

Data-Driven Innovations In Supply Chain Management With Qlik Insights

1.INTRODUCTION.

1.1 Project Overview:

Supply chain management (SCM) is a critical aspect of any business, impacting everything from production efficiency to customer satisfaction. This project aims to harness the power of Qlik Insights, a leading business intelligence tool, to transform SCM processes through data-driven strategies. By integrating and analysing diverse data sources, this project will identify key trends, predict potential disruptions, and recommend actionable improvements to streamline the supply chain.

1.2 Purpose:

The purpose of this project is to leverage advanced data analytics through Qlik Insights to transform and optimise supply chain management (SCM).

2.Define Problem / Problem Understanding.

2.1 Specify The Business Problem.

This project aims to revolutionise supply chain management through data-driven insights using Qlik. Leveraging advanced analytics, it seeks to optimise logistics, forecasting, and inventory management, enhancing operational efficiency and responsiveness.

This transformative project endeavours to reshape the landscape of supply chain management by harnessing the power of Qlik's data-driven insights. Employing cutting-edge analytics, it strives to revolutionise key facets such as logistics, forecasting, and inventory management, with the overarching goal of elevating operational efficiency and responsiveness to new heights.

2.2 Business Requirements.

Implement a robust data integration strategy to aggregate and centralise relevant data from diverse supply chain sources. Utilise Qlik's advanced visualisation capabilities to create intuitive and dynamic dashboards, providing stakeholders with clear insights into the entire supply chain ecosystem. Leverage Qlik's advanced analytics features to analyse historical logistics data, identify patterns, and optimise transportation routes. Implement real-time tracking and monitoring solutions to enhance visibility into the movement of goods, reducing lead times and minimising transportation costs. Implement real-time analytics to facilitate quick decision-making in response to unforeseen events or changes in demand, ensuring a proactive and responsive supply chain.

2.3 Literature Survey.

A literature survey on the project theme of revolutionising supply chain management through data-driven insights and advanced analytics reveals a growing body of research and scholarly articles focused on similar endeavours. Studies underscore the increasing recognition of the pivotal role that data analytics plays in transforming traditional supply chain processes. Research highlights the effectiveness of leveraging advanced analytics tools, such as Qlik, to enhance visibility and decision-making in supply chain operations. The study emphasises the positive impact on logistics optimization, forecasting accuracy, and inventory management efficiency. Moreover, delves into the broader landscape of data-driven supply chain transformations, exploring diverse analytical techniques and technologies. The findings showcase successful implementations, demonstrating notable improvements in operational efficiency and responsiveness across various industry sectors. In addition, examines the challenges and opportunities associated with the adoption of data-driven insights in supply chain contexts. The literature emphasises the need for organisations to develop robust data governance frameworks and cultivate a data-driven culture to fully unlock the potential benefits.

3.Data Collection & Extraction From Database

3.1 Understand The Data.

Data contains all the meta information regarding the columns described in the CSV files

Column Description of the Dataset:

- Type: Type Count
- Days for shipping (real): Product shipment days
- Benefit per item: profit earned per product
- Sales per customer: No of products purchased by the customer
- Delivery: Product delivery date.
- Late_delivery_risk: percentage of late delivery risk
- Category Id: product category ID
- Category: product category
- Customer City: Customer purchase city
- Customer Country: Customer purchase country
- Customer Email: Customer purchase Email
- Customer name: Customer First name.
- Customer ID: Customer order ID
- Customer name: Customer's last name
- Customer Segment: Types of Customer
- Customer State: Customer order state
- Customer Street: Customer address
- Customer Zipcode: Customer area code.
- Market: top 10 country Market
- Order City: Customer purchase city
- Order Country: Customer purchase country
- Order Customer ID: Customer
- order date (DateOrders): Customer order date
- Order Item Product Price: product price
- Order Item Profit Ratio: profit ratio
- Order Item Quantity: No of orders placed
- Sales: total no of sales
- Order Item Total: total price of the order placed
- Order Profit Per: product
- Order Region: order placed region
- Order State: order placed State
- Order Status: order delivery status

- Order Zipcode: customer area code
- Product Card ID: product number
- Product Category Id: a product whose category belongs to
- Product: what product
- Product Image: image of the product
- Product Price: Price of the product.

4.Data Preparation.

4.1 Prepare The Data For Visualization.

Preparing the data for visualisation involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualised, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualisation software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualisations to gain insights into performance and efficiency. Since the data is already cleaned, we can move to visualisation.

