Future trends in decision support systems

DECISION SUPPORT SYSTEMS

Abraham Otero

Future trends

Good reviews:
Future trends

- Executives, especially in high positions of companies, will trust more and more the decision support systems
  - More experience and time using them increases confidence
  - Increasingly everybody (even senior executives) is more accustomed to use technology
  - This will make that these systems will increasingly play a central role in organizations

The increase in use of decision support systems could create more leaner and more flexible companies that are more responsive to changes in the environment
- i.e., there may be reduction in the number of managers, analysts and executives required to run a company
- The use of decision support systems will enable managers and employees to change more frequently the focus of its operations
  - Decrease the response time to changes in the market
Future trends

- Incorporation of artificial intelligence not only as possible model, but as an assistance to guide the user through the decision making process
  - Expert systems with knowledge of patterns to solve problems in a given domain advise and guide users on how to approach a problem
  - The user interfaces will become more intelligent adapting to each user, each type of problem and each type of platform from which the system is used (PC, mobile, web, etc.)

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Future trends

- Increasingly decision-making will be more real-time.
  - Algorithms will monitor continuously the immense amount of data that the organization produces
  - Alarms will be generated upon the occurrence of certain events
  - Custom reports tailored to each user type (different scales of managers and executives, for example) will be generated
Future trends

In all likelihood, a tool which will be widely exploited for building real-time DSS are software agents:

- A software agent is a piece of software that acts for a user or other program in a proactive way. Such "action on behalf of" implies the authority to decide which (and if) action is appropriate: agents are not strictly invoked for a task, but activate themselves.
- Software agents have been developed and employed extensively in the field of artificial intelligence.

Geographic and spatial decision support systems:

- Geographical databases are becoming increasingly common and more detailed.
- They can be used for spatial decision (urban planning, location of stores, forestry and agriculture management...).
  - One of the main challenges of this field will be the design and architecture of the data warehouses to store the information (given the very particular nature of the data), as well as the integration of heterogeneous data sources.
Future trends

- Cloud computing and expensive commercial software licenses of the data mining or decision support systems software open an interesting opportunity for providing cloud systems for analysis/decision support in the cloud.
  - No need to buy hardware, buy software, install and configure it and, finally, to analyze your data.
  - You just analyze it directly.
- It will enable organizations to perform a more casual use of such techniques (no need to invest heavily to use them).

Future trends

- Many real-world information is uncertain, and incomplete.
- Tools are needed to ensure that DSS are capable of leveraging this type of information.
- Fuzzy logic will be a useful technique in this respect.
Future trends

- Others:
  - Perform data processing in a more rapid, transparent and structured way
    - Currently, up to 90% of the time spent on the process of knowledge discovery can be consumed in this phase.
  - Develop measures of data quality
  - Increasing the usability of the decision support systems, allowing them to be used by users with less knowledge on computers / statistics / machine learning.