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Management Information Systems: Mastering the Discreet Planning

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Abstract: The present study emphasis on the importance of management information system which forms the backbone for digitalizing the organization. It comprises of information useful for smooth functioning by evaluating and synchronizing both hardware and software technologies. The management information system has gained popularity in last few decades with almost every sector has implemented its principles to manage the economic flow and functioning. It has greatly influenced the world connectivity with business point of view and has uplifted the management strategies. The presented mini review describe the elements and usage of management information system along with its advantages. The study provides, insight on the category of management information system with its possible applicative sectors.
Keywords: Management, Information, System, Business, IT, Information science

I. INTRODUCTION

The management information system (MIS) is paradigm of computer technologies consisting of both hardware and software's which serves as backbone for digitalized management. There are large number of definition to MIS but all these definitions converge the single meaning which indicates MIS as rhythm of decision making and functioning of the organization. The MIS is a comprehensive database consisting of information that is useful for the company to analyse their profits and goals from time to time. One can choose from pre-programmed or customised reports [1]. These reports can be used across levels (junior management, mid-level management and senior management) and departments (finance, human resource, supply chain, etc.). The main objective of MIS is to give the management a perspective into how his employees and department are performing. If the data shows any deviations from the goals that were set, the management can immediately take necessary action.A MIS provides previous, latest data and trend analysis related to all departments of your company [2]. This enables you to have information at the click of a button, thus allowing you to improve both short-term and long-term performance [1, 2]. Data is a collection of information. In comparison, raw data is unorganised and doesn't let you arrive at a conclusion, thus defeating the purpose of decision-making. In the current technological world, Management Information System has traded its importance in all forms and all sectors ranging from IT, sports, your corner retail store, etc. which aids in managing business information, apprising business results, observing developments and policies, analyzing business movements. In the present mini review, importance of MIS and its categories are being highlighted, to cater its important applications in every organizations, how MIS has been embedded in the functioning of the company. The MIS has always driven through the advancement of information science which has envision the role of technologies in management and IT sectors which has influenced all forms of components in an organization [3,4]. Even though, the concept of MIS is from recent decades, there has been rapid expansion of this domain in management of organization as it facilitates the functional activities which has greatly influenced the economic pattern of an organization. The MIS is quite distinct from other management domains such as information system [5]. As in the current scenario every business opportunity is getting digitalized wherein it has been easy access to anybody from any part of the world to connect and organize any form of services. As the era's of computers enriched due to the research and development, the concept of MIS also gained popularity and were subjected to confine their information management in accordance with the desired sectors and applications. Also the MIS was further grouped and categorized to increase its efficiency and performance to grow the organization [5].

II. CATEGORIES OF MANAGEMENT SYSTEMS

There is a whole range of information that is required in a company. To cater to the vast need, different types of MIS must be put in place [6,7]. Each category is discussed below

A. Transaction Processing System (TPS)

These systems collect, analyse and deposit data and generate reports in sales, payments, etc. These systems are the pillars providing a company its much needed information and compiling their day to day transactions.These systems help automate the core operations and are the most structured processes.The most common transactions are payroll, invoice, order receiving and production.Transaction processing systems are faster and accurate when compared to manual calculations.

Once you input a query into the system, the report produced can be classified into:

1) *Activity Document:* Let's take an example- When you book a train ticket, the ticket is the report that shows that some kind of activity has taken place on your action i.e. either booked ticket or cancelled ticket.

2) *Evidence Document:* This document confirms that a transaction has taken place. For example, when you deposit money into your bank account, the transfer receipt given to you by the clerk shows that the transaction has taken place.

B. *Decision Support System (DSS)*

Some decisions are non-recurrent. Decision support system helps in such type of decision making. When managers need to take non-structured decision, this is the system to use. These systems are collaborative and help resolve non structured problems.

1) *For Example:* When the senior management is planning to start a new business in a new country, it has to analyse various factors that will help determine if this idea is even feasible or not. The system's model will combine all these factors like data from past five years, competitor data, market study (what is the consumer base like in that particular country), etc. and give a forecast report that will help the management make its decision. Decision support systems are important where a certain decision doesn't have a defined decision that can be programmed into the computer. The computermerely provides alternate solutions so that the management can compare it with its own solutions. The management alone is the decision maker and the system cannot impose its analysis. The DSS is capable of pulling out information from both TPS and AIS; unlike TPS and AIS which are stand-alone systems. DSS has the capability of storing and reproducing data at a later stage, whenever required. What is noteworthy, is the fact that, DSS doesn't have a predefined structure for reports. The management must define the parameters.

C. *Executive Information System (EIS)*

EIS gathers information from various sources i.e. both internal and external sources and hence must have access to various databases. It makes both quantitative and qualitative analysis and dishes out a report that can be easily understood by the user. If the user wants to delve further into the report; do a deep dive research on what the report has to offer, then the executive information system must be prepared for it.

Since the EIS combines data from various sources in the same report, it has to present the data in a meaningful way which is user friendly. EIS is designed to provide information on key variables, and hence must be flexible to changes occurring in the business. Therefore, the EIS should be thus designed such that it easily adapts to the constant change in the business. The system must be able to judge the user request accurately, otherwise it will be a complete failure.

III. ELEMENTS OF MANAGEMENT INFORMATION SYSTEMS

Basically, there are five different components of MIS, which are designated to perform its own functions[5-8] which are being discuss below

A. *Hardware Resources*

These include gadgets like laptops, desktops midrange computers and large mainframe systems.

B. *Software Resources*

This contains all information processing instructions.

1) System software which controls and supports the operations of computer system.

