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A CASE STUDY
OF THE
MANAGEMENT INFORMATION SYSTEM
OF
BANGLADESH STEEL AND ENGINEERING CORPORATION

RAFIQUL ISLAM BHUIYA
AKM ENAMUL HAQUE

BANGLADESH PUBLIC ADMINISTRATION TRAINING CENTRE
SAVAR, DHAKA
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CHAPTER ONE

INTRODUCTION

1.1 THE STUDY

Development of this country depends to a large extent on the effectiveness and efficiency of its public sector. Use of computers in public management can significantly increase its effectiveness and efficiency. Computers can assist public managers of all levels in their decision making.

Computers can be used as a support to management decision making by developing Computer-based Management Information Systems (MIS) and Decision Support Systems (DSS). An MIS may be defined as "... an integrated user-machine system for providing information to support operations, management, analysis and decision-making functions in an organization. The system utilizes computer hardware and software; manual procedures; models for analysis, planning, control and decision-making, and a database" (Davis and Olson, 1985:6). An MIS can assist public managers in their decision-making by providing them adequate, timely, accurate, and high quality information.

A Decision Support Systems (DSS) may be defined as "... an integrated set of computer tools that allow a decision maker to interact directly with computers to create information useful in making semi-structured and unstructured decisions" (Hicks, 1986:524). A DSS can not only provide highly processed information to the decision maker but also can generate decision alternatives from which the decision maker can make a choice.

Many public sector organizations have already installed computers. Others are going to have computers very soon. If these computers are used only for word processing and routine data processing that will be an under-utilization of the computer technology. Using computers in decision making in addition to word processing and routine data processing not only ensures proper utilization of the computer technology but also increases management effectiveness and efficiency.

Bangladesh Steel and Engineering Corporation (BSEC) has a computer-based Management Information System or MIS. The MIS of this organization has been studied as a Case.

1.2 OBJECTIVES OF THE STUDY

The study has the following objectives:

- (1) Examine the composition and structure of the BSEC MIS;
- (2) Analyze the functions and uses of the BSEC MIS; and
- (3) Examine, how the problems of BSEC MIS, if any, may be overcome.

1.3 REVIEW OF LITERATURE

No case study has yet been done on the MIS of BSEC. This study is, therefore, the first of its kind. The study will reveal how computers are being used in management decision making by BSEC and what are the problems involved in such use. This report may be used both by BSEC and BPATC. BSEC may kindly consider the recommendations made in this report for development of their MIS

facilities. BPATC may use this report as a training material in the computer courses conducted here.

1.4 DATA SOURCES AND METHODOLOGY

The study was based on primary and secondary data. Primary data was collected from BSEC. An appropriate questionnaire having both open-ended and closed questions was used to collect data from BSEC. The study has also made use of relevant theories and models on MIS and DSS.

CHAPTER TWO

THE CONCEPT OF USING COMPUTERS IN MANAGEMENT DECISION MAKING

Computer technology is also referred to as Information Technology or IT. Also the revolution that computers have brought about is known as Information Revolution. Because of the information revolution the world is now said to have entered what has been called as the Information Age.

Decision making is an information-based activity. Through having revolutionary impacts on information systems throughout the world, computers have exercised significant impacts on decision making. The following is a discussion of how computers can assist Administrators and Managers in modern organizations in their decision making activities.

2.1 Computer as a Decision Making Tool

Computer has also been defined as a data or information processing machine. Its role as a decision making tool is manifested in two ways.

(1) The computer can determine three major characteristics of information that can have significant impacts on decision making. These characteristics of information include, Timeliness, Accuracy and Adequacy.

(2) The computer also helps decision makers use models developed in various disciplines by performing all the tedious calculations involved. The user only enters the values of the variables, and the computer processes them using one or more

models and returns the results. The user presses only a few key strokes to get the whole thing done.

2.1.1 The Computers can Provide Timely Information

It often happens in our offices that decisions can't be taken at the right time as necessary information does not become readily available. This often happens during official meetings. With a computer-based information system this problem can be minimized. Through a computer-based information system network, information may be made available from the computer database to all the decision makers of an organization having access to computer terminals. Information can also be made timely available during meetings by having one or more computer terminal in the conference room connected to a computer database.

2.1.2 The Computers can Provide Accurate Information

Decision making in our offices also suffers from inaccurate information. Although calculators are often used, errors still remain. This is because of the fact that calculators can be used to do calculations in a piece-meal fashion. Unlike the calculators, the computers can process the whole of the job to be processed by performing all the necessary calculations itself in an integrated and sequential manner. Hence computers can guarantee one hundred percent accuracy of the information that will be output if the data that was input is correct and if the hardware and software in the computer system are ok.

2.1.3 The Computers can Provide Adequate Information

Decision making in our offices also often suffers from the inavailability of adequate information. This happens mainly due to the fact that we do not maintain proper collections of data or information generated within our organizations or outside with the hope of that data or information to be used by decision makers later.

Although it is possible to maintain collections of organizational and external data and information manually, i.e. without the help of computers, few organizations actually does it, such as, Banks, Insurance companies, etc. This is because of the fact that maintaining proper collections of organizational and external data becomes in itself a big job for many organizations.

With a computer system having appropriate software and storage systems, maintaining proper collections of data become an easy job. Huge volumes of data and information can be stored in a computer's database which can then be queried upon in numerous ways by any user given access to it. Information reports can also be generated from the database at any time. The convenience of storing and retrieving information with a computer system prompts organizations to maintain computer databases. If a computer database can be maintained properly in an organization, the decision makers of that organization can be provided with adequate information for decision making through quering and report generating facilities.

