

# An Analysis And Study Based on Opportunities of Management Information System

**Dr. Savya Sachi<sup>1</sup> and Dr. S A Jha<sup>2</sup>**

Assistant Professor, Department of Information Technology<sup>1</sup>

Professor In-Charge<sup>2</sup>

Lalit Narayan Mishra College of Business Management, Muzaffarpur, Bihar, India

savyasachi51@gmail.com

**Abstract:** *Decision making is an integral part of the functioning of any organization. To facilitate Decision making in this ever-competitive world it is imperative that managers have the right information at the right time to bridge the gap between need and expectation. To facilitate better flow of information adequate Management Information Systems (MIS) is the need of the hour. Thus it is important to have an understanding of the MIS followed in an organization by all levels of management in order to take effective decisions. A management information system collects and processes data (information) and provides it to managers at all levels who use it for decision making, planning, program implementation, and control. The MIS has many roles to perform like the decision support role, the performance monitoring role and the functional support role. To get a realistic and holistic view of the MIS, MIS of MCC Limited (Name disguised) was taken as a case study. To get a more detailed understanding of a particular function of the company, we studied the need, uses and benefits of MIS with respect to the Material Department of the company. Inventory Management was of prime focus in our study.*

**Keywords:** Management Information Systems, Decision making, Inventory Management

## I. INTRODUCTION

Management Information Systems (MIS) is a system consisting of people, machines, procedures, data bases and data models, as its components. The system gathers data from Internal and External sources of an organization; processes it and supplies Management Information to assist managers in the process in decision making. Thus it is safe to conclude that an information system is "a system consisting of the network of all communication channels used within an organization". There are many potential benefits of MIS investments Investing in information systems can pay off for a company in many ways.

1. It can support a core competency.
2. Enhance distribution channel management.
3. Builds brand equity.
4. IT investment can boost production processes
5. Information systems allow company flexibility in its output level.

An information system comprises of all the components that collect, manipulate, and disseminate data or information. It usually includes hardware, software, people, communications systems such as telephonelines, and the data itself. The activities involved include inputting data, processing of data into information, storage of data and information, and the production of outputs such as management reports.

## II. NEED FOR MANAGEMENT INFORMATION SYSTEM

This is a universally accepted fact that all managerial functions are performed through decision making. For taking rational decisions, timely and reliable information is essential and is procured through a logical method of information collecting, processing and disseminating to decision makers. In today's world of ever increasing complexities of carrying out business, every organization, in order to survive and grow, must have a properly planned, analyzed, designed and maintained MIS. This need is even more increased because organizations now have to compete not only locally but also globally. MIS assist decision makers, by providing the required information at various stages of decision

making and thus greatly help the organization to achieve its goals and objectives. On the other hand, if an MIS is poorly planned and constructed, it may provide inaccurate, irrelevant or obsolete information, which may even prove fatal for the organization.

### III. TYPES OF MIS AND USES

MIS is a concept, which is a matter of degree rather than an absolute one. In management there are perhaps few other areas other than MIS which has created so much controversy. We would make an attempt to try to look into different types of MIS as they have evolved during the course of time.

1. Transaction Processing System
2. Management Information System
3. Decision Support System
4. Executive Support System
5. Office Automation System
6. Business Expert System

**Transaction Processing System:** It processes transactions and produces reports. It represents the automation of fundamental, routine processing used to support business operations. It does not provide any information to the user for decision making. TPS uses data and produces data.

**Management Information System:** MIS is an information system that processes data and converts it into information. A management information system uses TPS for its data inputs. The information generated by the information system may be used for control of operations, strategic and long-range planning, short-range planning, management control and other managerial problem solving.

**Decision Support System:** A decision support system is an information system application that assists decision-making. DSS tends to be used in planning, analyzing alternatives and trial and error search solutions. They incorporate a variety of decision-making models and thus are capable of performing what-if analysis.

**Executive Support System:** An ESS is a special kind of DSS. It is specially tailored for the use of chief executives of an organization to support his decision-making. Thus ESS is a comprehensive information system that includes various types of decision support systems, but it is more specific and person oriented.

