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Let's See What Is Business Intelligence

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LET'S SEE WHAT IS BUSINESS INTELLIGENCE

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INTELIGENCE

It is the proper use of data, data as input to make the right decisions in a company causes value in the organization, data is a sum of data, emotional intelligence is to organize and structure the data so that managers and employees can make decisions if the data is essential because it is the set of processes and application technologies that provide quickly and easily data from the systems of a company to have the analysis and interpretation so that they can be used for decision making and become knowledge for those responsible for the business, one of the ideal systems provides employees, partners and senior executives with access to the key information they need to perform their day-to-day tasks, and more importantly to make decisions based on correct and accurate data.

STRATEGIES

Establish the strategies between the creation based on the knowledge and mechanisms of the companies. With this research, problems are raised to establish the elements that develop capabilities to strengthen the knowledge for companies to acquire through actions focused on information systems, innovation and the process of decision making to the expansion of business intelligence as a fundamental factor in business competitiveness. It is the mixed research of conducting in-depth interviews with the qualitative aspect and the questionnaire in the quantitative aspect.

The main findings are:

It is the most valuable active knowledge in companies.

The business environment is fundamental to competitiveness.

Information systems innovate decision-making processes as part of the business intelligence required by companies.

Business intelligence develops competitiveness from knowledge management.

IMPORTANCE

It acts as a key and strategic factor for the organization since it provides very timely and reliable information decisions to respond to situations that may arise in a company such as the entry into new markets, cost analysis, profitability of product lines, etc.

TACTICAL LEVEL

It is the middle level where unscheduled and scheduled tactical decisions are made.

OPERATIONAL LEVEL

This is the technical level where tactical and programmed decisions are made.

BENEFITS

One of the advantages that a company has when using business intelligence are the following: Increased efficiency: counting on data in a fast and agile way you can generate information of central value which you can look at in a single platform to take advantage of effectively to perform analysis and make informed decisions and in time.

- Speed of information: It is to know what happens at every instant in the company yesterday last night what happens at every moment if I need to know what happened 3 days ago have the speed to have knowledge of everything that happened.

- Truthfulness of the information: It is being able to trust the information I am given or being provided and thus with it being able to really trust what I am being told.

- Availability of information: being able to have everything at a clip no matter where you are in the world.

- Information security: To have all the structure of the company and this must be well maintained and governed and only the people that I determine in the organization will have access to it.

- Speed of the committee: that all committees arrive with the information prepared for the meetings in order to optimize and reach decisions and not analyze things that have already happened.

- Optimize information: Prepare all information and thus generate innovation and development value.

Quick answers or business situations: Making decisions at the right time is important in order to have the information at hand in a simple way and avoid wasting time searching and consolidating data.

Control of the company's functional areas: Valuable information is generated in the company's areas on a day-to-day basis, in order to better understand trends, project data and analyze scenarios.

Improve your customer service: control the most important information and in real time you can offer your customers a higher quality service from order to service by knowing the needs of each customer. This way you can analyze buying habits, and look at the best-selling products.

Present information by means of dashboards: for direct and simple communication of the company's situation. We can focus on the most relevant data so as not to review large amounts of information.

Balanced Scorecard Model

This model includes the possibility of managing intangible values, such as knowledge. Its functions are:

- organizational Clarificar la visión y strategy.
- Comunicar los objetivos and increase organizational communication.
- Align strategic initiatives.
- Increase organizational communication.

The strategic vision is based on the different visions or perspectives: customer, financial, financial, financial, financial, financial, financial, financial, financial, financial, financial, financial, financial, financial, financial and financial.

internal and continuous learning. The latter is the adequacy of business intelligence processes that generate organizational vision; in this way, management models reinforce the use of knowledge in the generation of strategies and facilitate decision making.