2.1.4 The Computers help Use Models in Decision Making

In order to make decisions it often becomes necessary to use one or more models developed in various disciplines of knowledge. Models, such as, Correlation and Regression, Standard deviation and Variance, Linear programming, etc. have valuable uses in decision making and planning. Use of any of these models involves huge number of calculations even if the data is not that large. Doing these calculations manually becomes a tiresome job and there remains a high probability of errors. The computer can help enormously in the use of these models. The user only has to input the values of the variables of these models and he instantly receives the output through pressing a few keys only. In this way the computers encourage decision makers in using suitable models.

2.2 Use of Computers in Decision Making

Computers are being used as a tool for decision making in the following three ways.

- 1) Data Processing (DP)
- 2) Management Information Systems (MIS)
- 3) Decision Support Systems (DSS)

2.2.1 Data Processing

Data Processing Sometimes provides a crude way of using computers in decision making. The hardliners in the field of Computer, however, would not consider any kind of data processing as a way of using computers in decision making. This author considers only those data processing works that can yield information on the basis of which management can make decisions.

Periodic financial statements of an organization can be cited as an example. Management of various organizations do make many of their financial decisions on the basis of financial statements prepared through routine data processing using computers. In the absence of sophisticated users of computers in decision making, discussed later in this chapter, this use of the computers can also be regarded as a crude way of using computers in decision making. However, there can be many other forms of data processing, the output of which is not used in making any decisions.

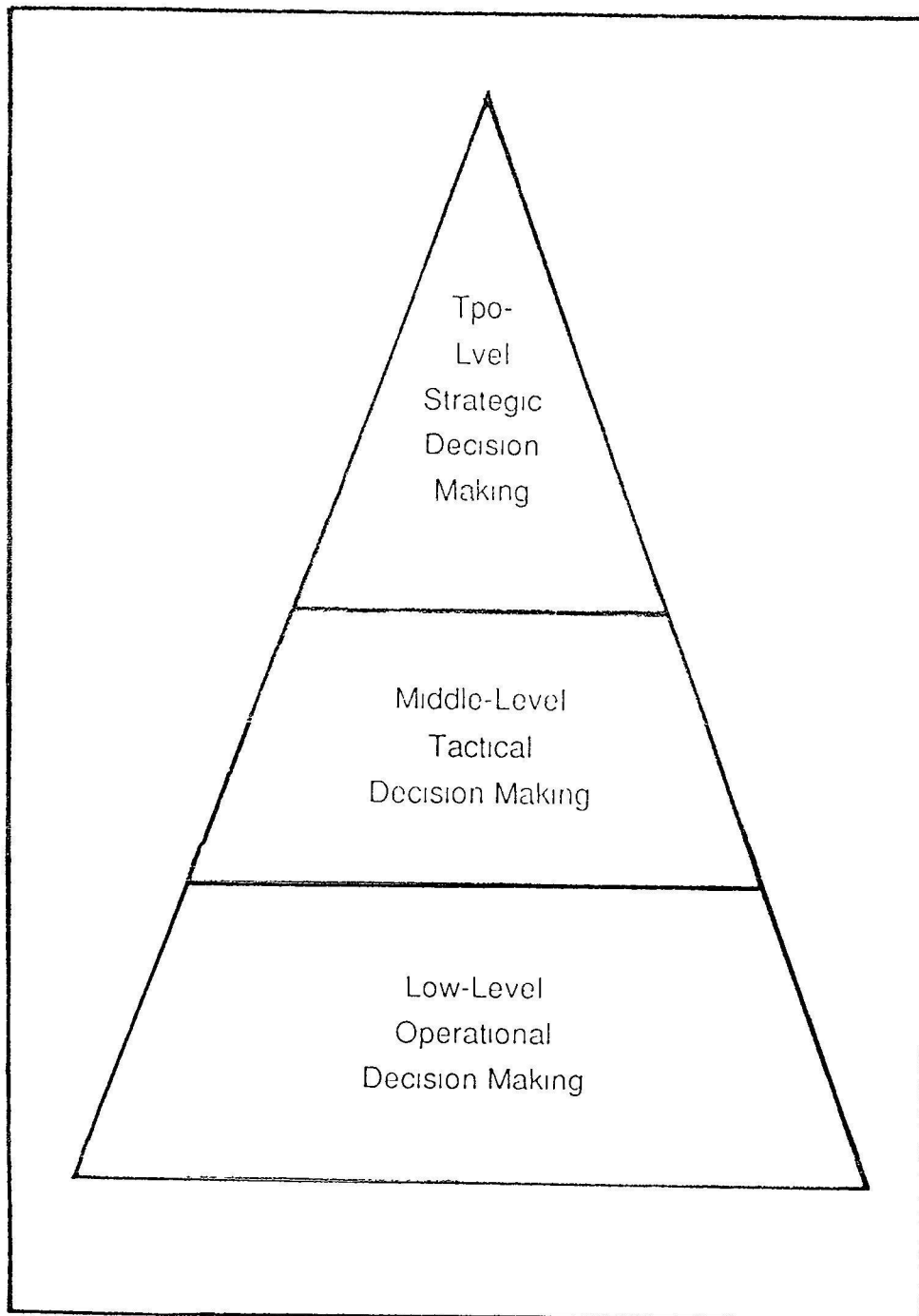
2.2.2 Management Information Systems (MIS)

Management Information Systems (MIS) is one of the two major ways of using computers in management decision making. An MIS may be defined as "an integrated user-machine system for providing information to support operations, management, analysis and decision making functions in an organization. The system utilizes computer hardware and software; manual procedures; models for analysis, planning, control and decision making; and a database" (Davis and olson, 1985:6). The concept of MIS can be better understood through analysing the three terms it includes, i.e. Management (M), Information (I), and Systems (S).

Management

Three levels of management generally exist within an organization, and managers at each level participate in certain characteristic decision making activities. These levels are depicted in Figure 2.1.