**Office Automation System:** Office automation refers to the application of computer and communication technology to office functions. Office automation systems are meant to improve the productivity of managers at various levels of management by providing secretarial assistance and better communication facilities.

**Business Expert System:** A BES is a knowledge based information system that uses its knowledge about a specific, complex application area to act as an expert.

### IV. ROLES OF MIS

**(i)The Performance Monitoring Role-**MIS are not just statistics and data analysis. They have to be used as an MBO (Management by Objectives) tool. They help:

- To establish relevant and measurable objectives
- To monitor results and performances (reach ratios)
- To send alerts, in some cases daily, to managers at each level of the organization, on all deviations between results and pre-established objectives and budgets.

**(ii)The Functional Support Role-**Business processes and operations support function is the most basic. It involves collecting, recording, storing, and basic processing of data. Information systems support business processes and operations by:

- recording, storing and processing sales data, purchase data, investment data, payroll data and other accounting records
- recording, storing and processing inventory data, work in process data, equipment repair
- and maintenance data, supply chain data, and other production/operations records
- recording, storing and processing personnel data, salary data, employment histories, and

other human resources records recording, storing and processing market data, customer profiles, customer purchase histories, marketing research data, advertising data, and other marketing records

- recording, storing and processing business intelligence data, competitor analysis data,
- industry data, corporate objectives, and other strategic management records

**(iii)The Decision Support Role-** The business decision making support function goes one step further. It is an integral part of making decisions. It allows users to ask "What if ?" questions: What if we increase the price by 5%? What if we increase price by 10%? What if we decrease price by 5%? What if we increase price by 10% now, then decrease it by 5% in three months? It also allows users to deal with contingencies: If inflation increases by 5% (instead of 2% as we are assuming), then what do we do?

What do we do if we are faced with a strike or a new competitive threat?

## V. LITERATURE REVIEW

There is a IOT of research on the approaches, techniques and technologies for the design and development of MIS. However, there are a few articles that cover the impact of Management Information Systems on planning strategies and decision making. While there are no universally accepted definitions of MIS and those that exist in literatures are just prejudices of the researchers (Adeoti-Adekeye, 1997). Lee, (2001) defined MIS as a system or process that provides information needed to manage organizations effectively. Additionally, Baskerville and Myers (2002) broadly define MIS as the development, use and application of information systems by individuals, organizations and society. In his study, Becta (2005) describes an information system as a system consisting of the network of all communication channels used within an organization. In their study, Laudon and Laudon (2003) have defined MIS as the study of information systems focusing on their use in business and management. The abovementioned definitions showed that MIS has underlined the development, application and validation of relevant theories and models in attempts to encourage

quality work in the area. Referring to the literatures, the field of Management Information Systems (MIS) has had a variegated development in its relatively short life span. MIS has developed its own theme of research and studies (Baskerville and Myers, 2002). Tracing previous literatures, we can report that during its first few decades, MIS concentrated on the information in the context of: Electronic data processing which carries out transaction processing functions and records detailed factual data.

Management reporting systems which scrutinize the operational activities of an organization, providing summaries, information and feedback to management. Only during the last two decades, the MIS field has shifted to the primary, considered the second type of communication, namely, instruction-based. This has become known as the domain of expert systems (Sasan Rahmatian, 1999). In attempts to review published studies on MIS and articles, Alavi and Carlson (1992) have identified popular research topics, the dominant research perspective, and the relationship between MIS research and practice. In contrast, Baskerville and Myers (2002) have examined the MIS field and found a constant shift of MIS research from a technical focus to a technology-organizational and management-social focus. Skyrius (2001) underlines the decision maker's attitudes towards different factors influencing the quality of business decisions; these factors include information sources, analytical tools, and the role of information technologies. Handzic (2001) also pays attention to the impact of information availability on people's ability to process and use information in short and long term planning and in decision making tasks. He revealed that the better the availability of information, the better the impact on both efficiency and accuracy of business decisions. Liu and Young (2007) talk about key information models and their relationships in business decision support in three different scenarios. The authors proved that global businesses are in advance due to the Enterprise Applications System provided by modern IT tools such as Enterprise Resource Planning (ERP), Knowledge Management Systems (KMS) and Customer Relations Management (CRM) to enhance the efficiency and effectiveness of the Decision Making process. In order to improve the financial organizational capability and enhance its level of competition in the market, financial organizations should understand the dimensions of the Information Management, and clearly define and develop the resources in case of human, technological, and internal operations, among others,, and manage them well across the organizational boundaries. However, establishing the link between Information System Management, planning and decision making is, at best,

