

A Study on Decision Support Systems Concepts and Resources for Understanding and Managing Organization

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ABSTRACT

This study aims to investigate the function of information systems within businesses. First, an explanation of the significance of information systems in modern businesses is given. Then, every one of these methods for evaluating information systems, including TPS, MIS, DSS, ES, WGSS, and the OAS, is assessed from a distinct angle. Each of these approaches has a designated place in the organizational hierarchy. Finding the commonalities and differences between management information systems and decision support systems was a primary goal of this study. The following are the most significant findings: 1. The decision support system operates in real time, while the management information system operates online. 2. While the decision support system can handle enormous volumes of data, the management support system can only handle medium levels of data. 3. While the decision support system makes extensive use of graphics, the management support system makes less use of them. 4-While decision support systems concentrate on both structured and semi-structured data, management information systems solely concentrate on completely organized tasks or routines for decision-making.

Keywords: decision support systems, concepts, organisation

I. INTRODUCTION

Many writers have written about the function of information systems in decision-making; however, Kostetsky was among the first to write in 1966 about the connection between system analysts, information systems, and decision-making. Information regarding the organization's relative position and the fundamental factors at work is provided by the management information system. It offers the precise data required for decision-making and aids in the efficient execution of an organization's management, planning, and operational tasks. Additionally, Ajayi, I. A. and Omirin, Fadekem looked into how management information systems were used in South-West Nigerian universities to make decisions on budgeting, short- and long-term planning, and planning. Data were gathered using a stratified random sampling technique, and the results showed that Federal universities employed MIS far more frequently than State universities when making budgetary decisions. The authors advise that in order to guarantee open communication and proper use of MIS in budgetary and short- and long-term planning decision-making, the MIS units should be sufficiently funded and maintained. The study discovered that certain firms find it challenging to stay current with the concepts, strategies, propositions, and even the dynamic nature of MIS. Similar to earlier writers who examined the function of MIS in decision making, Barry Chris contributed a novel conceptual framework for decision making and information systems development. An investigation of decision-making within the systems development life cycle, important decision-making models, and the players involved in the process were combined to create a framework. Barry Chris comes to the conclusion that the framework can be used to display a deeper knowledge of the various perspectives that actors and other phenomena have on the development of systems. George Huber also draws a theory of effects of advanced information technologies on organizational design, intelligent and decision making, the theory studied the effects that computer- assisted communication and decision aiding technologies have on organizational design and decision making. Humber focuses on technology that affects the quality and timelines of decision making from one side and from the other side has prompted changes in organizational design. On the other hand Felix Alvarado in his study " Complementary uses of Information Systems in Decision Making, Planning and Democracy: An Example in the Education Sector" describes the ongoing implementation of web intelligence tools in public education and other policy sectors in Guatemala. Software tools were developed for use in business was adopted for planning and decision making in public institutions. The study summarizes the salient aspects of the experience so far of implementing and expanding what has been called the "Platform for Integrated Social Information," It discusses the issues this Platform raises as a resource for improved public decision making, policy analysis and especially, as a promising but challenging tool for democracy in the education sector. However, the world health

organization has introduced a report by who study group it was about the role of research and information systems in decision making for the development of human resource for health, the study identified a number of problems and noted causes of these problems such as inefficient data definition and, lack of relevant information and poor coordination of available information on the other hand the study identified a positive factors that prompt decision making such as problem awareness and easy availability of presented information. The study group emphasized that strengthening decision making in the development of human resource of health, by linking information and research to decision making and prompting relevant information requires a coordinated approach.

II. INFORMATION SYSTEM

Information system are constantly changing and evolving as technology continue to grow. Basically we have many types of information system like management information system, decision support System, transaction processing system, expert system. But we discuss management information system and decision support system. In Management information system these system assist lower level management in problem solving and making decision. They use the result of transaction processing and some other information also. It is a set of information processing functions. It should handle queries as quilt as they arrive. An important element of management information system is database. In decision support system, they assist higher management to make long term decisions. These types of systems handle unstructured or semi structured decision .A decision is considered unstructured if there are no clear procedure for making the decision and if not all the factor to be considered in the decision can be readily identified in advance. The decision support system these are not of recurring nature.

Some recur infrequently or occur only once. A decision support system must very flexible .The user should be able to produce customized reports by giving particular data and format specific to particular situations. There are different views in determining the types of information systems and their classifications.

2.1 Transaction Processing System (TPS)

This is also referred to as data processing system. It performs the essential role of collecting and processing the daily transactions of the organization. They serve at operational levels of the organization. Examples of transactions include purchase payroll, reservation, invoices, payments, shipping, registrations, orders and sales.

2.2 Expert System (Specialist) (ES)

This is an extension of the decision support system. It is a programmed decision-making information system that captures and reproduces the knowledge and expertise of experts and then simulates the thinking or actions of that expert to help users with less expertise. These applications are implemented with Artificial Intelligence (AI) technology. Artificial intelligence is a computer-based technology that has the ability to behave like humans, learn languages and emulate human expertise and decision-making.