Figure-2.1-Levels of Decision Making



Top Level Management - Strategic Decision Making

At the top level, activities are future-oriented and involve a great deal of uncertainty. Examples include, establishing goals and determining strategies to achieve the goals.

Middle Level Management - Tactical Decision Making

The emphasis in middle levels is on activities required to implement the strategies determined at the top level. Thus, most middle management decision making is tactical.

Lower Level Management - Operational Decision Making

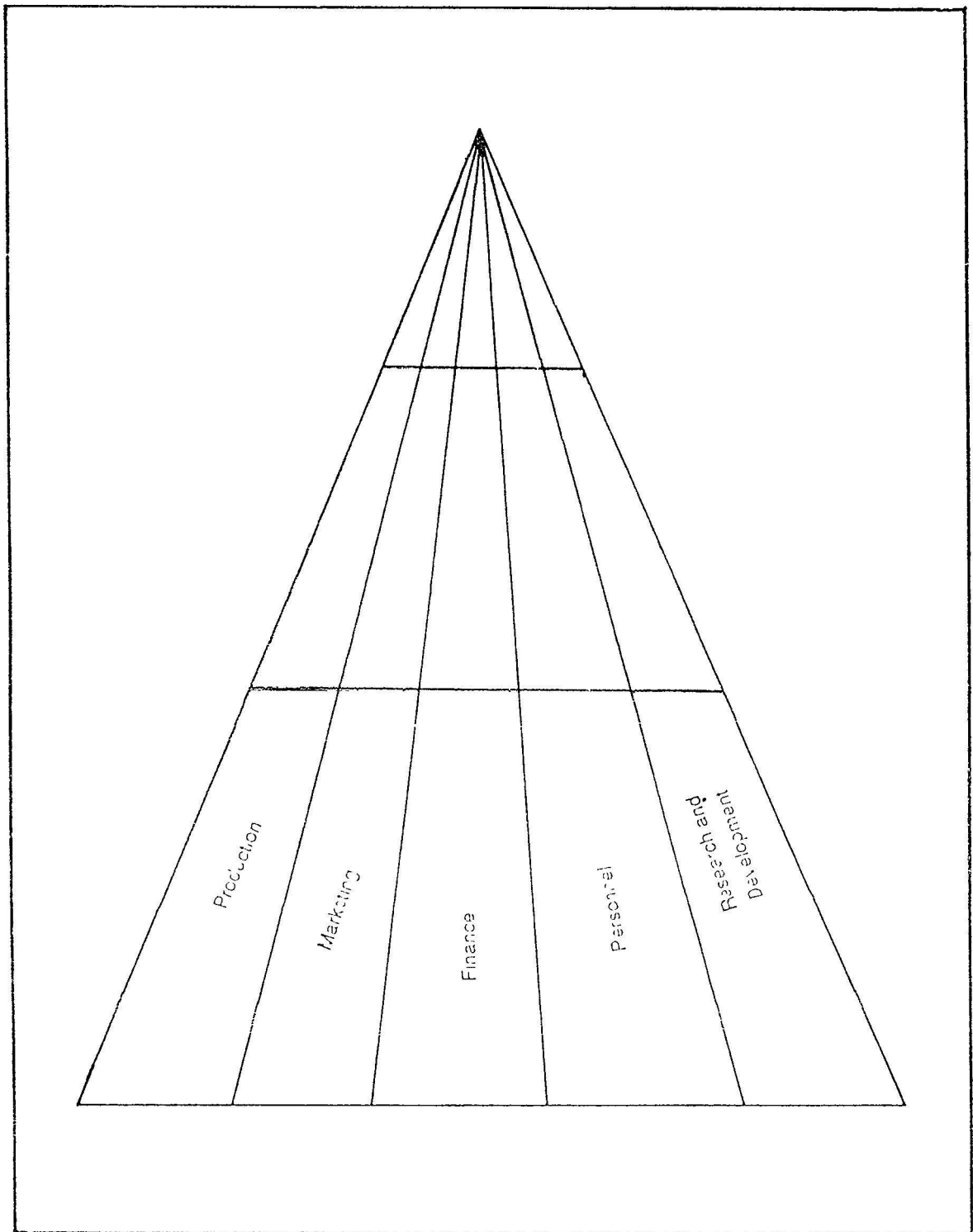
Members of the lowest level in the management hierarchy make operating decisions to ensure that specific jobs are done. Most of these operations are structured and the decisions are deterministic. They follow specific rules and patterns established at higher levels of management. The major function of lower level management is controlling organizational activities keeping them in line with plans and taking corrective actions, if necessary.

In addition to the breakdown of an organization into three management levels, there exists a breakdown of the organization by function. Each functional group generates a separate stream of information flow (Figure 2.2).

Information

Managers at all levels must be provided with decision-oriented information. The fact that the nature of decisions differs at the three levels creates a major difficulty for those

Figure 2.2 Functional Information Flow



attempting to develop an MIS. The information needs of each level differ, and the information system must be tailored to provide appropriate information to all levels.

Decisions made at the lower level are generally routine and well defined. The needs of first level managers can be met by normal administrative data processing activities such as preparation of financial statements and routine record keeping. Although this level of decision making is fairly basic, it provides the data processing foundation for the entire organization. If the information system is faulty at this level, the organization faces an immediate crisis.

Tactical decision making is characterized by an intermediate time horizon, a high use of internal information, and significant dependence on rapid processing and retrieval of data. Many middle level decisions are also ill-structured and difficult to plan for. The major focus of tactical decisions is how to make efficient use of organizational resources.

The main problems in MIS design arise when planners attempt to define and meet the information requirements of top level management. It is extremely difficult, if not impossible, to clearly define these information needs. Most problems are non-repetitive, have great impact on the organization, and involve a great deal of uncertainty. Most information systems serve the needs of the two lower levels but are not adequately designed to cope with the variety of problems encountered by top management. However, well-designed management information systems can help.

