

Management information systems and its application in Business Decision Making

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Definition: "A formal method of collecting timely information in a presentable form in order to facilitate effective decision making and implementation, in order to carryout organisational operations for the purpose of achieving the organisational goals".
-Walter I. Kennevan.

Management information system, or MIS, broadly refers to a computer-based **system** that provides **managers** with the tools to organize, evaluate and efficiently **manage** departments within an organization."

An organized approach to the study of the information needs of an organization's management at every level in making operational, tactical, and strategic decisions. Its objective is to design and implement procedures, processes, and routines that provide suitably detailed reports in an accurate, consistent, and timely manner.

In a management information system, modern, computerized systems continuously gather relevant data, both from inside and outside an organization. This data is then processed, integrated, and stored in a centralized database (or data warehouse) where it is constantly updated and made available to all who have the authority to access it, in a form that suits their purpose.

I. Introduction:

Management information systems are comprised of computing and communications hardware, operating system software, applications software to support business functions, and specialized staff to analyze and design systems that help to achieve business goals and objectives. Management information systems support a broad array of business operations and enable interaction with an organization's suppliers, customers and service providers.

The selection and deployment of computer systems and communications hardware is driven by the size of an organization, the computing and communications needs of the business sector in which an organization competes and the geographical dispersion of operations. The capacity of computer systems ranges from powerful mainframe systems that support enterprise needs, servers that provide specialized functionality, and desktop units that enable individual employees to access the computing and communications resources of their organization. Each hardware component is controlled and managed by its own specialized operating system software.

Computer systems are comprised of several components including central processors, memory, storage and a communications interface. The central processor is a chip designed to execute commands from the operating system software and applications programs. The memory of the computer provides capacity for the central processor to perform the functions which the operating system and applications software provide computer users. Disk storage provides capacity to store applications programs, databases, text files, and graphic files used in the programs or that are created by users in the performance of their job duties. The communications interface is the device (an interface card for a small computer and a communications processor for a large system) that enables the computer to interact with other computers on a network or across the Internet.

MIS is an information System which helps in providing the management of an organization with information which is used by management for decision making. Objectives of

MIS: Managers play a key role in any organization. They are responsible for taking decisions appropriate to the need of the market.

II. Objectives of Management Information System: The following are the objectives of a management information system:

1. MIS is very useful for efficient and effective planning and control functions of the management. Management is the art of getting things done through others. MIS will be instrumental in getting the things done by providing quick and timely information to the management.
2. Reports give an idea about the performance of men, materials, machinery, money and management. Reports throw light on the utilisation of resources employed in the organisation.
3. MIS is helpful in controlling costs by giving information about idle time, labour turnover, wastages and losses and surplus capacity.
4. By making comparison of actual performance with the standard and budgeted performance, variances are brought to the notice of the management by MIS which can be corrected by taking remedial steps.
5. MIS brings to the notice of the management strength (i.e., strong points) of the organisation, to take advantage of the opportunities available.
6. MIS reports on production statistics regarding rejection, defective and spoilage and their effect on costs and quality of the products.

Through the implementation of vendor produced applications software or the deployment of in-house developed customized applications software, management information systems can support a broad array of business operations. Vendor produced applications software such as enterprise resource planning (ERP) software can support large enterprise-wide operational needs. In contrast, vendor produced applications software like Microsoft Office is designed to support the needs of individual users at their workstation. Other applications software packages such as

supply chain management systems enable computer users to communicate and conduct business with suppliers and customers. Custom built software is often created to perform functions that vendor produced software cannot adequately support. Business operations that management information systems support include:

- Accounting And Financial Management
- Human Resources Management And Payroll
- Customer Relations Management
- Decision Support
- Business Intelligence
- Knowledge Management
- Inventory Management
- E-Commerce And Internet Sales
- Internet Based Customer Support
- Facilities Management
- Manufacturing Operations

In addition to hardware and software components, specialized information technology (IT) staff is needed to select, implement, manage, and maintain all of the elements of management information systems. The type of IT staff and the number of IT staff required to assure management information systems adequately support business operations varies by the size and type of organization. The specialized skills of IT staff include:

- Systems Analysis
- Systems Design
- Applications Programming
- Data Center Operations
- Network Design And Management
- Information Security
- Help Desk (End User Support)
- Documentation And Quality Control
- Computer System Maintenance

An organization's management information system requires all of the following elements: Computer systems, communications hardware, applications software, and qualified IT personnel to select, design, implement, and maintain all of the components in a manner that supports business strategies.

III. Applications

Aligning Business Strategies: The strategic alignment of IT refers to the degree to which the capabilities of the management information systems are aligned with the priorities, goals, and objectives of the firm's business strategy. Alignment is a complex process that requires IT staff to have an in-depth understanding of company operations and a clear understanding of what type of technology is needed to support those activities. It also requires that company management clearly identify and articulate company strategies and related goals and objectives.

