Decision Making :-

A development of extraordinary importance to building a foundation for the system approach is the recent notion of *automating* or *programming* decisions.

For example, some attribute this improved understanding of automatic decisions and the decision-making process to the military. The Commander, using “tactical judgment and experience”, made such on-the-spot decisions as threat evaluation, weapon selection, enemy identification, alerting of forces, and target assignment.

Subsequently, these and similar decisions were “automated” by formal rule and procedure, thus leading to the proposition that formal rules may yield better decisions for routine problems than those based solely on human judgment, given the constraints under which humans take decisions.

The notion of programming decisions by decision rule is now a basic consideration of management and information systems design. If decisions can be based upon a policy, a procedure, or a rule, they are likely to be made better and more economically. Moreover, if the decision rule can be programmed for computer application, the potential exists for faster, more accurate, and more economical operations.Examples of common decision rules that have been programmed for computer solution are payroll, inventory control, customer billing, and purchasing.

Decision Theory :-

Decision-making is the most important task of managers; many scholars believe that decision-making and the process leading up to it account for most of what executives do. A quote in the respect of decision-making is that in the English language by using ‘decision making’ as though it were synonymous with ‘managing’. Decision-making in its broadcast context includes among the activities preceding the decision :-

1) finding occasions for making a decision,
2) finding possible courses of actions, and
3) choosing among courses of actions.

Viewed in the foregoing context, decision-making becomes the “keyhole” look at management. Moreover, if we accept the thesis of the pure decision theorists, the entire process of management can be explained in terms of decision-making.

The decision-making is a fundamental aspect of management. Indeed, the systems approach to management would use the decision as its central focus. However, to say, as some decision theorists do, that the entire body of management theory can be based on the structure of decision making is to oversimplify the matter. Although decisions may be a major result of managing, other approaches, disciplines, and processes provide the manager with the total body of knowledge he or she requires.

The nature of the decision-making is the investigation. Hence, once the decision is made, it must be implemented, and the processes of implementation may require more than the answers provided by decision theory – particularly, if we are concerned with only the quantitative aspects of decision theory.

Meaning of Decision Support Systems :-

Recently, the phrase ***decision support systems (DSS)*** has become popular. It is sometimes described as the next evolutionary step after management information systems (MIS). For this description to be valid, MIS must be defined narrowly as the automating of routine and structured tasks to support *decision-making*. Although this is certainly one definition of the term MIS, we use a much broader definition that encompasses current thought on DSS.

- MIS support decision making in both structured and unstructured problem environments.
- MIS support decision making at all levels of the organization.
- MIS are intended to be woven into the fabric of the organization, not standing alone.
- MIS support all aspects of the decision making process.
- MIS are made of people, computers, procedures, databases, iterative query facilities, and so on. They are intended to be evolutionary / adaptive and easy for people to use.

Why Decision Support Systems?

Every enterprise needs information to make business-critical decisions regarding budgeting and finance, supplies, facilities, and other issues. However, sometimes it can be difficult to access the data needed to support these decisions. Your data may reside in legacy or batch systems that only provide periodic hardcopy reports; you may even have multiple systems that provide conflicting data. To get the full value from your data requires integrating it in an open architecture system and delivering it in a flexible, process-specific format. Intergraph Decision Support Systems can help you build executive information systems and reporting tools that tap your vast data resources and deliver information in the context of your daily processes. These tools will help you to detect trends and patterns in data - buying, distribution, fraud, and other patterns - to answer questions about business and help you predict the future. Data mining capabilities will help you quickly discover useful information buried in raw data.

With Decision Support Systems you can:

- Make better, timelier decisions
- Improve visibility of financial, supply, and facility management processes
- Increase cost-efficiency
- Access timely, accurate data in a concise format
- Reduce decisions made from poor data
- Make better use of existing systems
- Fit data delivery to your business processes
- Improve database administration
- Enable data mining

Decision Support Systems

Solutions Group

Every enterprise needs information to make business-critical decisions regarding budgeting and finance, supplies facilities, and other issues. But sometimes it can be difficult to get visibility of the data needed to support these decisions. Your data may reside in legacy or batch systems that only provide periodic hardcopy reports. You may even have multiple systems that provide conflicting data.