Table 2.1 summarizes the differences among the three levels of decision making. Since the information needs at the

three levels differ, data has to be structured differently at each level. For routine operating decisions such as payroll preparation and replenishment of inventory, separate employee and inventory files are adequate. To serve the middle and top levels, the data should be organized to provide query capabilities across functional lines and to handle routine information reports.

Table 2.1

Characteristic Differences in Levels of Decision Making

Characteristics	Levels of Decision Making		
	Operational	Tactical	Strategic
Time Horizon	Daily	Weekly/Monthly	Yearly
Degree of Structure	High	Moderate	Low
Use of External Information	Low	Moderate	Very High
Use of Internal Information	Very High	High	Moderate/Low
Degree of Judgement	Low	Moderate	Very High
Information Online	Very High	High	Moderate
Level of Complexity	Low	Moderate	Very High
Information in Real Time	High	High	High

System

Through the perspective of Systems Approach, every organization can be conceived as a System. Basically, a system is an aggregate of interrelated components interacting with each other to achieve certain goals. According to Hicks (1986:96), a System may be defined as "...a set of interacting components that

operate within a boundary for some purpose". Thus from the viewpoint of systems approach, every public or private sector organization consists of interacting departments that operate within a boundary for some purpose. Each of the departments of an organization has an information system. One department of an organization may need data generated in another department. Managers of middle and top management levels of an organization needs data generated in all the departments. Thus using the systems approach, the information system of an organization can be viewed as an aggregate of information subsystems operating within a boundary. The function of MIS here is to integrate all these subsystems so that it can work as an effective and efficient information system.

The Function of MIS

The function of an MIS is to provide information to the administrators and managers for decision making. It does this through generating different types of reports, including, scheduled listings, exception reports, predictive reports, and demand reports.

Scheduled Listings : Scheduled Listings are produced at regular intervals and provide routine information to a wide variety of users. Since they tend to contain an overabundance of data much of it may not be relevant to a particular user. Such listings constitute most of the output of current computer-based information systems.

Exception Reports : Exception reports are action-oriented management reports. the performance of office activities is monitored, and any deviation from expected results triggers the generation of a report. Such reports can also be produced during routine batch processing. Exception reports are useful because they ignore all normal events and focus management's attention on abnormal situations that require special handling.

Predictive Reports : Predictive reports are used for planning. Future results are projected on the basis of decision models. Such models can be very simple or highly complex. Their usefulness depends on how well they can predict future events. Management can manipulate the variables included in a model to get responses to "what if" kinds of queries. Thus, such models are suited to tactical and strategic decision making.

Demand Reports : Demand reports are produced only on request. Since they are not required on a continuing basis, they are often requested and displayed through online terminals. The MIS must have an extensive and appropriately structured data base if it is to provide responses to unanticipated queries. No data base can provide everything, but the data base of an well-designed MIS should include data that may be needed to respond to such user inquiries. Providing demand reporting can be expensive, but it permits decision makers to obtain relevant and specific information at the moment they need it.

The Placement of the MIS Department

According to Goldstein (1986:422), there are two

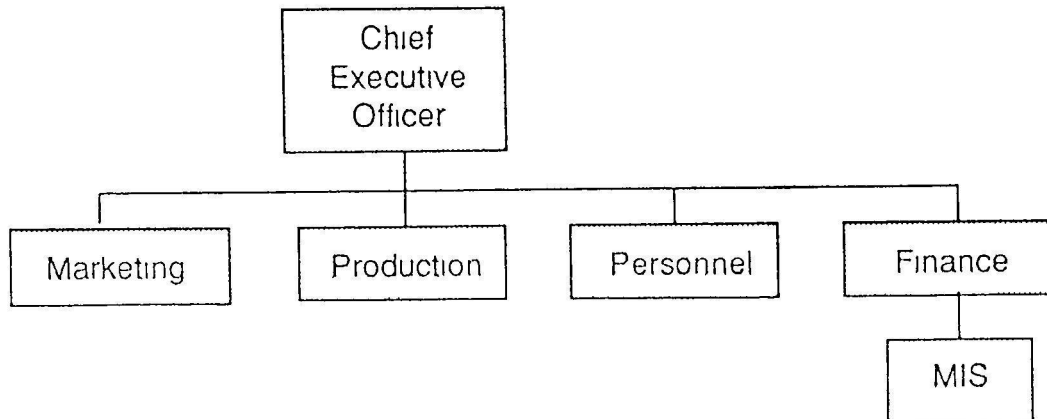
options for the placement of the MIS department. Make the MIS department subordinate to some other department or make the MIS department report directly to the chief executive officer. These options are shown in Figure 2.3

The earliest business computer applications were record-keeping and accounting systems for billing customers. Consequently, many MIS departments followed the first option and had the MIS manager report to the Finance or Accounting department.

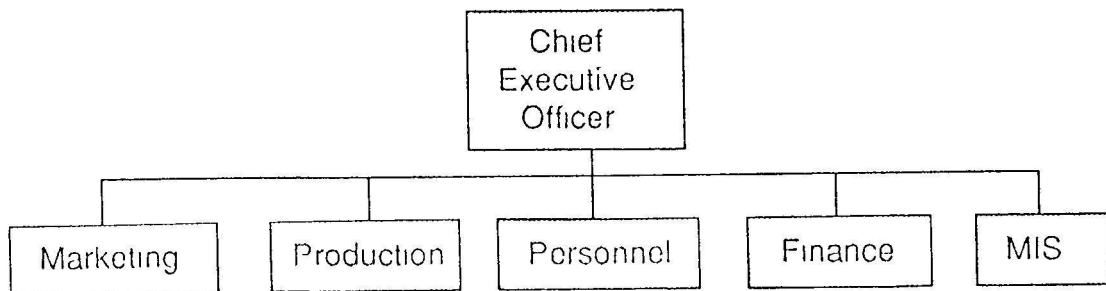
As organizations have gotten more computer experience at all levels, they have found that more departments than simply accounting can be helped by an MIS. This presents political problems for an MIS department that reports to the accountants. When potential users from another area request new systems, the MIS department should be objective in evaluating the request.

