

## **MANAGEMENT**

### **PRINCIPLES AND APPLICATIONS**

#### **UNIT-2**

#### **PART-XXII**

#### **DATABASE MANAGEMENT (DBMS)**

Managerial Decision Systems are only as good as the underlying DB supporting it. Users can manipulate data temporarily and needs special access and/or authorization to manipulate data in underlying DBS In order to provide the DSS with the right data, there should be a structure in place for storage, access, manipulation and retrieval of large amounts of data. The database is the feeder" of the DSS and good database design is thus crucial in improving the overall performance of the DSS. Database design and management is a complex and often ill-conceived topic and extends well beyond the scope of this paper Consequently our discussion on databases will parsimonious at best. A good DBMS ensures data integrity, reduces data redundancy, follows a logical sequence and are consistent in its performance.

Relational databases are in most cases the system of choice when it comes to designing a DSS. This is primarily because of the flexibility associated with a relational DB but also because it allows normalization (reduction in data

duplication), which helps with maintenance of a large database. The ability of these databases to identify relationships between entities makes information analyses an important feature to the success of the DSS. Some hierarchical and network databases are still being used today, but merely so because of the costs involved with migrating to a totally new DB platform overshadows the maintenance costs of legacy systems even this is gradually changing as more organizations are putting additional requirements on their DSS, underscoring the need for a more suitable DB design.

Because the database constitutes such a vital link in the capabilities of any DSS its structure and design should be carefully evaluated and implemented with due concern of applications build on top of it. There seems to be a general trend in recent years, to either migrate to web-based DSS, using a task specific search-engine, or to build the DSS around a thin client fat server environment, using network and web-based technologies. This is perhaps a further justification of the need for an advanced database system since the Internet is the most comprehensive network of thousands of interconnected databases and web pages.

### **The Data Warehouse**

DB generally provides current information about the organization relating to the underlying transactional processes, but it fails to provide historical, content rich information that are often more important to the decision-making process than stand-alone islands of information. The data warehouse fills this gap by capturing operational data and presenting it in a more meaningful format, using a relational

database, and ultimately complimenting the functions of the DB used in the DSS. Thus, the data warehouse and the DB coexists to provide synergistic outcomes which supports information requirement of the DSS superimposed on the systems platform. Development in the areas of DB has brought about the use of "intelligent agents" which assists in the speed and simplicity of ad hoc queries in large DB and data warehouses.

### **Management requirements of the Decision Support Systems**

Information uses and requirements differ at each managerial level. Higher managerial levels have a greater reliance on external environmental information and to some degree, less reliance on internally generated information. Top management commonly use information to make decisions about long term planning and thus analyse long term trend information to make their decisions (Gore et al, 1984). Also at top-level decision-making, conjoint analysis is crucial and managers need more information about risk and uncertainty, potential outcomes (and their likelihood/probability, etc.) and possible actions to take. A lower management levels, information emphasis is internally generated and relies on short-term goals. However, reports and analyses generated by low management teams are often used in decision-making efforts of top management and it is thus crucial that the DSS supports the lower management just as much as it lends itself to top management. In short, the information needs for different levels of management are directed towards supervisory functions for lower management, tactical decision making for middle management and strategic decision making for top management.

Moreover, because the DSS are employed to improve management control it should address the primary tasks of management control. These are:

- a. Allocating resources to specific activities
- b. Preparing budgets covering both the expenditure of resources and the expected achievement goals and objectives
- c. Observation of results achieved in return for resources uses
- d. Evaluation of these results
- e. Modification of activities and resource allocation in accordance with the evaluation of results

#### **Intangible payoffs of Decision Support Systems**

Amongst the many benefits of using a Decision Support Systems, some of the intangible advantages include:

- i. Improved internal control
- ii. Better management awareness of internal strength and weaknesses and external threats and opportunities.
- iii. Enhances long term profitability by improving quality of decision making
- iv. Faster response to changes in the business environment
- v. Allows managers to record experience and use it in future for similar scenarios that may arise within the organization. Recorded experience becomes information once it is used in the managerial decision-

making process and it is part of a bigger sub-category of MIS called knowledge management.

Keeping these benefits in mind, it is not surprising that Decision Support Systems has enjoyed widespread recognition and support over the last decade and are increasingly being used in companies to enhance their strategic competitiveness within various industries.

DR. PANKAJ KUMAR SHARMA