: What are various categories and classifications for decision support?

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Computerized decision support systems emerged in the 1960s with model-driven DSS. Decision Support Systems can be divided into the following categories:

Model-driven DSS

A model-driven DSS was based on simple quantitative models. It used limited data and emphasized the manipulation of financial models. A model-driven DSS is frequently used in production planning, scheduling, and management.

Data-driven DSS

Data-driven DSS emphasized the access and manipulation of data tailored to specific tasks using general tools. While it also provided elementary functionality to businesses, it relied heavily on time-series data. It was able to support decision making in a range of situations.

Communication-driven DSS

As the name suggests, communication-driven DSS uses communication and network technologies to facilitate decision making. The major difference between this and prior types of DSS was that systems supported collaboration and communication. CDSS make use of a variety of tools including computer-based bulletin boards, audio and video conferencing.

Document-driven DSS

A document-driven DSS uses large document databases that stores documents, images, sounds, videos and hypertext docs. It has a primary search engine tool associated for searching the data

when required. The information stored can be facts and figures, historical data, minutes of meetings, catalogs, business correspondences, product specifications, etc.

Knowledge-driven DSS

Knowledge-based DSS are human-computer systems that come with a problem-solving expertise. These combine artificial intelligence with human cognitive capacities and can suggest actions to users. The notable point is that these systems are based upon expertise in a particular domain.

Web-based DSS

Web-based DSS extends the above decision support capabilities using the world-wide web and the Internet.

The above classification is based on the dominant component and technology providing decision support. Another categorization emphasizes the nature of operations provided:

File Drawer System: It provides information useful for making a specific decision. It works like a file drawer where different types of information are stored under different names or categories.

Data Analysis Systems: These decision support systems are based on a formula; and therefore, are used to make comparative analysis. These make use of simple data processing tools, such as inventory analysis.

Information Analysis System: This kind of decision support system analyzes different sets of data to generate informational reports that can be used to assess a situation for decision making.

Accounting and Financial Support System: This type of support system is based on to keep track of cash and inventory.

Representation or Solver Model: This type of system performs or represents decision making in a particular domain or for a specific problem. It calculates and compares the outcomes of different decision paths. The decision maker can conduct a 'what if' analysis and make an informed decision basis on the outcomes generated.

Optimization Model: This DSS is based on stimulated models, majorly providing guidelines for operations management. The focus is on providing optimal solutions on job scheduling, product mix and material mix decisions.

Suggestion System: This type of support system suggests optimal decision for a particular situation by assisting in collecting and structuring data.

Categorization of DSS on the basis of inputs
Text-Oriented DSS
Database Oriented
Spreadsheet Oriented
Rule Oriented
Solver (specific situation) Oriented
Compound/Hybrid: This support system combines two or more structures from above to offer multiple functionalities.
Categorization of DSS on the Basis of Support Offered

Personal DSS
Group DSS
Organizational DSS

Categorization of DSS on the Basis of Type and Frequency of Decision Making

Institutional DSS: An institutional decision support system supports recurring decisions on an ongoing basis. Basically, this is for programmed decisions, which are made on daily basis. For example, establishing routine for handling technical problems, taking disciplinary actions, unit manufacturing, a mechanic process of troubleshooting, etc.

Ad-hoc DSS: An ad-hoc decision support system supports one kind of decision in an unanticipated situation. The decision made is unique to a problem. This type of system is used to support

non-programmed decisions as the information available is incomplete.

Decision support emphasizes building interactive computer-based systems that could utilize data and offer insights to solve ill structured problems. The definition, design, intelligence and scope of DSS continue to evolve with time. The modern-day DSS is more intricate and equipped to help make more complex decisions.

Decision support systems have gained immense popularity in various domains, including military, security, medicine, manufacturing, engineering, and business. These can support decision making in situations where precision is of importance. Additionally, they provide access to relevant knowledge by integrating various forms and sources of information, aiding human cognitive deficiencies. With decision support, a person remains the final decision maker.

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Last update: 2020-03-17 06:25