tricky.

In an article by Shu and Strassmann (2005), a survey was conducted at 12 banks in the US between 1989 and 1997. They noticed that even though Information Technology had been one of the most essentially dynamic factors relating all efforts, it could not improve banks earnings. However, conversely, there are many literatures approving the positive impacts of Information Technology expenses on business value. Kozak (2005) investigates the influence of the evolution in Information Technology on the profit and cost effectiveness of the banking zone during the period between 1992 and 2003. The study indicates an optimistic relationship among the executed Information Technology, productivity and cost savings. Organizations that do not have formal Information sharing practices will fail to leverage their managers intellectual capital for business innovation and growth (O'Neill & Adya, 2007). MIS enables the exchange of experiences, which transfers the required information to the management levels to sustain competitive advantage since it affects the decision making to improve the quality of services provided. Therefore, Barachini et al. (2009) supported that it is imperative that these organizations continuously motivate their employees to share valuable information so that their intellectual capital can be leveraged. Management Information System will give the banking management a new dimension in managing its knowledge and help in carrying out and maximizing the managements initiatives in harmonizing the appropriate strategies in the short and long planning (Edmondson, 2002). In his study, Obi (2003) suggested that MIS is indispensable in the area of decision-making as it can monitor by itself the instability in a system, verify a course of action and take action to keep the system in control. Literatures also suggested that non-programmed decisions are relevant as they provide support by supplying information to the search, the analysis, the evaluation and the choice and implementation process of decision making. More recently, Adebayo (2007) explained that the existence of MIS is needed to improve and enhance decision making on the issues affecting human and material resources. From the literatures presented, we can easily perceive that the importance of the role of both middle and top management to maintain a consistent approach to develop, use, and evaluate MIS systems within the institution. To financial institutions, MIS is used at various levels by top-management, middle and even by the operational staff as a support for decision making that aims to meet strategic goals and strategic objectives.

The above literatures also explore the importance of MIS in providing decision makers with facts, which consequently support and enhance the entire decision-making process. Furthermore, at the most senior level, MIS and DSS supply the data and required information to assist the board of directors and management levels to make an accurate and on time strategic decisions.

