

KNOWLEDGE MANAGEMENT TOOLS

DATA MINING

Data mining deals with extracting knowledge that is multifaceted in the global business and support decision making. The integrative role of knowledge management and data mining has not been completely explored. Data mining has grown with the growth of information technologies (such as machine learning, knowledge-based systems, databases), statistics and data analysis, management sciences.

Various drivers on the growth of data mining

Business driver

- Competition is one of the main reason and the critical requirement is to understand the customer requirements' and to respond to market demand became the key business driver.
- Organizations possess loads of information and are drowning in information being clueless about what to do with it. Today volumes of data are collected and stored in warehouses.
- The databases provide the organization with transactional memory and this memory is of little use without business intelligence. So data mining had to find a place to help in making better decisions to serve the knowledge workers.

Technical drivers

In the technical drivers, without using analytical methods the analysis will not be useful and effective. In the absence of analysis, the presence of business intelligence is impossible. Statistics and machine learning became the analytical foundation for data mining.

- Statistics include the concepts of hypotheses testing, correlation and regression. The statistician begins with the assumptions about the relationship between the data attributes. Databases contain more than hundreds of data attributes that will be cumbersome to follow the statistical methodology of the hypothesize-and- test paradigm. Here, data mining helps in handy to automate the formulation of new hypotheses.

- Machine learning is a subfield of artificial intelligence focussing on computers learning for themselves. It is the automation of the learning process that is crucial for any intelligent system. The learning includes learning from example, reinforcement learning, supervised and unsupervised learning.
- Data warehousing is extracting and transforming operational data into informational data and loading it into the central data warehouse. The features of data warehousing are subject-oriented, integration, time-variant and non-volatile.
- Online Analytical Processing (OLAP) shows the data in different dimensions which is non-static. It is a powerful visualization tool, easy to interact and forms the first step in understanding the data.