To get the full value from your data requires integrating it in an open architecture system and delivering it in a flexible, accurate, process-specific format. Intergraph can help you build executive information systems that tap your vast data resources and deliver information in the context of your daily processes. We help you consolidate data sources to deliver the precise information needed to make timely decisions or develop an e-business. Then we deliver tools that will help you detect trends and patterns in data – buying, distribution, fraud, and other patterns – to answer questions about business, improve decision-making, and help you predict the future. Data mining capabilities will help you quickly discover useful system.

A Process-Centric Approach :-

Intergraph uses a process-centric approach to developing decision-support tools. Rather than pushing ready-made products, we work with you to define your processes and provide the exact tools you need to meet your specific requirements. Although we have considerable technical experience with complex database systems and legacy data integration, fitting the solution to your processes ensures that you always get the solution you need.

Data Capture and Consolidation :-

Before developing executive information and decision-support systems, you must first ensure that you have data in place to support these tools. We provide services to help you integrate data residing on multiple legacy systems, capture data, and create databases containing information to support business decisions.

Database Creation and Administration :-

Creating and managing database systems can be difficult. We offer years of experience working with very complicated systems and expertise with leading vendors, including Oracle, Microsoft, IBM, Cognos, and others. At the same time, our tool-independent approach ensures you get the exact solution you need. We can help you with database support installation, upgrade, tuning, normalization, and administration.

Data Warehousing :-

Data warehouses provide a standard and optimal way to store and manage data and provide a repository of integrated data for your enterprise. We help you develop a central data warehouse that accesses, transforms, and cleans your legacy system data, so you can make decision-making queries using this constantly updated data source.

Data Analysis :-

Once you have systems populated with the necessary data, we help you develop tools to access and deliver that information in a way that best helps you make business decisions and support your e-business infrastructure. We work closely with you at the “grassroots“ level to define the precise data needed to support business processes at every level of your organization.

Query and Report Tools :-

To support your processes, we can establish custom reports issued on a scheduled or ad hoc basis and query tools that let you conduct user-guided exploration and perform “what-if“ analyses. You can use these tools to review summary data, detect data trends or patterns, make generalizations, and search organization, production, labor, material, historical, or other types of data.

Data Mining :-

Data-mining tools help you retrieve valuable, new information buried in your raw data. We help you develop applications to sift through data with little or no guidance to discover frequently occurring patterns, make generalizations, and classify and associate data. A well-designed data-mining tool explore all available data to provide the greatest number of useful facts in the shortest amount of time.

Data Presentation :-

Presenting the data in an accessible, understandable format is essential to making it useful. We develop standard or custom interfaces and Web-based tools to present the information according to your requirements. And, we can provide a range of tools, including standard tabular data, instant trend plots and bar charts, and drill-down/roll-up capabilities that let you view data related to all parts of your organization.

The Right Data Every Time :-

Making better and timelier decisions can lead to increased cost-efficiency and productivity. With a comprehensive view of accurate data, you can cut waste and fraud and streamline financial processes. Accomplishing these changes requires getting a simplified view of the most accurate data in the context of your business processes. By capturing data, improving your database administration, and providing tools that deliver data in a usable format, Intergraph provides you the right data at the right time.

Modeling :-

Now we can look at the third characteristic of management science – ***modeling***. The people have utilized "models" to represent aspects of their environment. Since scientists in many disciplines have discovered that the term model applies to what they have been doing all along. It now appears that most scientific conservations start with a mention of a model. The field of MIS is no exception; models are a necessity for both study and design MIS. Because models are so important, we need to know

1. What they are?,
2. What their characteristics are?, and
3. How they help us?

During our design efforts, we have quantified as much of the system as possible. We now attempt to determine both quantitative and qualitative ranges for inputs and outputs, quantitative relationships for the transfer functions, and time and reliability responses for operations in the system. Decision models are developed in both mathematical equation form and decision table form. The purpose of modeling at this stage is to define the system more precisely to improve it.

Decision tables :-

Besides the mathematical modeling of systems, logic tables may be developed for decision models. Such "decision tables" may include both quantitative and qualitative bases for decision making. Decision tables are valuable for both design and documentation of systems.

Decision structure tables are in the form of

if these conditions exist…
then perform these actions…

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