# THE ROLE OF INFORMATION MANAGEMENT IN DECISION MAKING AND BUSINESS SUCCESS

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## ABSTRACT

*The purpose of nearly every business organization is to be profitable, to grow and survive. To do this or to fulfil any defined purpose involves making effective decisions – decisions that anticipate problems (and opportunities). After making the decisions, it is necessary to monitor them and control their implementation. Finally, the business must also operate routinely on a day-to-day basis. These tasks - decision-making, control and operation- are only made possible through a proper information management. It is the purpose of the information management to supply these information.*

*The aim of this paper is to identify the interaction between management information systems and the quantitative decision making aids available for the use of the modern managers and administrators in organizations. In line with this, the authors concluded that management information will conceivably help improve decision-making and, as a consequence, financial performance and success of contemporary organization. Likewise, firms that rate their management IS highly will conceivably adopt New Management Tools to a greater extent, with the objective of improving their business performance.*

***Key words*:** *Information Management, Management Information Systems, Decision Making, Business, Information Technology*

***JEL Classification:*** *M10, M15*

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## *INTRODUCTION*

Information can be defined as "data converted into something valuable and usable for certain users"(Baumgartner, 1978).The term Information Management covers the entire scheme of data collection, organization, presentation and processing. All these are closely associated with the computers today. It includes all the uses and processing of information within an organization. For example, clerical staff could process orders by a computer or in the case of an exceptionally large contract, by managers personally. Information Management have both formal and informal elements. The formal elements are where information is processed on a routine basis using predefined procedures. The informal element consists of where data is processed on a more ad-hoc basis and where the processing involves, to a large extent, judgement and even intuition.

Hence, most accounting jobs are formal and processed by a computer. In contrast, the preparation of a request for further aliens of credit would involve a finance manager in gathering information from many sources (both formal and informal) and processing that information to prepare cash-flow statement and profitability forecasts. The information management is concerned with all forms of information ranging from facts to predications or even feelings.

The advent of computers is regarded as the key element of the information management. The introduction of computers necessitates a rigorous definition of a company's information needs. Computers have caused companies to investigate their information management techniques at one time or the other. Hence, the growth in awareness of information management has gone hand in hand with the growth of the use of the computers.

Modern organizations such as small business units in the private sector and giant multinationals in the public sector, etc., have become increasingly complex. The complexities of these organizations tend to be characterised by such phenomena as over-crowded population, conflicting models, policies, theories etc. Ironically, there is an increasing demand by the public that these organizations should improve the qualities and quantities of their products; be it goods or services.

The problem of paucity of information and poor capacity for information management is contained in the above list of complex variables. Most organizations in the public and private sectors are expanding and as they expand, grow or develop, so do the problems of their planning, organising, control, etc. Correspondingly, there is the need for increased information management capacity.Other multitude of variables may need to be considered for given decisions relating to planning regulations, attitudes of employees, customers or clients, trade unions, marketing and advertising implications, competition in the industries, resource and supply problems, and the financial consequences of the decision. The manager in considering the above examples needs relevant information that increases his knowledge and reduces his uncertainty; and thereby is usable by him for the intended purpose.

Consequently, managers and administrators must establish a method of evaluating performance and result so that they can determine if their firms are on target with regards to operational expectations. To be able to do that, organizations have to determine the type of indicators and information regarding those indicators of performance by applying what is sometimes referred to as the exception principle" When a key indicator is not attained, the information systems will flag this exception (Radovic-Markovic,Omolaja ,2009). .

The flow of information moves through various levels of decision structure in an organization and at each decision point, a choice is made which moves the organization one notch towards the attainment of its objectives. If a wrong decision is taken, it results quite often in deviations from expectations or from expected operational outcomes. It is therefore the work of good information management to ensure that such deviations can be picked up quickly and dealt with before more damage is done.

In this age of electronics and information technology, (IT), some would equate information management with data processing using a computer. Whereas, computer-based information system is by far faster than manual ones and desirable if a manager can afford it, having a computer can easily become part of the problem of information management. In short, an organization orders the flow of information within it, from the operation level to top management and back, as well as with its environment. It can be all done manually, but modern organizations have developed their management information systems around computer hardware and software.

These issues are chosen from a theoretical perspective, although there have been studies on the interaction between management information systems,decision making and business success, there has been no study that integrates all aspects in a single framework to be investigated.