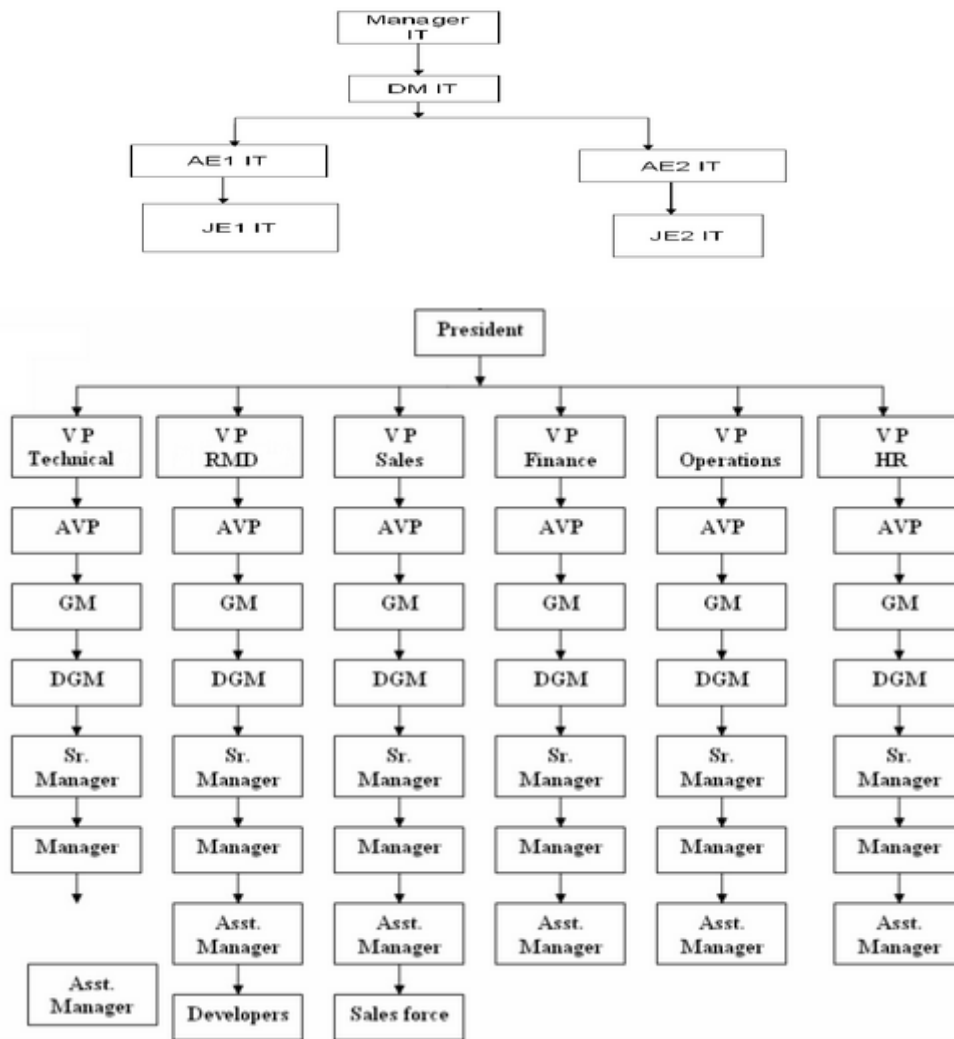
## VI. COMPANY PROFILE

MCC Limited is India's foremost manufacturer of cement and concrete. MCC's operations are spread throughout the country with 14 modern cement factories, 13 Ready mix concrete plants, 19 sales offices, and several zonal offices. It has a workforce of about 9000 persons and a countrywide distribution network of over 9,000 dealers. MCC's research and development facility has a unique track record of innovative research, product development and specialized consultancy services. Since its inception in 1936, the company has been a trendsetter and important benchmark for the cement industry in respect of its production, marketing and personnel management processes. Its commitment to environment-friendliness, its high ethical standards in business dealings and its on-going efforts in community welfare programs have won it acclaim as a responsible corporate citizen. MCC has made significant contributions to the nation building process by way of quality products, services and sharing its expertise. In the 70 years of its existence, MCC has been a pioneer in the manufacture of cement and concrete and a trendsetter in many areas of cement and concrete technology including improvements in raw material utilization, process improvement, energy conservation and development of high performance concretes. MCC's brand name is synonymous with cement and enjoys a high level of equity in the Indian market. It is the only cement company that figures in the list of Consumer Super Brands of India. The company's various businesses are supported by a powerful, in-house research and technology backup facility - the only one of its kind in the Indian cement industry. This ensures not just consistency in product quality but also continuous improvements in products, processes, and application areas. MCC has rich experience in mining, being the largest user of limestone, and it is also one of the principal users of coal. As the largest cement producer in India, it is one of the biggest customers of the Indian Railways, and the foremost user of the road transport network services for



inward and outward movement of materials and products. MCC has also extended its services overseas to the Middle East, Africa, and South America, where it has provided technical and managerial consultancy to a variety of consumers, and also helps in the operation and maintenance of cement plants abroad. MCC demonstrates the practices of being a good corporate citizen undertaking a wide range of activities to improve the living conditions of the under-privileged classes living near its factories.