If the MIS department report to the financial department, all requests of accounting related systems might be viewed more favorably than worthy requests for other types of systems. This is not desirable. For example, imagine an organization having difficulty keeping its best personnel. A human resource information system could provide better employee records and career planning services and might help reduce employee turnover. If the MIS department head's boss is the financial officer, most systems are accounting-related. It may become difficult to convince finance management that this human-oriented, rather than financially oriented, system is valuable. Although the human resource system could be extremely important for the organization's future, the MIS department is bound by the

Figure 2.3
The two Options for the Placement of
the MIS Department



(a) Reporting to the Financial Function



(b) Reporting Directly to the Chief Executive Officer

financial department's goals. Making the MIS department separate would give it the freedom to address the needs of any other department objectively. Many organizations have done this in recent years.

2.2.3 Decision Support Systems (DSS)

Another of the two major ways of using computers in decision making is the Decision Support Systems (DSS). A DSS may be defined as "... an integrated set of computer tools that allow a decision maker to interact directly with computers to create information useful in making semistructured and unstructured decisions" (Hicks, 1986:521). The above definition necessitates some discussion about the kinds of decisions.

Structured Decisions

These largely involve situations where no choice, or very little choice or alternative, is possible. The decision situation here is largely self-evident, once the facts and numbers are known. Administrators make these decisions chiefly in areas of operations, rarely in cases of policy planning. It is in dealing with the more highly structured decisions where MIS has been used mostly in recent years.

Semi-structured Decisions

These involve both data and a manager's intuition and judgement and are most commonly faced by line managers. DSS can greatly assist line managers in making these kinds of decisions. MIS can help but little.

Unstructured Decisions

These involve no data reference source. They represent decision based entirely on an administrator's intuition and judgment. These kinds of decisions are involved mostly in the area of organizational policy planning, not often in areas of management operations and control. Line managers face unstructured decisions chiefly in dealing with people-workers, other managers, bosses and so on.

DSS helps administrators and managers in making semi-structured and unstructured decisions.

DSS and MIS

There is a basic difference between MIS and DSS. MIS provides information to the decision makers through generating and distributing different types of information reports and through providing database query facilities. The DSS on the other hand lets the user to interact directly with the computer to manipulate data and models and thereby allows him to generate decision alternatives from which the decision maker can make a choice. In others words, the MIS only outputs information to an user according to his specifications, but the DSS lets the user to interact with the computer to change or manipulate data and models to create information useful to him in making semi-structured and unstructured decisions. MIS and DSS can exist without one another. They can also exist together. When they exist together, the DSS can retrieve data from the MIS.

Functions of a DSS

Briggs (1982:31) has provided a summary of several

functions and features that DSS applications should contain.

Model Building

The building of a model of the decision-making problem is a central purpose of most decision support systems. This model is often in the form of a two (or more) dimensional table, such as the electronic spreadsheet. The first two dimensions of the table might contain an income statement, the third dimension could represent various products, and the fourth dimension could represent multiple retail outlets. In this case, model development involves specifying in mathematical terms the relationships among the various sales and expense variables. For example, in building this model, we may assume that sales is a function of advertising expense. In mathematical terms this function might be stated as $\text{sales} = 20 \times \text{advertising expense}$. This function indicates that for each Taka spent on advertising, sales will increase by twenty Taka.

Procedural and/or Nonprocedural Language

As discussed earlier, these languages allow the user to communicate with the DSS. Most users find nonprocedural languages more convenient to use.

What-if Analysis

The ability to show the impact of changes in data and assumptions is perhaps the most useful feature of a DSS. For example, a DSS could show the impact on profit if sales grew at a rate of 7 to 10 percent instead of 5 percent. Most DSS applications can show instantaneously the impact of such changes

in assumptions. Electronic spreadsheets are especially good for what-if analysis.

Goal Seeking

A DSS should be able to show what value a particular independent variable would have to be in order to produce a certain target value for the dependent variable. Most electronic spreadsheets for personal computers now has this capability. Financial-modeling tools, such as the Intergrated Financial Planning System, perform goal seeking.

Risk Analysis

A very useful piece of information for a decision maker is a probability distribution, which is obtained through risk analysis. This provides the probabilities that a particular critical measure will reach a certain level. For example, it would be useful to know the probability that the population growth rate will be zero, the probability it will be 5 percent, and the probability it will be 10 percent. Such information can be generated using management-science techniques, provided that certain data are available. The necessary data are the probability distributions of the underlying independent variables, such as birth and death rates.

Statistical Analysis and Management Science Models

A good DSS will be able to provide several useful management science models such as regression and time-series analysis. These two models may be used to project historical data into the future.

Financial Functions

Preprogrammed financial functions for commonly used calculations are usually included in DSS packages. These may include depreciation methods, net present value and return on investment.

Graphics

An extremely important feature in a decision support system is a graphics generator. The system should be able to depict any of the data contained in the system in various graphic forms, such as bar, line or pie graphs.

Hardware Capabilities

Decision support systems in one form or another can be implemented on machines as small as personal computers and as large as mainframes. When a DSS is installed on a PC, the PC should have a large amount of memory and secondary data storage. Mainframes usually have very high data storage and processing capacity, so highly complex models can be implemented on them. A current trend (which is expected to continue) is the use of PCs in combination with mainframes for decision support systems. The PC is linked to the mainframe to retrieve data for subsequent processing on the PC if the data volume and processing volumes are relatively small. If, on the other hand, large amounts of data and processing are required, some parts of the DSS may be performed on the mainframe. Many of the DSS software tools, such as IFPS and FOCUS, can run on both PCs and mainframes.