## *THEORETICAL OVERVIEW*

Globalization has created a diverse and complex workforce that places a high level of demand on organizations and managers. In order to survive in this global economy, managers must foster creativity and competitive growth (Radovic Markovic,2011).In this context, when a firm commits to implementing, using, and supporting an IS, the firm often does so because some type of positive organisational impact is desired, such as improved profitability or productivity (Petter, DeLone, McLean, 2013).

Making of high-quality software for complex systems represents a very hard and comprehensive task. Development of such software in areas such as managing business processes in industry and business processes in education represents the most complex project tasks (Radovic-Markovic et al.,2014). Their goal is automation of the process. In that context, a broad spectrum of paradigms is thought out through software engineering. Each successfully developed phase makes engineering process easier for performance and construction of complex applications (Radovic-Markovic et al., 2015). Modern IS system requires flexible and adjustable software. Software changing

can relate to data, structure or working sequences of the system. User satisfaction is one of the most important measures of IS success (Urbach, Müller, 2012). In this context, IS users expect the system to be of high quality, to have quality information and to provide substantial benefits (Wu,Wang, 2006). The main determinants of user satisfaction with IS are relevance, content, accuracy, and timeliness (Seddon,Yip, 1992). It is apparent that successful organizations do not focus solely on the speed and ways information is transmitted, and the amount of information they can process, but mostly on capturing the value of information along the information value chain (Popovič, 2012).

According to Hasan (2013), a successful system will provide benefits such as helping the user do more or better work in the same time, or to take less time to achieve as much work of the same quality as was done in the past.

Although there is a large amount of research over the last ten years on information management and its impacts on business performance, past studies provide empirical evidence that mere investment in IS and new Management Tools (NMTs) do not guarantee better business results (Perez –Mendez &Machado-Cabezas,2015).

## *INFORMATION MANAGEMENT*

The discipline now known as Information Management has become the most significant aspect of daily affairs over and above any other specialized field of knowledge irrespective of relevance or application. Whether an organization is as small as a household (a family unit) or as large as the most successful industrial empire in the universe, information management is of great relevance and treasure. To communicate at all in whatever language or form, there is the need for information as the major ingredient of the communication mechanism. This claim can be substantiated from the way Information Management as a discipline has contributed significantly to the development of other academic and professional pursuits, which are individually, specific aspect of knowledge both in concepts and applications (Kroeber et al.1984).

Can we imagine the roles of Information Management in, and its impact on, accountancy, medicine, law, engineering, history, economics, agriculture, geography, sociology, psychology, philosophy, etc? These other disciplines and professions are, in fact, nothing other than what can be referred to as subjects or even subsets of Information Management (Omolaja, 2004)

This position becomes more apparent when we consider information as the life wire of any human endeavor being the most critical factor for success. Without an appropriate information, nothing but eventual failure and subsequently total corporate collapse can be achieved. For instance, a medical practitioner needs information about life (not only of human beings but also those of insects, parasites, fungi, etc) to operate. He collects stores and manages information on responsiveness of his patients to treatments, bed space and drugs availability, outpatients and inpatients, the number, grades, qualifications or mix of available nursing staff as well as legal aspects of his profession. He also needs to obtain information on medical philosophy and ethics to be successful in his line of business!

Besides, his own knowledge and experience is both practically and theoretically based on information he has been exposed to. An economist, statistician, manager (or administrator), or politician also relies on availability and appropriateness of information to analyze, predict, project, forecast, plan, control and monitor his individual and group operations and performance. Namely, without information about the past and present, who will call himself a historian? A geographer makes use of information about the universe to study the rock, sea and ocean, volcanic eruptions and earthquakes, natural vegetations, rivers, mountains and valleys, mineral resources, space, world populations, imports and exports, solar system, etc. This is one of the roles of Geographical Information Systems (GIS). Organizations today need adequate and up-to-date information to cultivate or create and retain good corporate image (goodwill) for them. Consequently, it has now become a commonplace that Information Management is the pivot upon which all other disciplines and professions revolve especially in these days of information revolution and explosion in response to the advancement in Information Technology (IT) (Omolaja, 2004).


*Figure1:Management of Information System*

*Source: Xu, 2010*

## *MIS AND DECISION MAKING*

In recent years, increasing global competition has intensified the challenges faced by managers, and many experts warn that management accounting needs to adapt to meet managers' changing needs if it is to maintain its relevance (Chenhall, Langfield-Smith,1998).In order to be effective, managers need accurate and timely information, which can be used as a basis for decision-making. Namely, the information can contribute to effective decision making or planning to be carried out (Patterson, 2005).