### VII. ORGANIZATIONAL STRUCTURE OF THE MCC LTD. Structure of IT Division



#### 7.1 Inventory Management

A product that is in excessive demand is usually extremely difficult to manage. Supplying the right amount of products implies that an accurate demand forecast is essential. This impacts the entire supply chain to facilitate efficient consumer response based on consumer demands it becomes imperative that such companies consider inventory management seriously. Making accurate demand and supply predictions is an ideal situation that anyone in the supply chain management arena could dream off. By providing timely accurate information pertaining to inventory location, movement and valuation, receipt of goods, sale and return of goods and profits you can make sure that your inventory is visible throughout a network. With inventory management you can set your product catalog to hide products that are

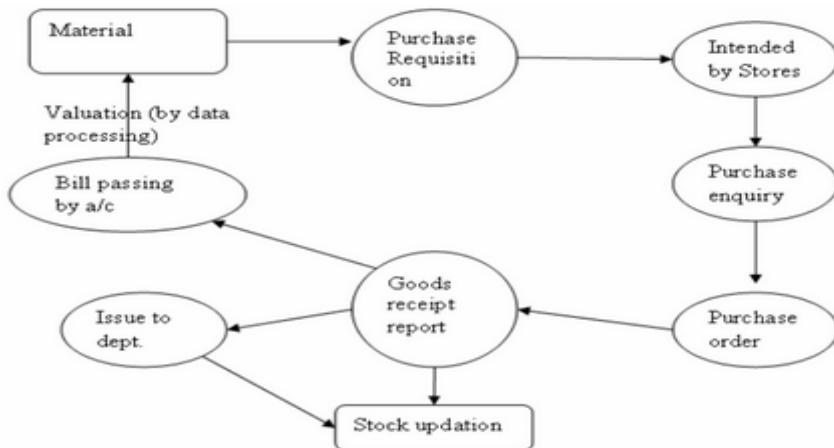


not in stock, or change prices based on the amount of products available in the warehouse. The quantity available can be displayed to the shopper and this can prevent unnecessary confusion when the shopper adds items not available to a shopping cart. The store buyer can be automatically notified about low inventory levels. IT (Information Technology) is a key enabler in the transformation of purchasing into a strategic business function. The challenge is to find a way to put these technologies to use and create value and competitive advantage. The Main Objectives in Inventory Management are:

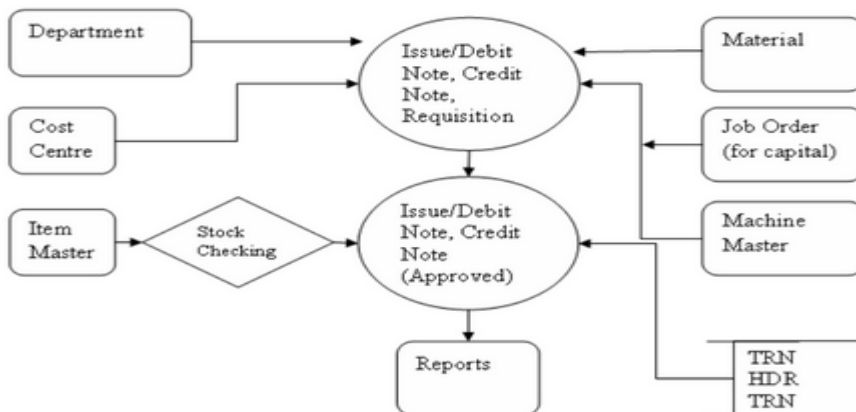
- Improved customer service
- Reduced inventory investment
- Increased productivity
- Benefits of inventory management applications
- Complete control of inventory.
- Complete information about the value of the inventory
- Complete visibility on Quantities on hand, Quantities committed and Quantities sold
- Response time to demand changes reduced
- Increased sales
- Knowledge of the exact size of merchandizing inventory
- Taxes and insurance premiums paid on excess merchandize inventory avoided.