Data Bases and External Files

It is crucial that a DSS be able to access data stored in the organization as files. Much of the knowledge-producing data that a DSS uses are stored in these files. This access can be done either through the data-base management system's capabilities or through the DSS's own capability to access external files. In addition, most DSS tools have the capability of maintaining their own internal files once the data are retrieved from sources.

The above was a discussion of how the computers can be used in decision making through decision-oriented data processing and through using MIS and DSS. In the next chapter, the status of the MIS of BSEC will be analyzed in the light of the concepts discussed in this chapter.

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Chapter Three

Analysis of the Management Information System of BSEC

3.1 The BSEC

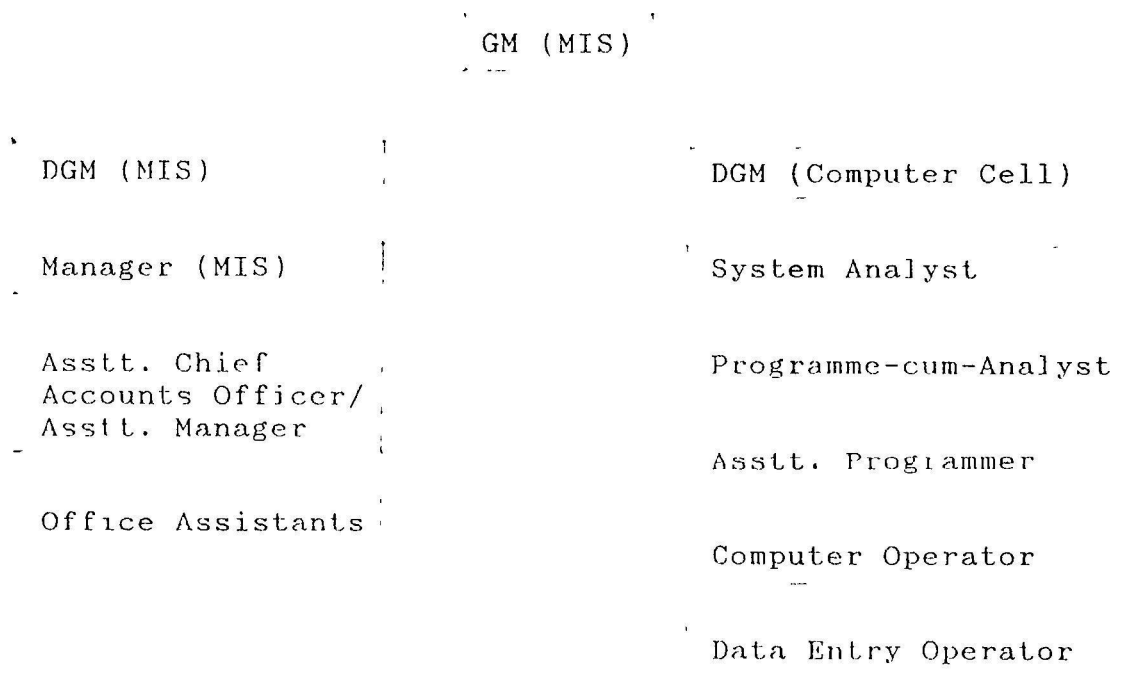
The BSEC was established in 1976 by merging the erstwhile Bangladesh Eastern Shipping Corporation (BESC) and Bangladesh Steel Mills Corporation (BSMC). It is one of the biggest corporations of the country and has seventeen subsidiaries or specialized enterprises at the moment. The subsidiaries include the following :

- (1) Chittagong Steel Mills Limited
- (2) National Tubes Limited
- (3) Eastern Tubes Limited
- (4) Eastern Cables Limited
- (5) Gazi Wires Limited
- (6) General Electric Manufacturing Company Limited
- (7) Metalex Corporation Limited
- (8) Mehar Industries (Bangladesh) Limited
- (9) Bangladesh Diesel Plant Limited
- (10) Bangladesh Machine Tools Factory Limited
- (11) Bangladesh Can Company Limited
- (12) Dockyard and Engineering Works Limited
- (13) Khulna Shipyard Limited
- (14) Chittagong Dry Dock Limited
- (15) Bangladesh Blade Factory Limited
- (16) Atlas Bangladesh Limited
- (17) Progoti Industries Limited.

3.2 Hierarchic Position, Structure and Manpower of BSEC MIS

The MIS Division of BSEC consists of two departments : (1) an MIS Department that manually collects information from the different divisions of BSEC and from the subsidiaries or enterprises and (2) a Computer Cell that provides computer support to the MIS department. An organogramme of MIS division appears below (Fig. 3.1)

