

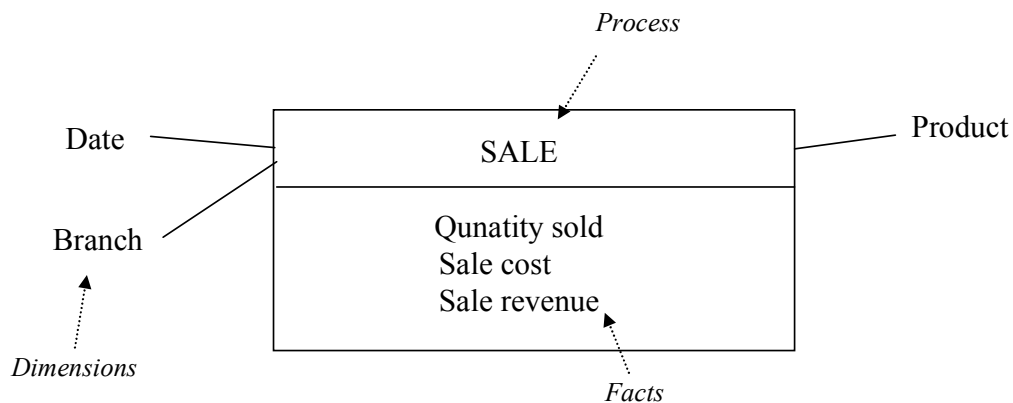
## An introduction to dimensional modeling for data warehousing

The design principles of the dimensional model, which is commonly used in data warehousing, are described in this article series. Dimensional models capture business performance measurements, which are used to support decision making.

### Dimensional model

The descriptive simplicity and high performance in query execution, are characteristics which have contributed to the increased use of the dimensional model in data warehouse infrastructures.

The symmetry and descriptive simplicity can be seen at the conceptual model (see resource) which relates to retail sales monitoring (data warehousing technology has been introduced initially in retailing).



**Fig 1 – A conceptual representation of a dimensional model**

Relational data models are use to implement the above conceptual model (as depicted in the resource).



## **Dimension tables**

Dimension tables describe the dimensions of a measurement on a business process. The features of each dimension should be as rich and flexibly described as possible (with many descriptive fields on the dimension table).

Attribute names of the dimension tables should be sufficiently descriptive, so as to be easily and unambiguously understood.

Codes which are used in operational systems, should be replaced with descriptive names of the characteristics. Numerical (quantitative) measurements should not be entered in dimension tables (given that these facts should be stored in fact tables).

Non numerical measurements (e.g. measurements which can be described in text) which are derived from a list of discrete values, should be entered in a dimension table.

The dimension tables usually maintain a limited number of records (the different descriptions that a dimensional entity may take) (the number of rows is known as the cardinality of the table).

The attributes of dimension tables, play an important role in dimensional analytical processing, given that they form the base of all 'restriction operations' which are applied. (e.g. sales that took place on a specific branch and date are derived by restricting on the branch and the date dimension). Moreover, they form the headings in the reports produced. Therefore, dimensional attributes are the 'entry points' to the measurements which are captured in the fact table.

The value of a dimensional model is directly proportional to the quality and depth of its dimension tables.