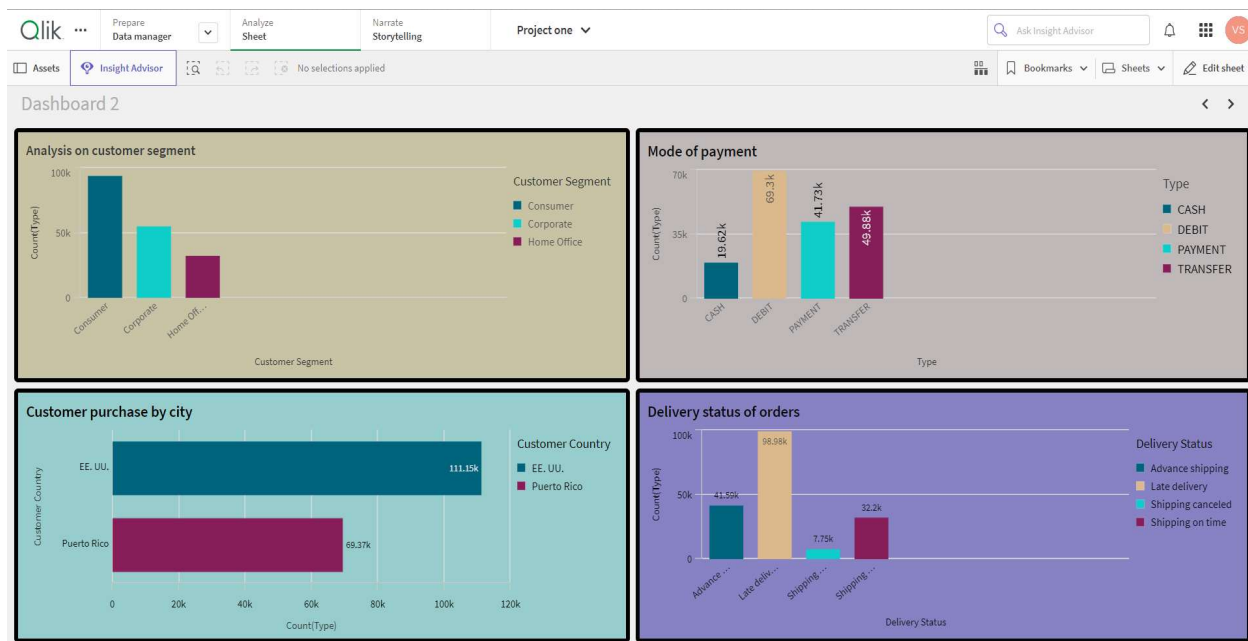
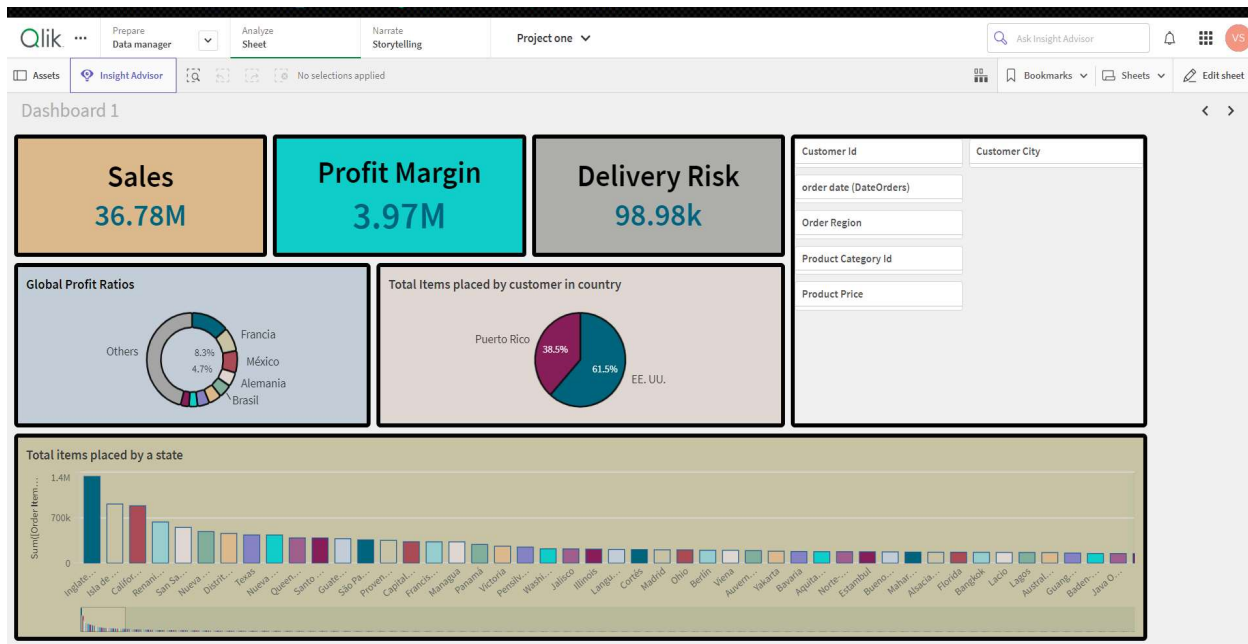
5.Data Visualization.