VIII. DFDS AND DATA PROCESSING DIAGRAMS

(i) Inventory Package Context Level Diagram (CFD):

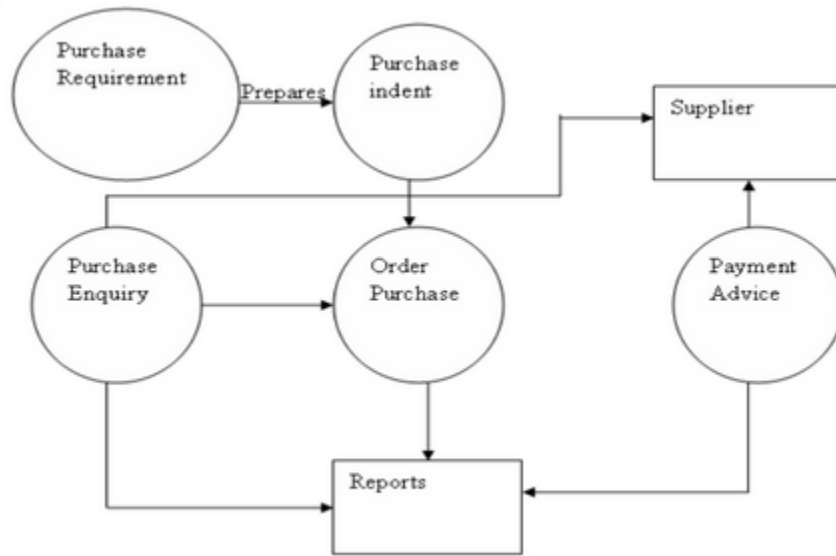


(ii) Inventory Package Issue DFD:

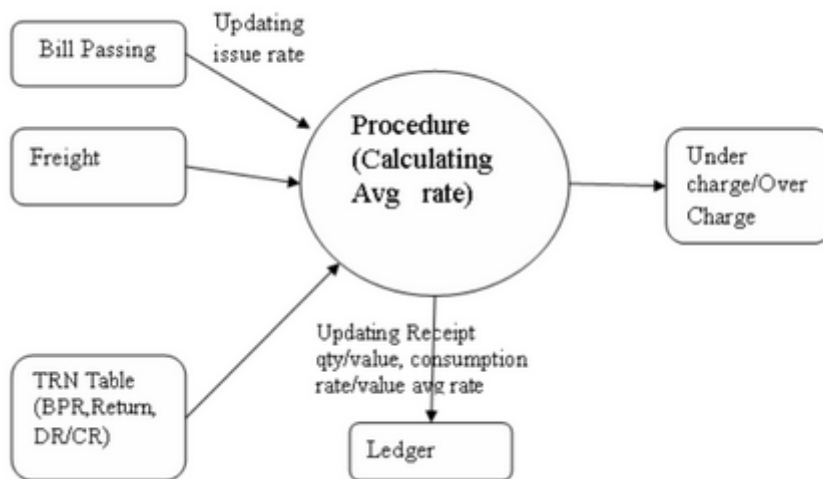




(iii) Inventory Purchase DFD:



(iv) Data Processing (Full Inventory Module):



IX. CONCLUSION

Considering the given problems, their analysis and research on comparative MIS systems used in the similar kind of industries, following recommendations for the company are suggested. IT department of the company should now work towards integrating the system on a higher level and making the company Paper-Less Office. This should be done by integrating the system in a way that the manual intervention be minimized in the day-to-day process. The company should also start Web-Based ordering and selling, so that to be able to catch up with the growing industry. As more improvements in MIS would be done, and Web-support to be also incorporated, it is more than sure that current Network available is going to crash. To cop this, company needs to upgrade its network. For this purpose, it is suggested the tie-up of company with some outside contractors like IBM or CISCO to continuously upgrade and maintain their network. With each up gradation, it is suggested to give training to the managers of the company about effectively using the added functionalities and use of them in a better way. This can be also done by providing a handbook along with each up gradation.

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