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| Business Template  transportation sales data |

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# 

# Business Description

## Business background

Planes, trains, and cars are essential elements of modern transportation. Numerous companies and manufacturers offer various types of vehicles suitable for different needs, routes, and user preferences. This industry is highly competitive, so to be successful in this field, one must approach it responsibly and consider numerous factors that influence people's choice of transportation. First of all, this can be achieved by collecting product sales information and analyzing it using specialized tools.

## Problems because of poor data management

Poor data management can severely hinder the success of a business due to the lack of sufficient information to guide decision-making. Without effective tools to gather, analyze, and interpret data, companies are unable to develop informed business strategies. This deficiency makes it difficult to stay competitive in any industry. In the transportation sector, for instance, failing to manage sales and customer data properly can result in missed opportunities, inefficient operations, and an inability to meet customer demands. Effective data management is essential for making strategic decisions, improving customer satisfaction, and maintaining a competitive edge.

## Benefits from implementing a Data Warehouse

Implementing a data warehouse can help address the problems described above. A data warehouse allows businesses to compile, store, and analyze vast amounts of data efficiently. This implementation can provide answers to key questions such as:

* Which transportation modes (planes, trains, cars) have the highest sales volumes?
* Which vehicle types have the widest distribution of prices?
* Is there a typical sales distribution across different transportation modes or within specific vehicle types?

Further processing of data through a data warehouse would also allow businesses to:

* Correlate specific vehicle features with changes in sales or prices.
* Identify differences in preferences between various customer segments.
* Optimize inventory management by understanding seasonal sales trends.
* Enhance customer satisfaction by identifying and addressing pain points.
* Develop targeted marketing strategies based on comprehensive data insights.
* And many other critical analyses that can drive business success.

## DATASETS DESCRIPTION

The first dataset contains the following information about sales on the European market.

#### Order Information:

* **ORDERNUMBER:** A unique identifier for each order.
* **QUANTITYORDERED:** The number of units of a product ordered.
* **PRICEEACH:** The price per unit of the product.
* **ORDERLINENUMBER:** The number of order lines associated with the order.
* **SALES:** The total sales amount for the order (calculated as QUANTITYORDERED \* PRICEEACH).
* **ORDERDATE:** The date when the order was placed.
* **DEALSIZE:** The size of the deal (e.g., Small, Medium, Large).
* **STATUS:** The current status of the order (e.g., Shipped, Resolved, Cancelled, In Process, On Hold).

#### Time Information:

* **QTR\_ID:** The quarter of the year in which the order was placed (1 to 4).
* **DAY\_ID:** The day of the month when the order was placed.
* **MONTH\_ID:** The month when the order was placed.
* **YEAR\_ID:** The year when the order was placed.

#### Product Information:

* **PRODUCTLINE\_ID:** A unique identifier for the product line.
* **PRODUCTLINE:** The category or type of product (e.g., Motorcycles, Classic Cars, Trucks and Buses, Trains, Vintage Cars, Planes).
* **MSRP:** The manufacturer's suggested retail price of the product.
* **PRODUCTCODE:** The specific code of the product.

#### Customer Information:

* **CUSTOMER\_ID:** A unique identifier for each customer.
* **CUSTOMERNAME:** The name of the customer.
* **CONTACTFIRSTNAME:** The first name of the customer.
* **CONTACTLASTNAME:** The last name of the customer.
* **PHONE:** The phone number of the customer.

#### Address Information:

* **ADDRESS\_ID:** A unique identifier for the address.
* **ADDRESSLINE1:** The street address of the customer.
* **CITY:** The city where the customer resides.
* **STATE:** The state where the customer resides.
* **POSTALCODE:** The postal code of the customer's address.
* **COUNTRY:** The country where the customer resides.

For the second data there is following structure

#### Order Information:

* **ORDER\_ID:** A unique identifier for each order.
* **QUANTITY:** The number of units of a product ordered.
* **PRICE\_FOR\_EACH:** The price per unit of the product.
* **NUMBER\_OF\_ORDERLINE:** The number of order lines associated with the order.
* **SALES\_AMOUNT:** The total sales amount for the order (calculated as QUANTITY \* PRICE\_FOR\_EACH).
* **DATE\_OF\_ORDER:** The date when the order was placed.
* **DEAL\_SIZE:** The size of the deal (e.g., Small, Medium, Large).
* **CURRENT\_STATUS:** The current status of the order (e.g., Shipped, Resolved, Cancelled, In Process, On Hold).