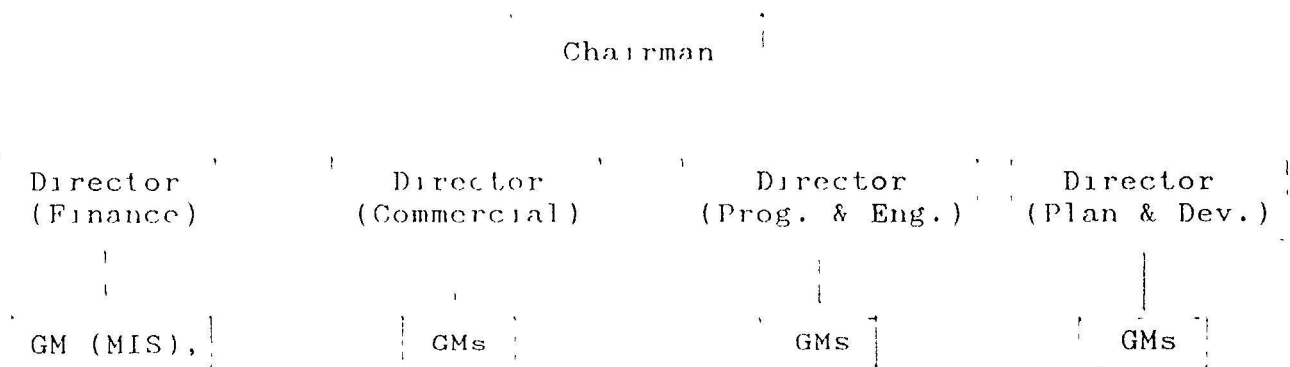
Fig. 3.1



The BSEC MIS enjoys a favourable position in the organizational hierarchy since its chief is a General Manager who reports to the second line of top management (Fig. 3.2). A high position of the MIS executive makes it easier to convince top management about MIS plans, projects and programmes and gain required allocations in the annual budgets to implement those plans,

projects and programmes. Its separation of the manual MIS functions and the automated MIS functions through having two departments each headed by a Deputy General Manager is due to the fact that they have been doing a considerable part of their data preparation and report generation activities manually. This indicates that the BSEC MIS has not been adequately computerized. Manpowerwise, they have the required number and types of posts in the manual and automated MIS set-ups (Fig.3.1).

Fig. 3.2



3.3 Hardware, Software, Systems and Structure of BSEC MIS

The Computer-based MIS system was installed in 1988. The system is supported by a multi-user microcomputer system. The host computer is an ICL QUATTRO XM machine with 80286 processor, 1-megabyte RAM, 50-megabyte hard disk, monochrome monitor, and is operated by the ICL owned operating system C-DOS. There are 4 dumb terminals connected to this host. They also have another personal computer (PC) which is not connected to the above multi-user system. They use this PC for small word processing and

data processing jobs. This PC is a 8086 machine with 640-kilobyte RAM, 20-megabyte hard disk and a VGA colour monitor. They have 3 printers. Hardwarewise, they have very limited processing and storage capacity and is far behind today's standards.

Among softwares, they have Wordstar, Wordperfect, Lotus, dBase and Data Flex. They have two programming language compilers, namely, BASIC and COBOL.

They have developed their general transactional MIS system using the BASIC programming language. They have also developed Personnel Management Information System (PMIS) using Dataflex software package and Accounting (Financial) Information System (AIS/FIS) Payroll system using the programming language COBOL.

It appears from the above that although BSEC does not have adequate hardware facilities, they have developed an MIS system. Many organizations have better hardware and software facilities than that of BSEC yet do not have a computerized MIS. Explanation of this success probably lies in their manpower being adequate and the favourable position of their MIS set-up in the management hierarchy.

In order to further expand and develop their MIS system they will have to develop Inventory Management System for the Materials Planning and Inventory Control (MPIC) Division, Executive Information System (EIS) specifically for top and senior management and Decision Support System (DSS) for all managers.

The DSS has been discussed in section 2.2.3 of the previous chapter.

The structure of the BSEC MIS is largely centralized. The multi-user system they have has a host computer and four dumb terminals. Three of these terminals along with the host computer are installed in one room. Only the Chairman of BSEC has one of these dumb terminals in his room. In order for MIS to be organizationwide and more effective, all the Directors, General Managers and other high level and mid-level managers should also have terminals, dumb or intelligent. In order to accomplish that BSEC will have to go for a new multi-user system that would support 20 terminals. The 20 terminals may be distributed to the offices of the following officials.

- a. Chairman, BSEC
- b. Director (Finance)
- c. Director (Commercial)
- d. Director (Production & Engineering)
- e. Director (Planning and Development)
- f. Secretary
- g. Controller of Accounts
- h. Chief Personnel Officer
- i. Chief Audit Officer
- j. General Manager (Enquiry)
- k. General Manager (MIS)
- l. General Manager (Purchase)
- m. General Manager (Steel)
- n. General Manager (R & D)
- o. General Manager (MPIC)
- p. General Manager (SB)
- q. General Manager (Sales)
- r. General Manager (Engineering)
- s. Additional Chief (Planning)
- t. System Analyst.

The host computer should be a Pentium machine with at least 32-megabyte RAM and 1-Megabyte hard disk and operated by a Unix operating system. They should also switch over to a larger

relational database management framework. For this a standard software package such as Oracle may be installed.

3.4 Uses of the BSEC MIS

BSEC has been making a good use of its MIS system. They generate daily, weekly and monthly information reports on periodic performance of BSEC and its enterprises, including productions, local sales, exports, contributions to the national exchequer, available stock of finished products, available stock of raw materials, position of bank loans and repayments, manpower, pay and allowances, development programmes and expenditures therein, man-hour use efficiency, etc. The monthly reports are circulated to the relevant ministries, divisions, attached departments, autonomous bodies, libraries, training centres, etc. All levels of managers of BSEC and its enterprises make use of these reports. However, the BSEC MIS is playing its role largely through supplying information reports to management. As has been mentioned in para ... BSEC can make its MIS organizationwide and more effective if all members of top and senior management are given direct access to the MIS network. A short training of these senior officials in the use of MIS and DSS will make them users of MIS and DSS.

3.5 Role of the Manual MIS Set-up

As has been mentioned in para 2.2.2 manual procedures are always a part of computer based MIS. The manual procedures may involve collection of data from different divisions or departments of an

organization, preparation of data for entry into the computer system, etc. The manual MIS of BSEC was established in 1976. The manual MIS set-up of BSEC performs two major functions: (1) Preparing data for computerization by the Computer Cell; and (2) Preparing reports from data that are not computerized. However, it is possible nowadays to automatically collect data from the enterprises by having a computer in each enterprise and linking it with the central computer through normal telephone lines. Computer use in the enterprises would not only improve the information system of the enterprises but also minimize the data preparation works at the head office. Installation of an organization wide MIS network at the head office of BSEC and computerization of the enterprises may minimize the activities of manual MIS department to such an extent that the present MIS department and the Computer Cell may be merged in the future to form a singular structure. This merger will make MIS management and MIS development efforts more convenient.