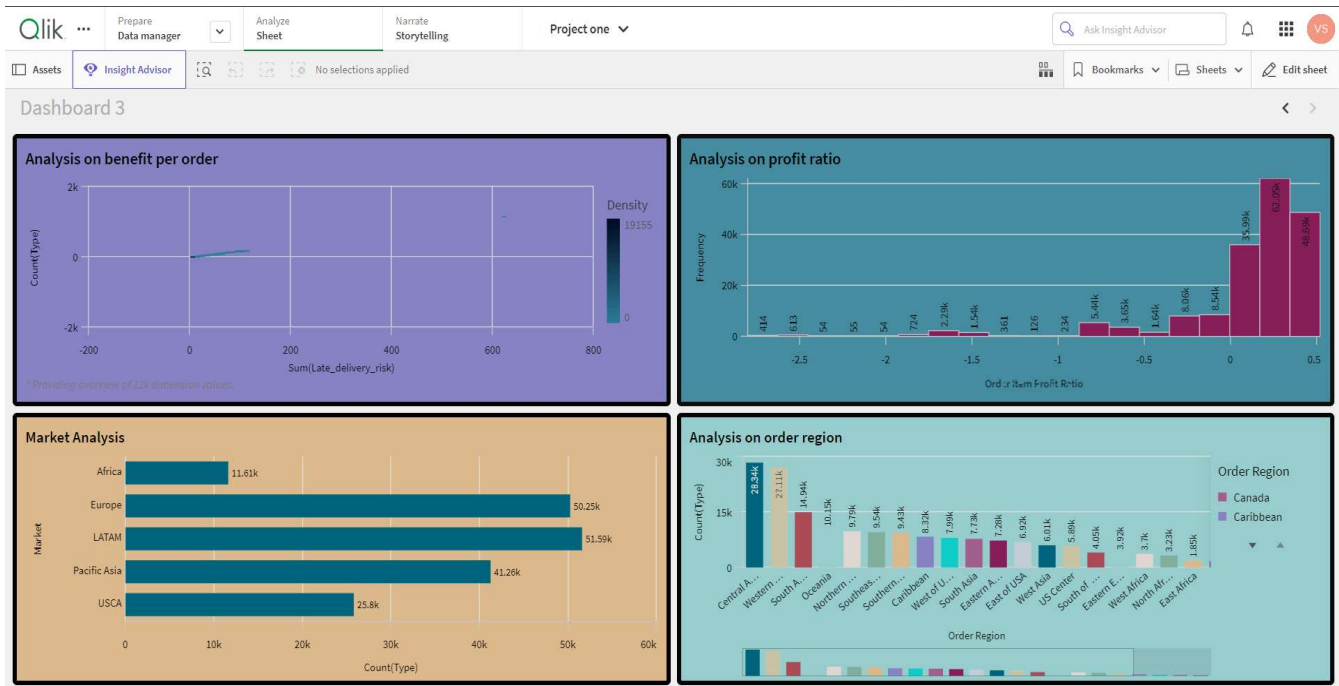
5.1 No. Of Unique Visualisations.

The number of unique visualisations that can be created with a given dataset. Some Common Types of visualisations that can be used to analyse the performance and efficiency of banks include bar charts, line charts, heat maps, scatter plots, pie charts, JMaps etc. These visualisations can be used to compare performance, track changes over time, show distribution, and relationships between variables, breakdown of revenue and customer demographics, workload, resource allocation and location of banks.