#### Time Information:

* **QUAERTER:** The quarter of the year in which the order was placed (1 to 4).
* **DAY:** The day of the month when the order was placed.
* **MONTH:** The month when the order was placed.
* **YEAR:** The year when the order was placed.

#### Product Information:

* **PRODUCTLINE\_ID:** A unique identifier for the product line.
* **PRODUCT\_LINE:** The category or type of product (e.g., Motorcycles, Classic Cars, Trucks and Buses, Trains, Vintage Cars, Planes).
* **MS\_RP:** The manufacturer's suggested retail price of the product.
* **PRODUCT\_MODEL:** The specific model of the product.

#### Customer Information:

* **CUSTOMERS\_ID:** A unique identifier for each customer.
* **CUST\_NAME:** The first name of the customer.
* **CUST\_LASTNAME:** The last name of the customer.
* **PHONE\_NUMBER:** The phone number of the customer.

#### Address Information:

* **ADDRESS\_ID\_NUM:** A unique identifier for the address.
* **ADDRESS\_LINE:** The street address of the customer.
* **CITY\_NAME:** The city where the customer resides.
* **POSTCODE:** The postal code of the customer's address.
* **COUNTRY\_NAME:** The country where the customer resides.

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Main difference between two datasets are that first one contains information about USA sales, it has STATE column additionally.

Second data contains is rest of the countries, without USA.

The data is sales transactions involving various transportation products, customers, and geographic locations. The business process involves capturing the details of each sale, including quantities, prices, customer details, and the status of the order and addresses.

## gRAin

Grain as understand, the single row in the fact table, will be (after I denormalize it):

 ORDERNUMBER

 QUANTITYORDERED

 PRICEEACH

 SALES

 DEALSIZE

 STATUS

 PRODUCT\_ID

 CUSTOMER\_ID

 ADDRESS\_ID

* TIME\_ID

Dimensions will be:

ORDER TABLE (Facts table):

 The order number

 Quantity ordered

 Price per item

 Sales amount

 Deal size

 Status of the order

 Product \_id

 Customer\_id

 Address\_id

* TIME\_ID

TIME TABLE (DIMENSION):

* TIME\_ID (WHICH WILL BE ADDED LATER)
* QRT\_ID
* YEAR
* MONTH
* DAY

PRODUCT TABLE (DIMENSION):

|  |  |  |
| --- | --- | --- |
| PRODUCTLINE | MSRP | PRODUCTCODE |

* PRODUCTLINE\_ID
* PRODUCTLINE
* MSRP
* PRODUCTCODE

CUSTOMER TABLE (DIMENSION):

 CUSTOMER\_ID

 CUSTOMERNAME

 CONTACTFIRSTNAME

 CONTACTLASTNAME

 PHONE

ADDRESS TABLE (DIMENSION)

 ADDRESS\_ID

 ADDRESSLINE1

 CITY

 STATE

 POSTALCODE

 COUNTRY

ADDRESS TABLE (DIMENSION, FOR NON\_USA, SECOND\_DATASET)

 ADDRESS\_ID

 ADDRESSLINE1

 CITY

 POSTALCODE

 COUNTRY

With chosen grain it will be possible to have detailed analysis of sales transactions at the most granular level. It enables to understand the specifics of what products are being sold, in what quantities, at what prices, and to which customers.

Information can be used for inventory management, sales forecasting, marketing strategies, and customer relationship management.

Additionally, With this grain, the data can be aggregated to higher levels to support various types of analysis. Also, Capturing data at the line item level ensures that no detail is lost, which is crucial for accurate reporting and decision-making.

