for information sheets). Indepth interview and discussions were also conducted with these
managers with the purpose of supplementing the information (already sought through the information sheet) and also to ensure accuracy.

2.6.1 HIERARCHIAL LEVEL OF THE RESPONDENTS:

Research on MIS has typically used those below vice-presidents in the term executive or senior managers. Mittman and Moore\textsuperscript{10} defined executives as vice-presidents and above. Isenberg\textsuperscript{11} defined senior managers as general managers and above. Both consultants and developers of EIS have included vice presidents as "Senior Manager" or "executive" below the president.\textsuperscript{12,13} Others have called top management the president and one level below president, while middle is two levels below president.\textsuperscript{14} The term "executive" in this research refers to a manager who is responsible for a contribution that materially affects the firm's ability to perform and obtain results.\textsuperscript{15}

Executives, in this research included the key personnel who were in the ranks of Deputy General Managers (DGM) General Manager or simply Manager for the different functional areas. This also included the
regional managers of different branches. Their opinion was sought because they comprised the largest representative group of managers in the organisation engaged in implementation of plans and its control. Planning and control systems are of such nature that the executives of a particular level understand them properly. Therefore a set of different managers were interviewed for different functional areas.

In the area of marketing, the regional or area managers were also covered; in the area of production, executives in Maintenance, Spares and also Safety & Quality Control were interviewed; in finance, executives from Audit section were also covered and HRD/Training were covered under personnel.

2.7 SAMPLE SIZE:

The collection of accurate and reliable data is a crucial problem in all research investigations. The validity of any conclusion drawn from an investigation depends upon the reliability of data collected. There are two main techniques of collection of data-census and the sample.
In the census technique every item of the universe or population is studied, and conclusions drawn thereof. Sampling, on the other hand studies only a part of the universe to draw inference about the population.

Large samples obviously give more reliable results than small samples. However, it is not necessary to sample the entire universe or even a substantial part of it to achieve a satisfactory precision. (Samples amounting to less than one percent of a population can often provide good reliability, given a creditable sample procedure.16

Hence, keeping in mind the constraints of time on one hand and the workable limit on the other, the sampling technique has been resorted to by the researcher. The choice of the sample totally depends upon the nature of data on one hand and the purpose of enquiry on the other. There are various methods of sampling and in the context of this research work convinience or judgemental sampling (where the choice of sample items depend exclusively on the discretion of the investigator) has been resorted to. As such, in
accordance to the discretion of the researcher, the information sheets were distributed only among senior managers of different functional areas.

Data was collected from 112 executives of public sector undertakings manufacturing basic generic products from non conventional industries. A stratified sample of four was randomly drawn from each of the four functional areas of each organisation. Out of 140 respondents to whom information sheets were distributed, 112 supplied the data voluntarily. Thus response rate was 80 percent. It was observed that these executives belonged to the age group of 42 to 55 years with its median at 50 years. They had already put in 2 to 25 years of service (median = 7 years).

2.8 SAMPLING PROCEDURE:

The population for the sample was 112 and sampling is a stratified one. The basis for drawing the sample is to cover the four functional areas of management namely production, finance, marketing and personnel. Every functional area has been given equal weightage. As such from every organisation, an equal
number of managers were drawn from each functional area on whom the respective information sheets were administered.

2.9 COLLECTION OF DATA:

The data were collected for the study using four information sheets (Annexure-i)

2.9.1 RAPPORT:

As a strategy to develop rapport, the researcher visited each organisation selected for the sample individually once permission was obtained for conducting survey. She further met the respondents in the departments concerned.

2.9.2 ADMINISTRATION OF QUESTIONNAIRE/INFORMATION SHEET:

After introducing herself and explaining the purpose of her study, she asked the respondents to complete the information sheet. The researcher replied to specific questions, if any, in an informal and friendly manner and made every attempt to convince the respondent that his/her response was important. The researcher observed carefully as the respondents marked
the first few responses on the information sheet to detect marking errors, if any. She encouraged them to answer every question embodied in the sheet stressing that it was solely for academic purpose and privacy and confidentiality would be maintained. Usually, the information sheets were completed in the presence of the researcher but in certain cases, the respondents were allowed to complete it at their convenience. This was particularly in the marketing area when in many instances the executives were out of station. However, while collecting such information sheet enough care was taken to ensure that it was complete and correctly marked in all aspects. The respondent was also not given any information as to who else was to be administered such sheets to rule out any possibility of their interaction before hand.

There was no effort to estimate the amount of time spent on completing the information sheets by the respondents. This varied because filling up these sheets was often followed by a discussion with the respondent to clarify some points.
The data collection for the study commenced on October 1993 and completed on July 1994. Therefore all data pertain to this period or prior to this.

2.9.3 DESIGN OF THE INFORMATION SHEET:

The information sheet was designed in such a way that they translated the research objective into specific questions and thus enabled the researcher to obtain the necessary data. While designing the information sheet, attempts were made to take into account the following suggestions given by CANNEL and RL KAHN (1970, pp.340-350).

(i) The language of the information sheet approximated the language used by the executives.

(ii) The questions were consistent with most of the executives' level of information.

(iii) The questions were phrased in a way that they contained no suggested answer.

(iv) Each question was limited to a single idea.

(v) The sequence of ideas in the information sheet followed the logic and importance of questions.

(vi) The questions embodied mixed type of questions - a
combination of open (unstructured) and closed (structured) type items which provided flexibility to the respondent and elicited complete information from them.

The information sheet was divided into four parts, involving, in all 26 questions and each part of the sheet embraced varied aspects in different functional areas.