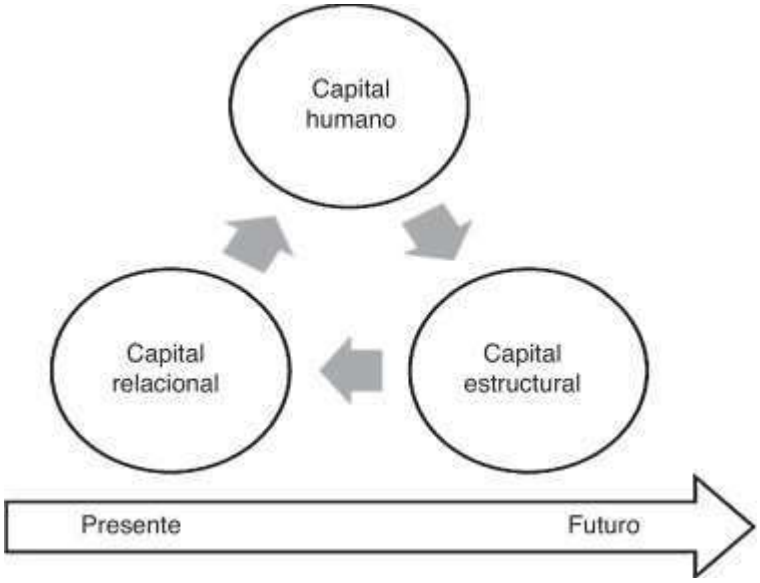
TOOLS

These tools are very useful for organizational areas such as, for example:

- **Marketing:** trend and customer analysis.
- **Sales:** Analysis of customers and their profitability, analysis by product, by segment, sales projections and forecasts.
- **Financials:** Detailed expense, cost and revenue reports for financial ratios and financial analysis of the company.

- **Logistics:** Tracking of shipments and monitoring of orders to know the cause of their loss.
- **Production: Production** line productivity report, inventory turnover.

This intellectual model aims to disclose relevant information for decision making and thus provide information to third parties on the value of the company.



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DATABASE MANAGEMENT SYSTEM

DATA WAREHOUSE

It is one of the most important stages during a business intelligence process or why not say it is the most important stage because it is where you can find all the data to exploit information.

Data Warehaouse is the area responsible for storing information from different areas of a company or organization, in this we find sales, reports, talent information, human, profit averages, etc.. All these data with the purpose of being archived, in the same way it has easy access to the data required at some point and that is not in a disorganized way in the company or organization.

A Data Warehaouse is important in the process of business intelligence as it is a good tool for decision making with all the information required at hand, as well as a good tool to make decisions.

In addition to making sound and effective decisions, it is possible to plan strategies to achieve the entity's objectives. It speeds up the entity's reporting and analysis process and is a very reliable tool when making decisions and analyzing forecasts.

TYPES OF DATA WAREHOUSE

1. Offline Operational Data Warehouse: It interacts with the data storage in real time.

2. Offline Data Warehouse: The data warehouse is constantly updated on a daily, weekly or monthly basis.

3. Real Time Data Warehouse: The database warehouse is updated as new information is consolidated.

4. Danta Warehouse Integrated: The data warehouse can be used by another data warehouse.

SOME ADVANTAGES OF DATA WAREHOUSE

1. By means of the data warehouse, employees or end-users can

access company data easily for decision making.

2. Data can be extracted from each of the different areas of the entity such as accounting, finance, etc.

SOME DISADVANTAGES OF DATA WAREHOUSING

1. It is time-consuming to create, resource-intensive to create and maintain, and time-consuming to operate.

2. Incompatibility of current systems with the Data Warehouse.

DATA WAREHOUSE COMPONENTS

It is based on an RDBMS server, which is a storage repository consisting of five elements:

1. Data warehouse database: This is the basis of the data warehouse environment.

2. Sourcing, acquisition, cleansing and transformation (ETL) tool: It is in charge of transforming the data into a defined format for the data warehouse.

3. Metadata: Its function is to build, manage and maintain the data warehouse.

4. Query tools: Allows users to interact with the data warehouse.

5. Bus data store: Manages the flow of data, which can be classified into in-flow, up-flow, down-flow, out-flow and meta-flow.

CHARACTERISTICS OF A DATA WAREHOUSE

1. Subject-oriented: It is not focused on ongoing operations, it offers the

information on a particular topic such as marketing. It focuses on analyzing data for decision making.

2. Integrated: Integrates all data into a central database, thus aiding data analysis.

3. Time variant: in the warehouse absolutely all data must be according to their time, in the data warehouse time or dates are very important, such as day, month, etc.

4. Non-volatile: data is not deleted when new data is entered, it is updated. The delete, update and insert actions are skipped in the data warehouse.

DATA WAREHOUSE ARCHITECTURES

1. Single-level architecture: also known as single-layer architecture, its function is to minimize the amount of data stored.