3.6 Conclusion

The BSEC deserves appreciation for the fact that they are running a computer-based management information system although hardware and softwarewise, they have an inadequate system and the technology is far below today's standards. The structure of their MIS is largely centralized. The set-up, however, is favourably positioned in the organizational hierarchy. The major function of the MIS is to generate information reports of varying frequencies and also occasional and demand reports. The corporation is getting a lot of benefits from these reports. A major tangible

benefit, according to several of its officials, has been that they can generate their Monthly MIS Report within one-fourth of the time that was necessary before computerization. Obviously, this has been a significant achievement. However, there is still scope of further time reductions through automation of some of the currently manual steps, such as, collection of data from the subsidiaries, input preparation, etc. However, on-line facilities for database access and DSS use by user managers is non-existent. Installation of an organizationwide MIS and DSS network would lead to greater use of MIS and DSS facilities in the organization resulting in further improvements in its management efficiency.

3.7 Recommendations

This study would like to make the following recommendations:

1. Install an organizationwide network having both MIS and DSS facilities and give all members of top and senior management terminals for accessing data and analytical facilities of MIS and DSS.
2. In order to accomplish the above, a larger multi-user system with pentium server, 20 intelligent or dumb terminals and served by Unix operating system may be installed.
3. A new MIS may be developed on a standard relational database management system software, such as, Oracle.
4. The top and senior management officials may trained in the use of MIS and DSS through a short in-house course.
5. Most of the enterprises may have computers. Data may then be collected form the enterprises through telephone lines.

A CASE STUDY OF MANAGEMENT INFORMATION SYSTEM (MIS) OF BANGLADESH STEEL AND ENGINEERING CORPORATION (BSEC)

1.1 Name of organization : -----

1.2 Address : -----

1.3 Name of officer heading the computer section : -----

1.4 Designation : -----

1.5 Address : -----

1.6 Telephone Number : -----

2 Data on computers

32

3.1 Was Systems Analysis Done before procuring the computer?

Yes ☐

No ☐

3.2 If done, by whom it was done?

4 Data on other hardware

Which of the following hardware have you procured?

- 1) Card Reader
- 2) Tape Drive
- 3) Scanner
- 4) Mouse
- 5) Digitizer
- 6) Light Pen
- 7) Wand
- 8) Bar Code Scanner
- 9) Magnetic Ink Reader
- 10) Optical Character Reader (OCR)
- 11) Printer
- 12) Plotter
- 13) Speech Synthesizer
- 14) Data Show
- 15) Others, Specify

5 Data on use of Micro-computer Local Area Networks (LAN) and/or Mainframe and Mini-computer Systems

5.1 Are you using Micro-computer Local Area Network?

Yes ☐

No ☐

5.2 Are you using Mainframe or Mini-computer System?

Yes ☐

No ☐

Go to question 6 ☐

5.3 How many officers have terminals?

5 4 How many rooms have terminals?

--

5 5 Are the terminals intelligent or dumb?

--

5 6 Which management levels have been interconnected by the LAN or by the Mainframe or Mini-computer system?

Top, Middle and low	
---------------------	--

Top and Middle	
----------------	--

Top and low	
-------------	--

Middle and low	
----------------	--

No interconnection accomplished	
---------------------------------	--

6 Data on Software and compilers

[illegible]

7 Which of the following computer systems are you using?

Personnel Management	
----------------------	--

Accounting System	
-------------------	--

Payroll System	
----------------	--

Inventory Management System	
-----------------------------	--

8 Data on use of other applications systems

[illegible]

100

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مجلس
العلماء

[illegible]

11. Data on database use

[illegible]

13. Generation of information reports

[illegible]

14. Which of the following models are used in data processing in this office?

Correlation

Regression

Linear Programming

Standard Deviation

Variance

15. Please indicate the location of computer set-up in the organogramme of this office.

16. Data on manpower of the computer set-up

[illegible]

17 What is the total number of sanctioned posts for computer set-up of this office?

17.2 How many of the sanctioned posts are currently filled up?

17.3 Excepting the officers of the computer department how many other officers can operate computers?

17.4 How many of the officers mentioned in question 17.3 actually operates the computers?

17.5 How many of the officers mentioned in question 17.3 has received ~~computer training from abroad~~

17.6 How many of the officers mentioned in question 17.3 has M S degrees in computer from abroad?

17.7 How many of the officers mentioned in question 17.3 has Ph D degrees in computer from abroad?

18.1 Do you arrange in-house computer training programmes for your officers?

18.2 Does your organization send officers of computer department to undergo computer training in different training institutions in the country?

18.3 Does your organization send officers not working in the computer department to undergo training in different training institutions in the country?

18.4 How many officers of this organization are currently undergoing computer training abroad?

18.5 How many officers of this organization are currently doing M S degrees in the field of computer abroad?

18.6 How many officers of this organization are currently doing Ph.D. in the field of computer abroad?

19.1 Is there a computer or computer terminal in the room of the head of this organization? Yes No

19.2 Does he/she operate that computer himself/herself? Yes No

19.3 Does he/she use that computer through someone else? Yes No

20.1 Which of the following describes the general opinion of officers of this organization about the usefulness of computers in this office?

Very Useful Useful Not Useful Other

20.2 Which of the following describes the opinion of top management of this organization about the usefulness of computers in this office?

Very Useful Useful Not Useful Other

21.0 How many officers of the different management levels below use computer-based Decision Support Systems?

Top

Middle

Low

Total

*** Thank you for your cooperation ***

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