There are three types of business strategies that drive the implementation of management information systems. The cost-reduction strategy focuses on reducing the acquisition costs of goods and materials, the costs of producing items,

and reducing related operating costs. The quality-improvement strategy focuses on improving quality control, enabling an organization to offer products in higher-priced markets, or to inexpensively provide extended warranties as a product line feature or an add-on sales option. The revenue-growth strategy focuses on areas such as product development, customer service, niche marketing, and competitive pricing. The three strategies and the objectives that management information systems help achieve are listed below.

Cost-Reduction

- Strategic Procurement Of Supplies
- Process Innovations
- Just-In-Time Manufacturing
- Efficient Inventory Management
- Honing Operating Efficiency
- Reducing Production/Operating Costs

Quality-Improvement

- Tight Quality Control
- Ensuring Products For High Price Markets
- Marketing Products For High Price Markets
- Warranties And Guarantees
- Production Of Luxury Products

Revenue-Growth

- New Product Development
- Ongoing Development Of Existing Products
- Having A Broad Selection Of Products
- Excellent Customer Service
- Prompt Delivery
- Catering To Market Niches
- Amassing Special Data On Clients
- Customizing Products For Users
- Competitive Pricing
- Advertising
- Promotion/Brand Identification
- Attractive Design Or Packaging

Each of the three business strategies requires different types of activities which in turn require different types of computing abilities and different types of data. Thus, it is important that IT staff understand the organization's information needs in order to better support a wide variety of strategic activities. To complicate matters further, it is realistic to expect that an organization may simultaneously be pursuing more than one business strategy. Management information systems that serve as cost-reduction strategies may not be suitable to support revenue-growth strategies. In such a case, the mix of applications software will need to be expanded in order to support all the activities in the organization.

Communications between business operations managers and IT developers is essential to successfully implement appropriate management information systems. Participation of key business managers in planning management information systems is essential for the identification of appropriate IT applications (Booth & Philip, 2005). Without

continued communication it is possible for the alignment between IT development efforts and business strategy to erode, resulting in an organization being without the management information systems it needs to remain competitive.

Applications Software for Cost-Reduction Strategies

Cost-reduction strategies generally attempt to reduce cost associated with procurement activities, inventory management, and production operations. To support cost-reduction strategies, one of the products offered by the information technology industry is Enterprise Resource Planning (ERP) software systems. ERP systems are now several decades old and have matured considerably in their capability, as has the ability of industries to implement and utilize the systems. A study of 247 firms adopting ERP systems shows that firms adopting enterprise systems exhibit higher differential.

Management information systems: The hardware and software components of management information systems are reviewed along with the type of organization functions for which applications software is designed to support. Three business strategies that drive the development and deployment of management information systems — cost-reduction, quality-improvement, and revenue-growth — will be introduced and serve as the foundation for the discussion of the types of management information systems that can be implemented to support the strategies. Opportunities and challenges presented by the use of the Internet as an integral part of management information systems are also examined along with an analysis of staffing challenges for information technology (IT) departments.

Conclusion and Recommendations

Despite the positives associated with the role of MIS in decision making process, there are a few challenges that are believed to limit the efficacy of MIS. These include:

- The dynamic nature of MIS makes it difficult for some organizations to keep up with the principles, strategies, propositions or even ideas.
- Different situations call for different decisions to be made. This poses challenges to MIS theorists since some MIS tend to not be adaptable
- The institutionalization, programming, monitoring and evaluating MIS requires a lot of expertise—something which numerous organizations lack.
- The running of MIS programs tends to be relatively costly for some organization especially small ones who are not well-endowed financially.
- MIS is more of a science-oriented field while business is art-oriented. Consequently, finding a middle ground where the two can be linked is quite challenging to some people.
- Most organizations do not a well-defined decision making system. So even with the right MIS tools, very little can be achieved in terms of improving decision-making. Based on these limitations—plus other underlying issues that arises from the main discussion, the following recommendations are suggested:

- There should be an increased monitoring of MIS so as to avoid falling victims of unobserved MIS which has dire ramifications.
- Managers and business owners should find a way of tailoring information in a way that it fits various decision making processes in variant businesses.
- The management should encourage the effectuation of a mutually interdependent and balanced MIS where workers and automated systems are handled with due respect.
- Business entities should find a way inculcating teachings about new MIS in order to reduce the trend of businesses being left behind on new inceptions.
- A well-defined decision making system should be fledged in businesses so as to provide a viable working environment for MIS. A good place to start here would be the inception of a centralized place where all decisions in businesses are channeled through
- Business managers must ensure that they employ (or alternatively outsource) Professional personnel who are able to ardently run both MIS and the decision Making process.

IV. References.

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