2.9.4 TECHNIQUE FOR PRESENTATION OF DATA:

The data thus analysed were effectively presented with the aid of tables. Some of the major lines of precaution taken in this respect are; the tables in this report have been clearly labelled. The titles briefly state the subject matter of the tables; any necessary qualifications or explanation are given in the footnote of the table. Row and column headings are given as short as possible and is consistent with identifying the data being presented. The number (and/percentage) of the cases in which the findings are based are indicated in the table as well as in the text. This is specially done when figures are given in percentages. Every
precaution is taken to make as clear tabular presentation as possible so that a reader can identify the major points it is intended to convey. However, major findings of the study are also presented in the text. This has been done to ensure that the reader who does not want to take time to study tables can get all the necessary information simply by reading the text.

2.10 INSTRUMENTS USED:

The battery of instruments included on information sheet, primary data gathered through interview of managers and also workers in many instances and secondary sources of data include annual reports and internal survey reports; balance sheet, RBI bulletin, Performance appraisal reports to name a few.

2.11 METHOD OF DATA ANALYSIS AND PRESENTATION:

Data collected from the above referred sources have been tabulated separately in the form of tally sheets for each functional area. These scores were then converted into percentages and presented in tables. To facilitate the analysis, separate analysis tables along with supportive information requirement table is
conceptualised. This guided the researcher through her study. The same has been followed for all the functional areas. Consolidated results of the case studies undertaken have been presented. Standard deviations were also noted and highlighted in some of the cases.

In order to observe the application of information systems the responses have been analysed in the light of investigations made to determine the common information and the practice followed. Further justifications have been given for cases where wide deviations were encountered.

2.12 RELIABILITY OF DATA:

The data was collected by administering a separate questionnaire in each functional area. Decisions found important in each functional area were included in the questionnaires.

The questionnaires were distributed among senior managers in each functional area. All the managers held responsible positions in their respective areas. In all 112 respondents supplied information. The same number of respondents was taken from each functional area.
Informations collected were further supplemented and/or clarified by interviewing the same managers. Also the identity of managers were kept confidential to rule out any possibility of their interaction before hand.

Hence, the data collected is expected to be largely reliable.

2.13. DEPENDABILITY OF RESULT:

The data is reliable hence the results drawn from it can be claimed to be dependable.

2.14 PROBLEMS ENCOUNTERED:

The study undertaken called for the attention and time of managers occupying managerial positions in their respective organisations; as such the researcher encountered many problems.

To start with, the researcher faced difficulty in securing permission for survey because the survey involved various detailed aspects of all functional areas which, according to them, could go against confidentiality. Sometimes, it was after many calls and persuasion, that permission was finally granted.
The disbelief of respondents towards research in general and presentation and analysis in particular, was a constraint in data collection.

Secondly, appointment had to be fixed with each manager and many a time they were not available at the time allotted or decided. This resulted in a great loss of time which further hampered the progress of work.

During the interview and discussion, there were many interruption by people as well as by phone which hampered the continuity of the discussion.

Some managers had a very hasty attitude, yet some of them indifferent and a few evasive on certain questions or information. A few managers were found to be reluctant in answering certain questions and discussing certain issues as they felt that answering them in right earnest would reveal certain information considered private or confidential for the company. Many respondent managers discouraged the idea of contacting other executives in the same functional area so that their opinion was held to be fair and true and without contradictions.
In spite of the various obstacles faced, the unstinted efforts of the researcher helped her to overcome the hurdles and emerge out with a reservoir of information reliable and authentic.

2.15 LIMITATIONS OF THE STUDY:

No research is complete unless the limitations of the studies are brought forth and accepted. While undertaking this study, shortcomings and limitations are faced which were however by the best possible means overcome to give this study its final shape and the best possible result that would make this study meaningful.

Though the researcher had selected a large sample of managers occupying responsible positions in their respective spheres in the organisations, and took every effort to see that their views are true; yet there remains a possibility that the views of the managers are in favour of the organisation.

(i) The general applicability of this research is restricted due to certain limitations. Majority of these can be said to be self imposed. In
order to complete it within the boundaries of time and cost, it is kept within manageable limit.

(ii) All pertinent information with regard to the functional areas have been provided in the information collection sheet. However, there might be a certain number which may have been overlooked or considered unimportant by the researcher. Future, researcher may consider these.

(iii) This study was confined to the core sector industries only and traditional industries were not included in its purview. Moreover, the organisations undertaken for study was confined to the manufacturing organisations only and service organisations, because of the basic difference in nature, were excluded.

(iv) The scope of the present research study is limited to seven industries. The choice of industry is constrained by the time and nature of the study. Their choice is also influenced by their location. They are all located in the belt of West Bengal and Bihar which enabled ease of collection of data as the researcher is a domicile of that area.
Moreover, all these industries are located within close proximity of each other.

(v) Size of sample was another important constraint. With the limitations of time and also non-availability and busy schedule of the managers, the researcher could not hope to increase the sample and had to confine to four managers from each functional area. This is considered to be a good representative of the whole. However, a larger sample is desirable for the confirmation of the present study.

(vi) The present study is restricted only to the profiles of the industries mentioned. Other subsidiary, dependent or related industries have been excluded from the purview of the study.

Thus the period covered under study dates back to July 1994 and consequently all data collected and reference made pertain to said period.

2.16 RESEARCHER'S LIABILITY:

Though the researcher has tried his best to secure a much reliable information by determining sample size,
drawing samples, collecting, analyzing and presenting data but still there might exist areas of omission and commission for which none else except the researcher is liable.
REFERENCES


4. Ibid., pp.90-91.


6. op. cit., pp.57.