2. Two-tier architecture: The two-tier architecture separates the available sources and data storage, is characterized by the fact that it is not very expandable and does not allow a large number of end users.

3. Three-level architecture:

   a) Lower level: it is a relational data system, the data is loaded using the back-end tool.

   b) Middle layer: it uses an OLAP server through the ROLAP or MOLAP model. This layer also has the function of mediating between the end user and the database.

   c) Upper Level: Front-end client layer, it is a query, reporting, administrative query, analysis and data mining tool.

DATA MART

It is a database system which divides the information in an orderly and structured way that conforms to the data warehouse, which divides this

It contains information stored in different areas of the company or entity, such as human talent, expenses, sales, etc.

Types of Data Marts:

1. Dependent Data Marts: Which is created from existing enterprise data.

2. Independent Data Marts: It is the one that is created without any base information, which is focused on one area of the business. They are advantageous to achieve short-term objectives.

3. Hybrid Data Marts: combines existing data with other systems.

Advantages of Data Marts:

1. Efficient access.
2. Economical alternative to data warehouses.
3. Improves data warehouse performance.
4. Data maintenance.
5. Simple configuration.
6. Analytical.
7. Single entry.

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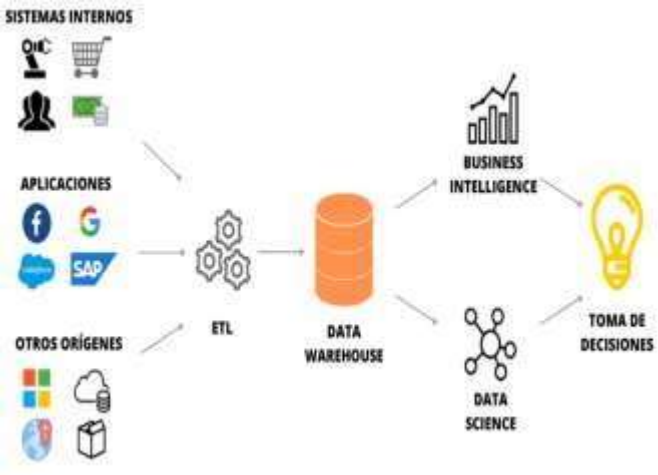
DATA WAREHOUSE LAYERS

The date warehouse architecture is divided into the following layers:

1. Data source layer.
2. Data extraction layer.
3. Testing area.
4. ETL layer.
5. Data storage layer.
6. Logical data layer.
7. Data presentation layer.
8. Metadata layer.
9. System operation layer.



Data Source Layer: As its name indicates, it is the data source, which is in charge of feeding the data from the data warehouse, for the

The data source does not have a defined format, some of the most common are: plain text file, relational database, Excel, etc. In turn, the types of data can be varied in which we find the following:

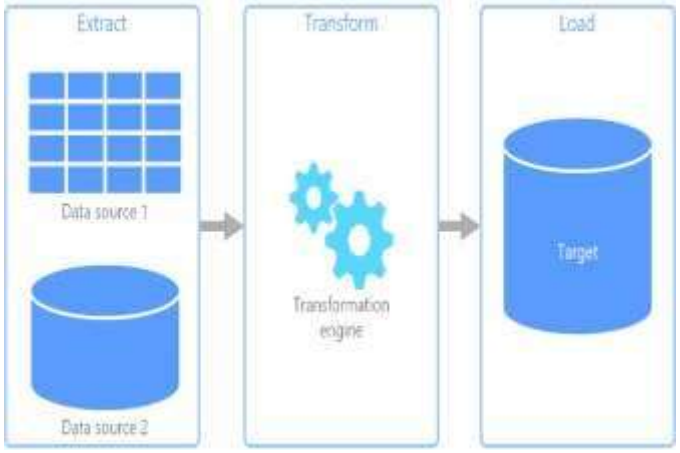
- Operations data: this includes all data concerning everything related to the company such as sales, product data, human resources, inventory data, marketing and system data.
- Logs of a server: are the data that include the navigation of the users.
- Internal research data
- Third-party data: this includes data such as census and survey data or demographic data.

Data Extraction Layer: This layer is in charge of extracting data from data sources, some data is filtered to make the information more concise.

Testing Area: Data is transformed into data mart and subsequently data warehouse.

ETL layer: It is the most time-consuming process, the ETL layer is the main source of information in the data warehouse, this layer extracts the information from the data.