Just as a production manager needs the latest and best possible product forecast information in order to prepare his production schedule, a stockbroker needs good up-to-date information on stock market behavior in order to make effective portfolio management decisions. In addition, an effective manager needs to spread information among team members. MIS basically involves the process of collecting, processing, storing, retrieving and communicating the relevant information for the purpose of efficient management operations (Hasan et al., 2013).According to his opinion, MIS is defined as type of information system that transforms data to information and summarizes the information to Meaningful and useful forms as management reports to use it in managerial decision making (p.5).

The essence of information is that it conveys a message. The term information is interrelated with, or structured as, data; including collection, storage, processing and dissemination of news, data, facts, figures, messages and comments, required in order to react knowledgeably as well as be in appropriate position to take decisions and actions.

Since the desired management information often comes from a variety of sources and since the total information needs of the manager or administrator may be large, many organizations have designed and implemented formal systems for capturing, analyzing and reporting information to the managers. A complete introduction to management information systems would range from a broad, philosophical discussion of the management function to the information system details of data file organization, data base management, and data retrieval codes.

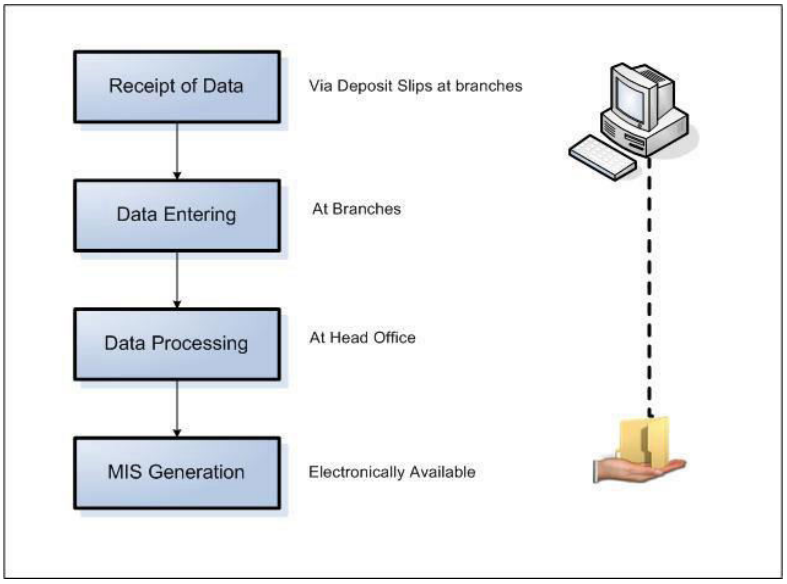


*Figure 2:MIS and Decision Making*

*Source: https://joelcareyblog.wordpress.com/2013/02/16/introduction-to-mis-and-its-uses-in-decision-making-3/*

## *CLASSIFICATION OF MIS*

The starting point for any management information system is an organized collection of data that is popularly referred to as database. Because of the large volume of data available in many organizations, the database is frequently stored in a computerized system. The purpose of this information system is to transform the raw data contained in the database into useful output information.

There are many different computer hardware and/or software systems currently being used to make the transformation from raw data to information possible. Consequently, management information systems are often classified as being one type or another, based upon hardware and /or software difference. However, a much more important criterion for classifying management information systems is the type of output information the system provides (Kroeber et al.,1984) . Using this criterion, we can identify three types of MIS as follows (Radovic Markovic, Omolaja, 2009):

- Report generator MIS :
- Management
- Information-Decision Systems

## *REPORTS- GENERATOR MIS*

The report-generator MIS is the simplest type of management information system in that it simply transforms the raw data contained in the database into summary reports. Essentially, the reports (information) produced by these systems attempts to capture and convey the result of business activities that have happened in the past or currently exist. Typical instances of the kinds of reports crated by MIS are as follows (Omolaja, 2004):

1. Balance sheets;
2. Production efficiency reports;
3. Personnel absenteeism reports;
4. Current inventory status; and
5. Current accounts receivable status.

In its basic forms, the RGMIS consists of several computer programs each of which has been specially designed to access the database and create a specific report. To use this management system, the manager merely requests the desired Report-Generating Program, RGP. The more advanced systems often permit the user to select specific information and then custom design the output form of the report generated.

In order to obtain this user flexibility and a fast response/capability, these versions of the RGMIS are often operated in a time-sharing computer environment. Consequently, the REGMIS has the fundamental objective of transforming the database into historical or current status reports on management activities.