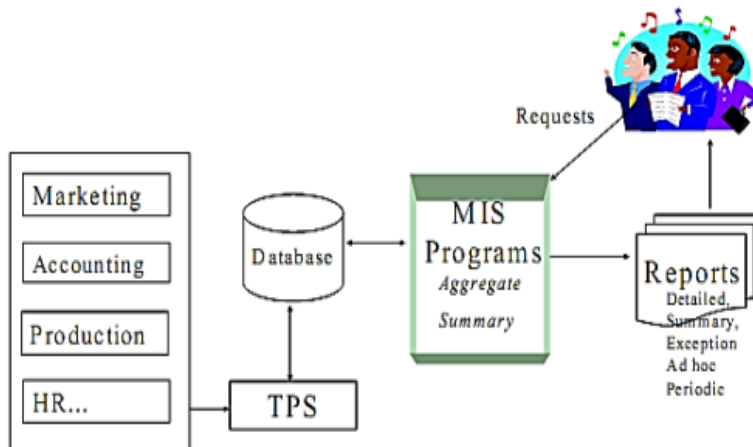
2.3 Office Automation System (OAS)

This system supports a wide range of business activities. Office systems are applications designed to improve workflow and communicate among workers regardless of their physical locations. Typical office system handles and manages document (through word processing, desktop publishing, document imaging and digital filings), scheduling (through electronic calendars) and communication (through electronic mail, voice mail and video conferencing).

2.4 Personal and Work Group Information Systems (WGSS)

Personal information system is the system designed to meet the needs of a single user while work group system is designed to meet the needs of a workgroup and to increase the productivity of the group. Management Information System(MIS) The Management Information System (MIS) is a concept of the last decade or two. It has been understood and described in a number ways. It is also known as the Information System, the Information and Decision System, the Computer-based information System (Davis & Geist, 2004). Definition of Management Information Systems: The MIS is defined as a system which provides information support for decision making in the organization. The MIS is defined as an integrated system of man and machine for providing the information to support the operations, the management and the decision making function in the organization (Bendoly, 2008). The MIS is defined as a system based on the database of the organization evolved for the purpose of providing information to the people in the organization. The MIS is defined as a Computer based Information System.

Figure 1: Simple View of MIS



Source: Kumar, 2006, 45

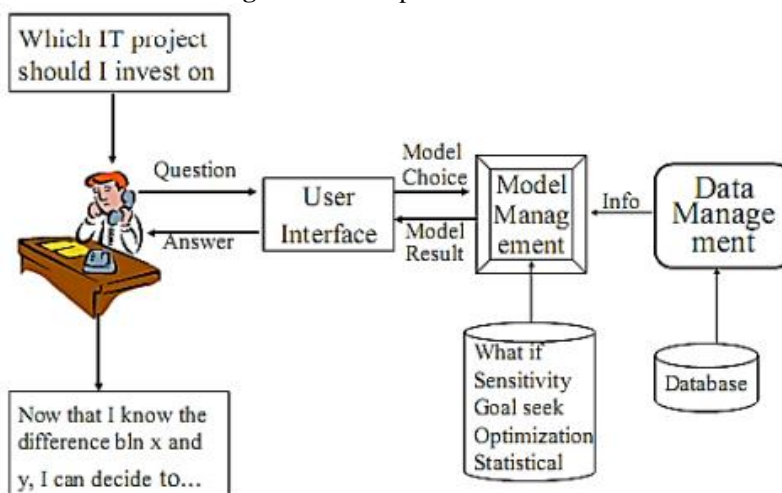
2.5 Decision Support System (DSS)

Decision-making is an essential component of organizational life. Decision makers receive and analysis information using many different media, including traditional print, group and interpersonal information exchanges and computer-based tools Decision support systems (DSS) is a generic concept that describes information systems that provide analytical modelling and information to support semi-structured and unstructured organizational decision making. Common characteristics of DSS include:

- Problem structure, used in semi-structured and unstructured decision context
- Intended to support and augment decision makers not replace them
- Supports most phases of decision-making process
- Uses underlying data and model
- Interactive: DSS is designed to be an interactive decision aid

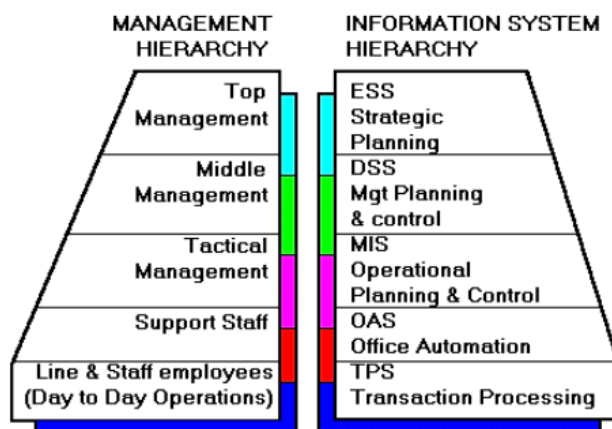
A decision support system (DSS) is an integrated set of computer tools allowing a decision maker to interact directly with computer to retrieve information useful in making semi structured and unstructured decisions. The Decision support system are able to help groups to make the decision .It should not be responsible for individual decision making .The Decision support system is easy to use .A user should not be required to be computer operator to generate reports .It should be convenient for the user to use DSS.