2) Application software like payroll software, human resource information system. They cater to a specific process or department.

C. *Employees*

These are the people who use the information that the MIS produces. They can also be called as end users. MIS experts are those who develop and run the information system. They consist of software developers, system operators, managers, clerical personnel.

D. *Process*

Simply put, a process is a set of steps taken to accomplish a task. A simple task like eating lunch involves deciding what to eat, then cutting the required ingredients and cooking them and then finally eating. Companies spend lot of money and time trying to improve their processes. Even a tiny improvement can help save millions of rupees.

E. Databases

They can be divided into 2 categories-

1) Database that hold ready to use and organised data.

2) Information bases that contain knowledge about similar cases handled by other employees, rules, common guidelines, etc.

IV. USAGE OFMANAGEMENT SYSTEMS

MIS is useful in any business. A small retail outlet also uses this system to analyse what products to sell based on various factors. For example, a T-shirt of a particular brand sells faster compared to other brands. The owner then might order the brand that sells more and make redundant the loss making brands [9-12]. Based on the purpose, using a MIS, the organisation can gather three types of information:

1) *Strategic* – Mid-level and senior level management use this type of information to formulate organisational strategies.

2) *Tactical* – This information is used for short term planning.

3) *Operational* – Hourly, weekly, bi-weekly and monthly; basically planning short intervals or periods can be done using operational information.

V. ESSENTIALS OF MANAGEMENT INFORMATION SYSTEMS

Simply put, if the organization lacks current and accurate data, then it can affect its development and day to day functioning leading to its collapse. To make effective decisions, one requires accurate data. In today's world, where having global reach is considered suave, meeting challenges becomes an easy hurdle to cross when you have relevant data handy. To grab opportunities arising in the market quickly, support strategy and decision-making, co-ordinating between different departments, increasing employee productivity and enhancing quality of goods and services it is essential to have a good system in place [13-15].

VI. IMPLEMENTATION OF MANAGEMENT INFORMATION SYSTEM

When all the factors are keyed in to the MIS, it displays all the possible solutions the user can choose from. The user can then evaluate all the alternate solutions and select the best that is suitable After the possible solution has been selected, it needs to be implemented.

A road map to implement the plan needs to be put in place specifying the timelines, means, etc. It has to be monitored continuously at each. Finally, a review helps in deciding if the implemented solution was a success or failure. Documenting the same will help avoid the same mistake (in case of a failure) in future [14,16].

VII. LATEST DEVELOPMENTS IN MANAGEMENT INFORMATION SYSTEMS

Ever evolving technology relates to changes in MIS too. The managers can now connect with its team quickly using social network and make better, faster and quick decisions. Cloud computing and the emergence of mobile digital platform allow companies to conduct their work remotely and this results in distributed decision making. This means that companies can now create new products or improve the existing products by collaborating with the suppliers and customers easily [13-15].They can be broadly categorised into three categories:

A. Technology

New technologies like cloud computing and big data has changed the way how tasks are now performed. Companies now seek insights from volumes of data from social media, e-mails, web using new management tools to load, store and study. Mobile digital platform has now made traditional laptops and PCs redundant. You can now download thousands of applications on your smartphone to communicate and collaborate with colleagues.

B. Management

Managers are now using tele conferencing and video conferencing to reduce time and travel cost and in turn improving decision making and collaboration.

More effective data analytics and dashboards give real time performance information to the management to boost decision making. Microsoft Windows SharePoint Services, IBM Lotus Connections, etc. are now widely used by professionals globally to support virtual meetings, online communities and manage projects.

C. Organizations

Small scale and large scale businesses are increasingly utilising social media platforms like Facebook, Twitter, Instagram, etc. to headhunt, make new business collaborations, strengthen ties with their employees, suppliers and customers. Work from home has become the new norm. With the advent of smartphones, web applications, etc. it is now easier to work from anywhere in the world.

VIII. ADVANTAGES AND LIMITATIONS OF MIS

There are always advantages and disadvantages of any application [17-20]. Let's take a look at some here:

A. Advantages

1) Itminimises the risk involved in decision making.

2) It processes the data quickly.

3) Itprovides information on the entire gamut of a business.

4) It helps in processingroutine documentation and administrative tasks.

5) It helps in generating information, identifying the problem and enables decision-making.

6) MIS enables you to provide restricted access to the database. You can choose whom to give the access to by implementing measures such as user's authentication, biometric authentication, etc.

7) We can minimize the risk of data duplication. When one department uploads its data, it is readily available for the other departments to view. Thus the other departments can then only feed the missing data rather than duplicating the other department's data.

8) With the advent of cloud technology, one can now store the backup on the cloud. This makes it easier to recover data in case of hardware and software crash.

B. Limitations

1) It only takes into account quantitative factors and not non-quantitative factors like energy, attitude, etc. of the employees of an organisation.

2) The effectiveness of the MIS changes depending on management changes, organisational structure, etc.

IX. CONCLUSION

MIS is not a tool that can replace effective management nor can it replace the management's judgement. MIS is ineffective if the organisation doesn't believe in sharing information with its employees.Using this tool effectively will give the company a competitive edge over the other players in the market. An effective MIS helps the company make minor changes that help make huge impacts on the overall results. The business can either hire employees or outsource the work of creating management information system (MIS) reports. What is noteworthy is the cost involved in hiring staff for the same. The business should evaluate and weigh options as to what is more feasible. Hiring or outsourcing. If hiring is expensive then it can outsource the work to a consultancy or agency or third-party as we call it and it will not only save costs but also save time.

X. ACKNOWLEDGMENTS

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