## *MANAGEMENT INFORMATION DECISION SYSTEM*

The information systems (IS) literature has long emphasized the positive impact of information provided by business intelligence systems (BIS) on decision-making, particularly when organizations operate in highly competitive environments (Popovič et al.,2012).

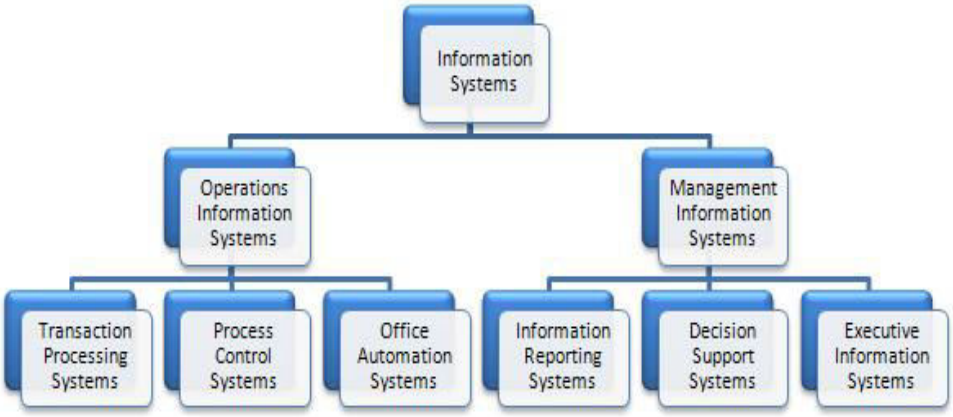


*Figure 3:Management Information Decision system*

*Source: O'Brien,1993*

In a decision-support context, business intelligence systems (BIS) have emerged as a technological solution offering data integration and analytical capabilities to provide stakeholders at various organizational levels with valuable information for their decision-making (Turban, et al.,2010).

A successful organization should be able to make selection among all alternatives and implement right ones. An information system (IS) is a group of components which can increase competitiveness and gain better information for decision making. Consequently, the organizations decide to implement IS in order to improve the effectiveness and efficiency of the organizations (fig 4).

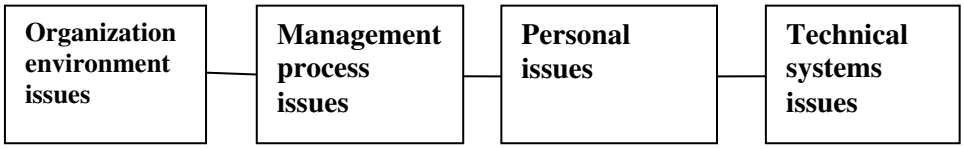


*Figure 4: Important issues in assuring the competitive advantage of the firm*

*Source: Kornkaew, 2012*

- Business intelligence

Business Intelligence solutions grew out of a combination of increased globalization, competition, and pervasiveness of information systems .Business intelligence or BI as a discipline is made up of several related activities, including data mining, online analytical processing, querying and reporting (SQL Power, 2014).

In an enterprise where end-to-end operational business processes are not fully understood and managed, data integration is much more difficult if not impossible, and understanding of information needs for BIS is impeded. Understanding of business processes is required in order to find out the relevant indicators (Popovič, 2012).


*Figure 5:Business Intelligence*

*Source: http://www.cougartg.com/business-intelligence/*

- The management information decision making system (MIDS)

The management information decision making system, (MIDS), is a new and more sophisticated class of MIS that ultimately transforms the WIMIS information into recommended decision. Basically, we are referring to a generalized management information system component that would incorporate decision-making capabilities into the framework of the WIMIS. The decision-making component of a MIDS may take a variety of forms. A MIDS decision model component based on a linear programming representation of the production system could provide the manager with information such as inventory levels, machine utilization, and most importantly, a recommendation for a minimum cost production schedule (Radovic Markovic, Omolaja, 2004).