Figure 2: A Simple View of DSS



Source: Kumar, 2006, 75

Figure 3: Types of Information Systems and Organizational Hierarchy



Source: Gabriel, 2012, 89

2.6 Types of Decision Support System

There are a number of decision support systems. These can be categorized into five types: communications driven DSS, data driven DSS, document driven DSS, knowledge driven DSS and model driven DSS. A communication driven DSS supports more than one person working on a shared task. Many collaborators work together to come up with a series of decision to set in motion a solution or strategy. Most communications driven DSSs are targeted at internal teams, including partners. The most common technology used to deploy the DSS is a web or a client server. Generally speaking, the main technologies for communication-driven decision support are groupware, bulletin boards, audio and video conferencing, and more. The focus of the data-driven DSS model is on gathered data that is then altered to suit the requirements of the decision maker. These data may come in a range of formats and be internal or external. This paradigm places a strong emphasis on gaining access to and manipulating internal corporate time series data, as well as occasionally external real-time data. The simplest kind of capability is offered by straightforward file systems that may be accessed by retrieval and query tools. The majority of data-driven DSSs are directed at employees, managers, and vendors of goods and services. It is employed to query a data warehouse or database in order to find precise responses for certain needs. It can be set up via the web, a client-server network, or a mainframe system. More prevalent and aimed at a wide range of user groups are document-driven DSSs. Such a decision support system's objective is to search webpages for papers containing a particular set of keywords or search queries. This model provides document retrieval and analysis through the use of computer storage and processing technologies. A document-driven DSS model makes judgments and manipulates data to hone strategies using documents of various data types, including spreadsheets, text documents, and database records. Typically, a client/server system or the web are utilized to build up these decision support systems. A wide range of systems, including those used by users inside the organization to set them up but also potentially involving external parties interacting with the organization, fall under the umbrella of knowledge-driven DSSs. Basically, it's utilized to select goods or services or offer management suggestions. Managers can be recommended actions via knowledge-driven DSS. These DSS are person-computer systems that possess specialized knowledge in problem-solving. Knowledge of a specific field, comprehension of issues within that field, and aptitude for resolving some of these issues make up competence. The typical deployment technology used to set up such systems could be client / server systems, the web, or software running on stand-alone PCs. Model driven DSSs are complex systems that help analyses decisions or choose between different options. A model driven DSS emphasizes access to and manipulation of financial, optimization and / or simulation models. Simple quantitative models provide the most elementary level of functionality. Model driven DSS use limited data and parameters provided by decision makers to aid decision makers in analyzing a situation, but in general large data bases are not needed for model driven DSS. These are used by managers and staff members of a business, or people who interact with the organization, for a number of purposes depending on how the model is set up. These DSSs can be deployed via software / hardware in stand-alone PCs, client/server systems or the web.

III. DECISION – MAKING

Decision - making is the process by which organizational members choose specific course of action in response to threats and opportunities (George and Jones, 1996: 428). Good decision result in courses of actions that help an individual, group or organization to be effective, the opposite is its reverse.

IV. CONCLUSION

There is no way to overstate the importance of information in decision-making. Precise, timely, and pertinent information is necessary for making effective decisions. MIS offers the precise and timely information required to support decision-making and enable the efficient execution of an organization's planning, control, and operational tasks. Additionally, MIS is essential in ensuring that decision-makers have access to a wide range of simplified options from which to select their preferred solutions. This ensures that, regardless of the choices taken by decision-makers, the majority of the time, the results are favorable. In actuality, this is the main cause of the preference of many decision makers for MIS tools when faced with challenging business decisions. As a well-known notion in MIS, making wise decisions ensures that our organizations will be able to make profitable decisions. We can conclude from the explanation above that although management information systems (MIS) concentrate on information, decision support systems (DSS) concentrate on decision making. While decision support systems operate in real-time, management information systems operate online. While the decision support system can handle enormous volumes of data, the management support system only handles medium levels of data. While the decision support system makes extensive use of graphics, the management support system makes minimal use of them. While decision support systems concentrate on both structured and semi-structured data, management information systems only concentrate on completely organized tasks or routines for decision making. Aside from the aforementioned distinctions, MIS and DSS are both essential components of an information system that meet the needs of various management tiers.

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