These undergo a process of transformation from transactional to analytical in nature and are finally uploaded to a system in which users can consult the required information.



Poor preparation of this phase can lead to a significant increase in the cost of the date warehouse.

Phases:

- Extraction (Extract)
- Transformation (Transfomr)
- Load (Load)

Data Warehousing Layer: It is the stage in charge of placing the transformed data in a data warehouse, likewise there are three types of entities: data warehouse, data mart and operational data warehouse (ODS).

Data Logic Layer: It is in charge of storing the business rules, they directly affect the reports that users see.

Data Presentation Layer: It is the information that reaches the user, this information is generated by means of reports, graphs, etc.

Normally a tool known as OLAP is used, as well as a reporting tool.

The OLAP (On Line Analytical Proccessing) tool, which in our language means On Line Analytical Processing, has as its main objective to consult large amounts of data, for which it uses OLAP cubes.

Metadata Layer: Its purpose is to describe the information about the structure, content and dependencies that exist between the components of a data warehouse.

It is in charge of describing data types, queries and reports, data source definitions, etc.

Metadata are classified as technical and semantic or also known as business metadata, software developers or data managers focus more on the technical metadata, since it has to do with SQL statements, in fact the creation of the data warehouse. While the analysts or managers of an entity are more interested in the semantics of the data ware house or the structure of it.

System Operations Layer: contains information about how the data warehouse is running, ETL job status, system performance checks and finally the history of user access to the data warehouse house.

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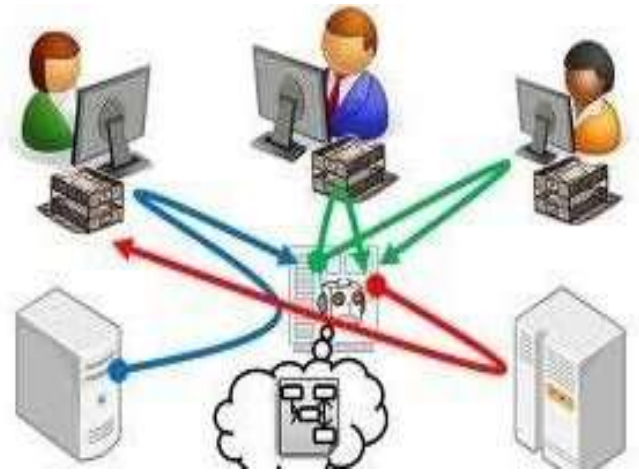
DATA WAREHOUSES

It is where the collection of data that supports decision making in an organization takes place. The data that make up the data warehouses are marketing data, sales data, financial data, etc. The main purpose of data warehouses is to perform queries and data analysis, likewise data warehouses are characterized by having a large amount of data, especially historical data.

Data warehouses made their first appearances in the 1980s to assist the flow of data from operational systems to decision support systems (DSS).

The data warehouse performs the consolidation of large amounts of data, with its analysis capabilities, organizations can use this data to improve decision making.



Elements of a Data Warehouse:

- a relational database for storing and managing data.
- an extract, load and transform (ETL) solution to prepare the data for analysis.
- Statistical analysis, reporting and data mining capabilities.
- Customer analysis tools to visualize and present data to business users.

Architecture of a Data Warehouse:

Simplicity:**Llosdatos**
and the summary data, it is
stored in the same place, thus allowing for

end-users have a better understanding of the
easy access to the required data for analysis,
reporting or extraction.

Simplicity in the Preparation Area: The
operational data must be subjected to a
cleaning and processing process prior to
storage.

Radial Distribution System: Radial
data marts between where all the data are
and the end-users, this with
the end of the case where it is necessary to seek a

specific area to be much more agile and faster.

- Test Environments: Allow organizations to more quickly explore new data without having to comply with data warehouse rules.

Benefits of a Data Warehouse:

- Topic-oriented: The analysis of a particular topic or area of the organization can be achieved.
- Integrated: Integrates different types of data.
- Non-volatile: The data, when stored, cannot be changed and is stable.
- Variants over time: Performs a long-term analysis.

Data Warehouse Operation

A data warehouse in some cases has in its interior several databases, inside these same ones the data are organized in tables and columns, in the same way inside each column there is a descriptive data, for example an integer, data field or in its defect a string. Tables can be organized in folders. When the data is stored, the query tool performs the table lookup and the users will have access to the table.

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