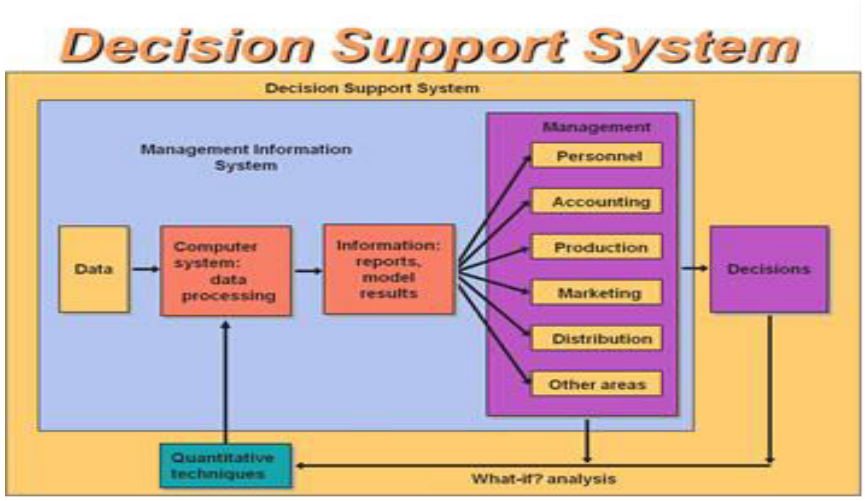


*Figure 6:Management Information Decision System*

*Source: Sainbhi,2011*

In order to utilize the MIDS to its fullest potential, there must be online interactive capabilities such as those available in time- sharing system. Therefore, using the MIDS approach, the decision-maker would receive the potential consequence information as simulated by the WIMIS. Further, he would receive information in term of recommended courses while the changes in the projected reports will be of interest to the decision–maker, the critical question MIDS will attempt to answer is how these changes should affect the decision (Radovic Markovic and Omolaja, 2008). Even with the *MIDS* concept, decision-making will ultimately rest with management evaluation and judgment. The purpose of the *MIDA* output is not to impose a decision on the manager or claim an absolute optimal decision for the problem. The results are only meant to provide a recommendation to the manager. The decision-maker should consider and evaluate the *MIDS* recommendation, incorporate his management skills, and then make the final decision (Omolaja, 2004).

## *EXAMPLE OF BEST PRACTICE*

We will give an example of an organization that uses information systems to make business decisions with a positive impact on the business success of the company. Namely, The American multinational corporation Google is a company that focuses on internet-related services such as technologies, online advertising, and software. They have been around since the 1990's and the company has grown tremendously since then. Their mission has always been to organize the information of the world and to make it accessible to all. Google is an innovative

company that also has a unique management practice. They hire a mix of people from different backgrounds and ages. They do not put the focus on a CEO team, just because they have more experience and are older; they instead use a bi-generational approach and hire numerous youngsters that have bright new ideas and also some older employees that have extra life experience. The company is divided into specific teams and they range from engineering, program management, to sales and marketing. The engineers at Google are some of the most talented and they make an impact on millions of people around the world. Google engineers work on storage solutions and different applications as well as revolutionizing the Google search engine. The hardware, network, test and site engineers also work on new platforms for developers all over the globe. Engineers work on many projects and they continue to improve applications and websites such as Chrome, AdWords, and YouTube.

Hardware engineers for example have to keep up with the demands of the growing internet and this is just the beginning of their long list of tasks. The engineering team faces many computational tasks that require special hardware that cannot just be bought at the store; Google engineers have to make their own from scratch. The platform teams at Google design and build hardware, networking technologies, and software that helps power all of Google's services. Another team at Google that has a very important role is program management. This team works in a collaborative manner and works closely with the engineers of Google to develop and design new technologies that will improve decision making system and business success.

## *CONCLUSION*

Today in the world of rapid changes, on time and precise information is the key of success for all .In addition; they are basis for each decision. High quality of management information systems means high quality of information, perceived usefulness, decision makers' satisfaction and increase the quality of managerial decision making (Hasan et al.,2013).

The essence of information management in organizations is to help solve the problems of institutional growth, development and productivity by making the best use of resources in a hanging and dynamic environment growing steadily more complex. Information is the very substance of management functions and is therefore an integral part of the meaning and achievement of organizational operations. A key component of the management information system is the database. When a database currently exists as part of a management information system, the data preparation step can be greatly simplified and, as a result, the use of a mathematical model can often be cost justified by virtue of the fact that data needed by the model are readily available. To make use of most of the quantitative modes available for management decisions, we need data describing the situation under study. In applying an inventory models, such as the economic order quantity model, we would hope to use the database of a management information system to

find the holding cost, order processing cost, and annual demand, for each product we might want to analyze. Since both management information systems and mathematical models strive to provide decision assisting information, it makes sense that the greatest contribution to decision making in contemporary organization can be made by integrating the quantitative analysis and management information systems.

Finally it can be concluded that effective use of information systems in management decision making gives power to managers and helps organizations succeed (Namani, 2010).So It would be a good idea for these managers to embrace change as it is inevitable by listening to their employees, adjusting long term goals to stay relevant in the global market, and focus on data-driven decisions and results-based practices.

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