ORDER TABLE

| **Column name** | **Description** | **Data Type** |
| --- | --- | --- |
| ORDERNUMBER | Unique identifier for the order | Int |
| QUANTITYORDERED | Number of units ordered | Int |
| PRICEEACH | Price per unit | Decimal |
| SALES | Total sales amount | Decimal |
| ORDERDATE | The date when the order was placed | Date |
| DEALSIZE | Size of the deal | Text |
| STATUS | Status of the order | Text |
| PRODUCT\_ID | Foreign key to the product dimension | Int |
| CUSTOMER\_ID | Foreign key to the customer dimension | Int |
| ADDRESS\_ID | Foreign key to the address dimension | Int |
| TIME\_ID | Foreign key to the time dimension | Int |

| **ORDERNUMBER** | **QUANTITYORDERED** | **PRICEEACH** | **SALES** | **ORDERDATE** | **DEALSIZE** | **STATUS** | **PRODUCT\_ID** | **CUSTOMER\_ID** | **ADDRESS\_ID** | **TIME\_ID** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 30 | 95.7 | 2871 | 2/24/2003 | Small | Shipped | 1 | 1 | 1 | 1 |
| 2 | 45 | 83.26 | 3746.7 | 8/25/2003 | Medium | Shipped | 1 | 2 | 2 | 2 |

TIME TABLE

| **Column name** | **Description** | **Data Type** |
| --- | --- | --- |
| TIME\_ID | Unique identifier for the time entry | Int |
| QRT\_ID | Quarter of the year | Int |
| YEAR | Year of the date | Int |
| MONTH | Month of the date | Int |
| DAY | Day of the date | Int |

| **TIME\_ID** | **QRT\_ID** | **DAY\_ID** | **MONTH\_ID** | **YEAR\_ID** |
| --- | --- | --- | --- | --- |
| 1 | 30 | 95.7 | 2871 | 2/24/2003 |
| 2 | 45 | 83.26 | 3746.7 | 8/25/2003 |

PRODUCT TABLE

| **Column name** | **Description** | **Data Type** |
| --- | --- | --- |
| PRODUCTLINE\_ID | Unique identifier for the product line | Int |
| PRODUCTLINE | Name of the product line | Text |
| MSRP | Manufacturer's suggested retail price | Decimal |
| PRODUCTCODE | Specific code of the product | Text |

| **PRODUCTLINE\_ID** | **PRODUCTLINE** | **MSRP** | **PRODUCTCODE** |
| --- | --- | --- | --- |
| 1 | Motorcycles | 95 | S10\_1678 |
| 2 | car | 87 | S42\_166 |

CUSTOMER\_TABLE

| **CUSTOMER\_ID** | **CUSTOMERNAME** | **CONTACTFIRSTNAME** | **CONTACTLASTNAME** | **PHONE** |
| --- | --- | --- | --- | --- |
| 1 | Land of Toys Inc. | Kwai | Yu | 2125557818 |
| 2 | Toys4GrownUps.com | Julie | Young | 6265557265 |

| **Column name** | **Description** | **Data Type** |
| --- | --- | --- |
| CUSTOMER\_ID | Unique identifier for the customer | Int |
| CUSTOMERNAME | Name of the customer | Text |
| CONTACTFIRSTNAME | First name of the contact person | Text |
| CONTACTLASTNAME | Last name of the contact person | Text |
| PHONE | Contact phone number | Text |

ADDRESS TABLE

| **Column name** | **Description** | **Data Type** |
| --- | --- | --- |
| ADDRESS\_ID | Unique identifier for the address | Int |
| ADDRESSLINE1 | Street address | Text |
| CITY | City | Text |
| STATE | State | Text |
| POSTALCODE | Postal code | Int |
| COUNTRY | Country | Text |

| **ADDRESS\_ID** | **ADDRESSLINE1** | **CITY** | **STATE** | **POSTALCODE** | **COUNTRY** |
| --- | --- | --- | --- | --- | --- |
| 1 | 897 Long Airport Avenue | NYC | NY | 10022 | USA |
| 2 | 78934 Hillside Dr. | Pasadena | CA | 90003 | USA |

ADDRESS TABLE(FOR NON\_USA DATA, SECOND DATASET)

| **ADDRESS\_ID** | **ADDRESSLINE1** | **CITY** | **POSTALCODE** | **COUNTRY** |
| --- | --- | --- | --- | --- |
| 1 | 897 Long Airport Avenue | PARIS | 456 | FRANCE |
| 2 | 78934 Hillside Dr. | LONDON | 123 | THE UK |