Business Intelligence Project

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# ERP: 19757

# Dataset: Smart Supply Chain Big Data

# Tools Used: Python – For Wrangling

# Tableau – For Visualization and Analysis

Table of Contents:

# Images of paper charts and paper stories

1. Images of each chart with answering each related BI Query – From the tool
2. Images of all dashboards with analysis
3. Images of all stories with analysis
4. Wrangling

# Rough Sketches:

* In separate PDF attached.

# 2- Image of Each Chart with Analysis

Map

Description automatically generated

Map

Description automatically generated

Query: What are the main areas of operations?

Insights:

* Operations are mostly concentrated in US and its territories.
* Going Towards east, we have Southern Africa.
* Going Further towards East, operations are concentrated in Southern Nepal and in some parts of Southern China.
* Orders were delivered to almost all states of US except for state of Wyoming.

Drilling down….

Map

Description automatically generated

Query: In what cities of US were orders delivered?

Insights:

* Mostly customers are concentrated far North-Eastern and Eastern part of US.
* There is a fair activity across Southern belt also.
* There are fairly low number of Customers across North-Western Part of US.

Chart, pie chart

Description automatically generated

Query: What type of Customers contributed to sales the most to lowest. Explain the trend.

Insights:

* There are 3 types of customers: Home Office, Consumer and Corporate.
* Consumer Customers contribution is highest with 51.93% followed by Corporate Customers having 30.35% contribution.
* This is 20% less than the corporate’s contribution.
* Home Office Customer’s contributed least, almost half of the other two types.

Chart, bar chart

Description automatically generated

Query: What type of products does each type of customer buys the most? Explain the trend.

Insights:

* All three types of customers have similar trend in ordering of certain product category.
* They all mostly orders Sports Items followed by Shoe & Related Items.
* As evident by previous graph, Consumer Customer buys more than the others.

Chart, bar chart

Description automatically generated

Query: What transaction types were most successful in terms of total sales per customer?

How does these relate to status of delivery?

Insights:

* Debit type transactions were mostly used by customers.
* Debit type generated the highest total sales per customer and grossed over 12M.
* Cash type transaction generated lowest total as compared to other with over 3M sales.
* Transfer type grossed higher than Payment type.
* The reason why Cash and other types grossed relatively lower can be because of the orange bar which represents orders being delivered late (most of the time).
* In Transfer type alone, around 1.4M worth of orders were cancelled.
* Cash and Payment type, despite generating lower total, are safer(lower late instances) than transfer type.

Chart, line chart

Description automatically generated

Query: Is there a difference between actual shipment days and scheduled shipment days wrt date of order placed?

Insights:

* From December 2014 to Dec 2017, the chart shows that actual shipping days were always greater than scheduled days.
* Positive: However, the difference is of 1 day only which is commendable.
* Negative: Still, it compromises the integrity of supplier.

Chart, funnel chart

Description automatically generated

Query:

Did most of the times orders were delivered late?

Insights:

* Most of the orders were shipped late!
* This is the most apparent pain area to be considered.
* Interestingly, its effect can also be scene in same chart i.e. orders by customer increases sharply over years.

Chart

Description automatically generated with medium confidence

Chart, scatter chart

Description automatically generated

Query: Evaluate product category sales per customer by order Date to see if we can identify any seasonal trend in date.

Insights:

* Large and light orders represents product category being sold relatively large quantity but made relatively low amount of revenue: low sales per item.
* Conversely, small, and dark circles would mean the product category sold a relatively small quantity but generated high revenue: high sales per item.
* Fishing category has darker but smaller circles which suggest its higher contribution to sales produced.
* Cleats category has bigger but lighter circles throughout the month suggesting it was sold in greater quantity but relatively contributed lesser to sales than fishing products.
* Then cardio products shows similar trend as cleats but with smaller circles.
* All other shows negligible contributions.
* But over successive months, the size and color both decreases which suggest decrease in sales and customer’s interest.

Chart, treemap chart

Description automatically generated

Query: Evaluate which department received most orders and contributed highest to profit generated per product ordered? Explain Completely.

Insights:

* Color and size of squares varies similarly suggesting correlation between profit and quantity.
* Highest contribution in both areas is from Fan Shop department with 106K items ordered and 1.8M generated as profits.
* Golf and Apparel department are next in line but apparel produced twice the profit.
* Following these two are, footwear, outdoor and technology departments which shows drastic reduction in quantity of items being ordered but fair reduction in profit produced.
* Book shop contributed lowest in both areas.

Chart, bar chart

Description automatically generated

Query: Compare 2016 and 2017 sales.

Insights:

* Except for fitness & outdoor, no department could surpass the previous year’s sale mark.
* Footwear, Golf and FanShop, however succeded in producing within 80% of average of 2016 year sales.
* Outdoor remain most successful as it produce 400K more sales in 2017 than 2016.

Timeline

Description automatically generated

Query: Compare latest year’s sales with previous year.

Insights:

* Not a single department could meet the 60% of 2018’s average sales mark let alone the targeted reference line.
* Drastic Decrease of sales in every department.
* This may indicate lack of data availability for sales in 2018, but this hypothesis can be eliminated as no evidence was found.

Chart, bar chart

Description automatically generated

Query: Written above the chart.

Insights:

* Only 3 markets could cross the average sales mark which includes Europe LATAM and Pacific Asia.
* Europe is the most valuable market as it produced greatest sales amount and contributes to 29.5% of total sales.
* LATAM is also near to Europe.
* Under average are two of the markets: Africa and USCA.
* USCA contributed around twice the African market.

A picture containing chart

Description automatically generated

Query: How sales varies across different shipping modes? Does specific mode contribute greater? Is there any relation?

Insights:

* Color intensity represents total order quantity while size of circle represents number of sales generated.
* Standard Class outweighs all other modes which suggest that most customers opt for it, so we need to induct new incentives in this class.
* Similar trend across every market.
* Africa tend to be lower in both the areas.

Chart, bar chart

Description automatically generated

Query: What is the role of delivery status in quantity of orders placed?

Insights:

* Its an important chart, which shows the pain area of our operations.
* In majority of the orders placed, late delivery is highest.
* Maybe this is the reason behind waving interest of customers around the world.
* Shipping on time should be greater if operations were to be run smoothly and efficiently, but if we combine negatives: i.e. shipping and late delivery, it crosses the shipping on time way ahead.

Chart, bar chart

Description automatically generated

Chart

Description automatically generated with medium confidence

Query: Analyze the number of orders being placed over different years.

Insights:

* This is similar to previous comparisons of sales.
* But 2016 vs 2017 shows that departments failed to meet the previous years target and this shows the waving interests of the customers.
* Just like in sales comparison of 2018 vs 2017, it shows the alarming decrease in customer’s interest.
* Strict measures must be taken to lessen the pain areas identified.

DashBoards:

Total: 8

* Couldn’t take a complete screenshot of Dashboards so please check it in tableau workbook.
* If Tableau doesn’t show it please see Visulaization.pdf (attached) from page 22.

Stories:

* Given in Tableau workbook.
* If Tableau doesn’t show it please see Visulaization.pdf (attached) from page 31.

Wrangling:

* Python notebook is attached with complete comments and reasonings of wrangling steps.