6. Dashboard.

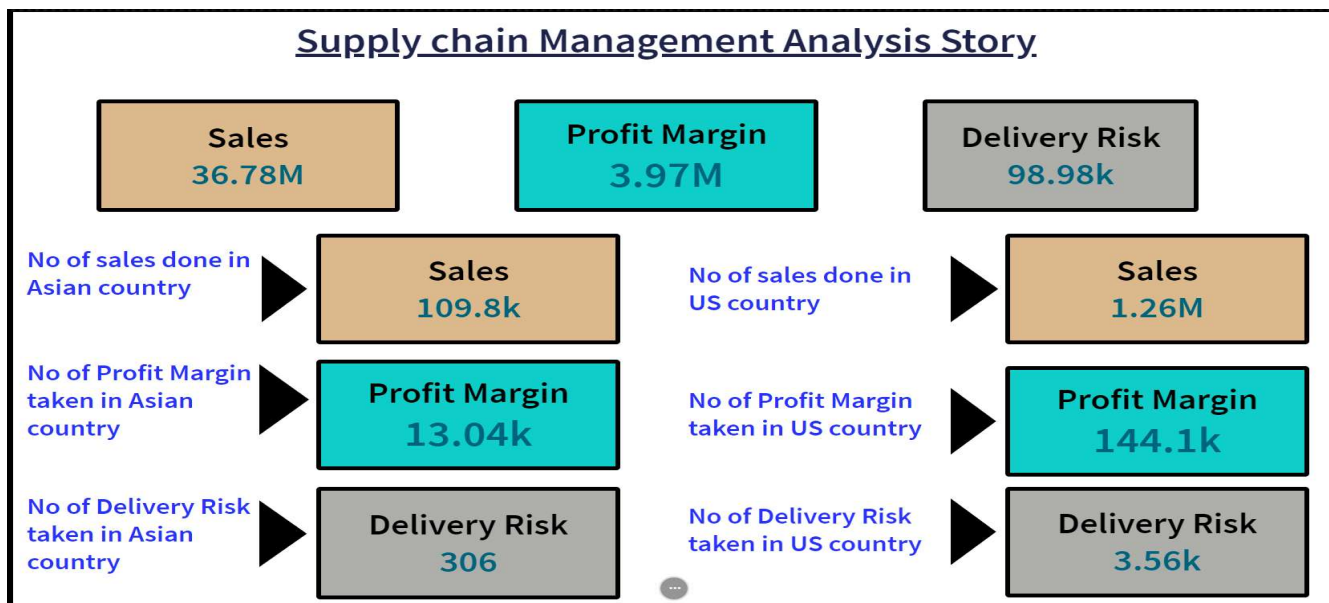
6.1 Responsive And Design Of Dashboard.

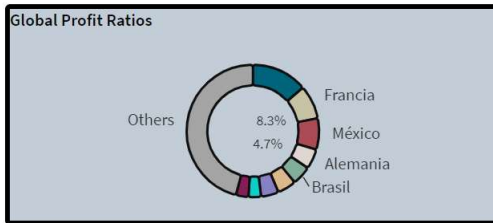




7. Story.

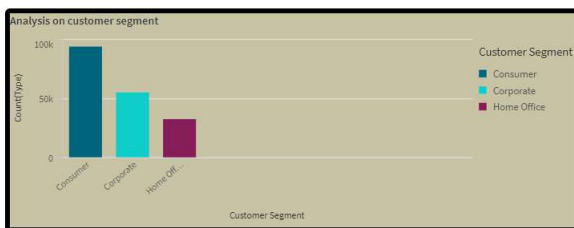
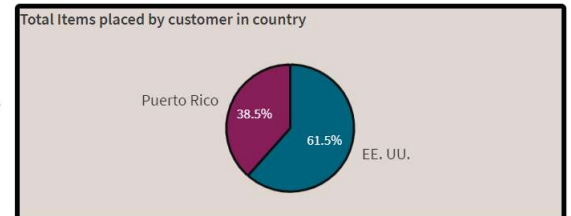
7.1 Design Of Story





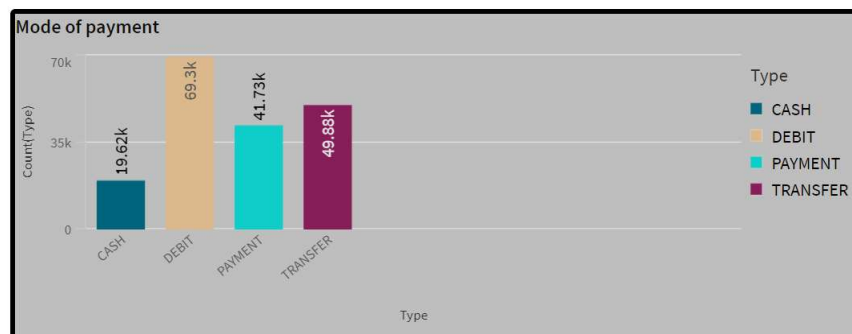
Top 10 countries with highest profit ratio in supply chain management

