ABSTRACT
This paper is an introduction to Dimensional Model Data Warehousing. This paper will first contrast “Report Centric” versus “Information Centric” reporting for decision support. A brief history of Data Warehousing will be covered, followed by Data Warehouse Definitions. The Entity-Relationship model and specifically the Dimensional Model will be reviewed. Business Intelligence relationship to data warehousing will also be discussed.

REPORT CENTRIC VS. INFORMATION CENTRIC
Many companies are Report Centric in its decision support design. For many Decision Support or Management Information departments, hundreds and most likely thousands of reports are created each month in an effort to satisfy the user’s appetite for information. Unfortunately, this approach will never satisfy this need. Users continue to develop new report requests, adhoc or one-off reports, which can not be handled by the report centric design. The users are spoon-feed the data in precise formats, they use these reports for their job functions, and then react to the information.

It is recommended to move to the Information centric design where users are empowered to query or browse the data themselves and as a result would be pro-active. This is a cultural shift for most organizations; management, report users, and report application designers/developers. The Information Centric design requires that the data be arranged in a manner that is user understandable, user friendly to query, and consistent in its results.

The Data Warehousing Dimensional Model design in conjunction with a Business Intelligence tool provides the business or organization with an Information Centric design.

HISTORY OF DATA WAREHOUSING
1960’s: General Mills and Dartmouth University in a joint project developed the terms “dimension” and “fact”. This was the beginning of the first data mart

1970’s: Nielsen Marketing Research took the techniques of “dimensions” and “facts” forward for grocery and drug store audit data.

1980’s: Nielsen Marketing Research and IRI used grocery and drug store scanner data to tie together with customers’ internal shipment data.

DATA WAREHOUSE DEFINITIONS
Data Warehouse: The queryable source of data in the enterprise.

Data Mart: A logical subset of the complete data warehouse.

Operational Data Store (ODS): The point of data integration for operational systems.

Metadata Database: All of the information in the data warehouse environment that is not the actual data itself. It is centrally maintained and stored.

MODELS
ENTITY-RELATIONSHIP MODELING (ER):
Entity-relationship modeling is a logical design technique that seeks to eliminate data redundancy. ER models show the relationship between data. These models are difficult to read and understand unless trained in the model methodology. Also, it is difficult to understand the business from viewing the ER model. See appendix for an example.

DIMENSIONAL MODELING
Dimensional modeling is the name of a logical design technique used for data warehouses. Every dimensional model is composed of a “fact” table and a set of “dimension” tables. Conformed fact and dimension elements are elements that conform to the enterprises centralized metadata database. For example, “store id” would have a common definition and attributes across the enterprise and as such would have the same information across dimension tables. See the appendix for an example of a Dimensional Model.

BUSINESS INTELLIGENCE AND DATA WAREHOUSING
Today's business environment requires a responsiveness that can only be achieved with timely and accurate insight into business conditions. To be successful, businesses need rapid, easy access to information about their customers, their internal finances, and external market conditions—collectively known as business intelligence.

Business Intelligence is the process of analyzing your organization's accumulated raw data and extracting useful insight from it.

BI provides decision makers with the right information, at the right time, in the right place, enabling them to make better business decisions.

BUSINESS INTELLIGENCE
A: Data: Centralize data from multiple sources into a data warehouse.
B: Insight: BI tools analyze the data to help better understand the business.
C: Action: Act on the insight provided by BI tools by reallocating resources.
BUSINESS INTELLIGENCE IS MADE UP OF MANY RELATED ACTIVITIES
Data Mining  Discover relationships among data points
OLAP (Online Analytical Processing)  Online analysis of transactional data
Query & Reporting  View and manipulate data via multiple report formats
Proactive Information Delivery  Receive information on a scheduled or event-driven basis via web, wireless, or voice device

APPENDIX
1. ENTITY-RELATIONSHIP MODEL

2. DIMENSIONAL MODEL

CONCLUSION
1. Information Centric reporting is an 180 degree shift from the current Report Centric reporting environment that most organizations use.

REFERENCES
Dimensional Modeling, www.ou.edu/class/aschwarz/DataWarehouse

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