

MANAGEMENT

PRINCIPLES AND APPLICATIONS

UNIT-2

PART-XX

DECISION SUPPORT SYSTEMS

(i) History of Decision Support Systems

Decision Support Systems have evolved over the past three decades from simple model-oriented systems to advanced multi-function entities. During the 1960's, most Decision Support Systems were fairly based on powerful (and expensive) mainframe computers which provided managers with structured, periodic reports. MIS theory developments during the 1970's saw Decision Support Systems evolve into more elaborate computer-based systems that supported production, promotion, pricing, marketing and some logistical functions. By early 1980's Decision Support Systems enjoyed more interests from academics and the framework for Decision Support Systems was greatly expanded by the end of the decade. It was only during the 1990's that a paradigm shift occurred in Decision Support Systems and more complex systems, which incorporated, advanced database technology and client/server capabilities, were emerging from any areas in business processes. As

many organizations started to upgrade their network infrastructure, object-oriented technology and data warehousing started to make its mark on Decision Support Systems. The rapid expansion of the Internet provided additional opportunities for the scope of Decision Support Systems and consequently many new innovative systems such as OLAP and other web-drive systems were developed.

(ii) Definition and Description

According to Sprague and Watson (1996) conceptual models or frameworks are crucial to understanding a new and/or complex system. They define DSS broadly as an interactive computer-based system that help decision-makers use data and models to solve ill-structured, unstructured or semi-structured problems.

DSS provides varying analysis without much programming effort and is usually directed towards non-technical users/managers. Managers main uses for a DSS includes searching, retrieving and analysing decision relevant data to allow them to summarize main points which assist them in making more informed and educated decisions. Users often search for correlations between data without rewriting the underlying MIS or software application and most DSS allows graphic capabilities, which not only allows trend analysis and reporting for top executives but also assists managers in mapping out conjoint analysis and alternative scenarios to answer "what if", queries. Consequently, DSS supports both tactical and strategic decisions and are employed to leverage manager's expertise in a certain field.

DSS varies in scope-some are intended for multiple users (more common nowadays) and other are "stand-alone" units (common in the past). In addition to

that, DSS can take on many different forms and can be used in many different ways, i.e., some DSS focus on models, others on data and others on communications. The better the manager understands the different categories, scope and uses of DSS, the better he will be able to specify requirements for a DSS that he wants to implement or buy.

Thus, in order to comprehend the intricate complexities of what services a DSS can provide, we first have to look at the stand-alone units that supports the DSS. Although DSS can be dissected into many different components, I will mainly concentrate on a few important aspects of its design.

Having summarized the most important functions of a DSS, it should be remembered that a DSS is only as good as the individual components that it consists of: DSS is built on top of a transaction system, a database and a data model, all of which provides the DSS with data and information that is processed and presented to the user in a simplified form.

The first important aspect of DSS is that they provide information which are used in the decision-making process. The emphasis here is not on the quantity of information, but rather the quality. There are multiple factors that qualify information as having good quality (such as timeliness, relevant, accurateness, consistency, unbiased, etc.) but the important consideration factor is how information is used in order to attain a certain goal. It is a common notion that information can be (and often is...) misinterpreted. leading to inaccurate conclusions

which adversely affects the quality of the decision-making process inside an organization.

Managers often postpone difficult decisions and request "more information that is already available to them. They falsely rely on the assumption that information should give them guidance, instead of realizing that their understanding of relevant information will help them formulate their own ideas, which should be based on both s intricate understanding of the information, the necessary knowledge available around them and ultimately their intuition that is develop based on experience. The graph suggests that the quantity of information is only useful up to a certain point, after which more information becomes redundant/obsolete.

Thus, the user should try to digest the current information available to him/her first and resist the temptation to seek more information without first understanding the current information. Only as the user gains "new insights" and "breakthrough thinking", additional information should be sought where relevant. To make a good decision, one needs not only information about the specific instance, but also an understanding of the domain. In other words, one needs a set of principles, models, templates or other abstractions. Better understanding enables the identification of what information is relevant and consequently, less information is required because the irrelevant components can be ignored. This not only decreases the complexity of the decision process, but also decreases the processing load on the manager and leaves him with more time to focus on critical and situation-relevant information segments.

A successful business makes good decisions, implements them well-and then learns from the experience and abstractions in order to do better next time. These abstractions are then re-usable for making new decisions with different information, facilitating the process of knowledge management and ultimately enhancing the overall quality of decision making inside the organization Unlike information, which often relates only to specific instances, knowledge is content-rich and re-usable and should thus be captured whenever possible to provide a point of reference for future similar scenarios.

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