Total items placed by customer in country's



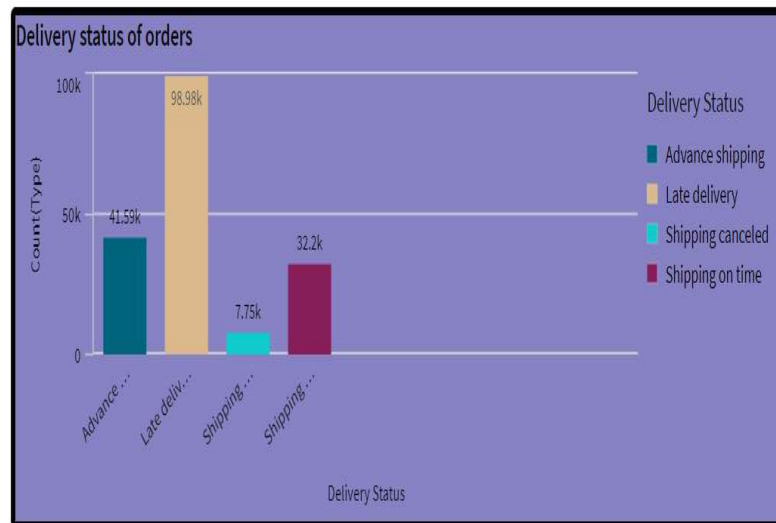
Analysis customer segments, encompassing consumer, corporate and home categories.

Mode of payment for purchase.



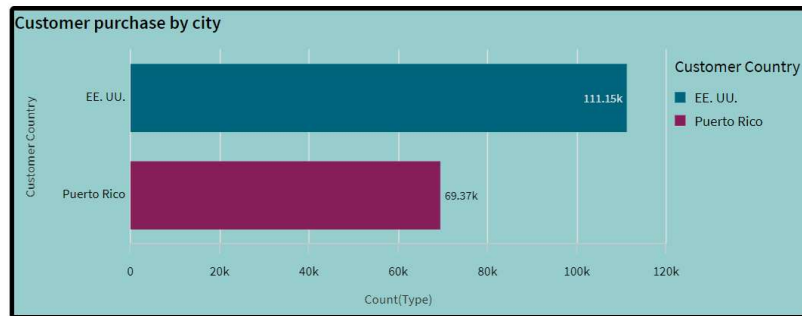
- ✓ Cash transactions offer immediate liquidity, providing a straightforward and tangible method of payment.
- ✓ Debit payments, directly linked to bank accounts, offer convenience and real-time deduction of funds.
- ✓ Credit payments provide a deferred payment option, allowing customers to make purchases.
- ✓ Transfer payments leverage electronic methods for seamless and secure fund.

Delivery status of orders.



- ✓ Analyzing the delivery status of orders, including Advanced Shipping, Late Shipping, Shipping Canceled, and Shipping on Time.
- ✓ This allows businesses to evaluate the efficiency of their logistics operations, address potential delays, and enhance customer satisfaction.
- ✓ Ensuring timely and reliable deliveries based on varied shipping scenarios.

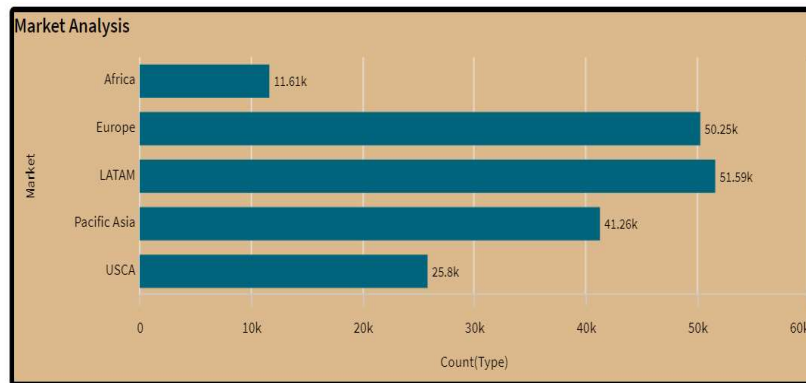
Customer purchase item by City.



- ✓ Customer purchase count in Puerto Rico reflects the transactional dynamics in this vibrant location, capturing the local consumer behavior and market engagement.
- ✓ Customer purchase count in the United States provides a comprehensive overview of buying patterns across diverse cities.



Global Market Analysis



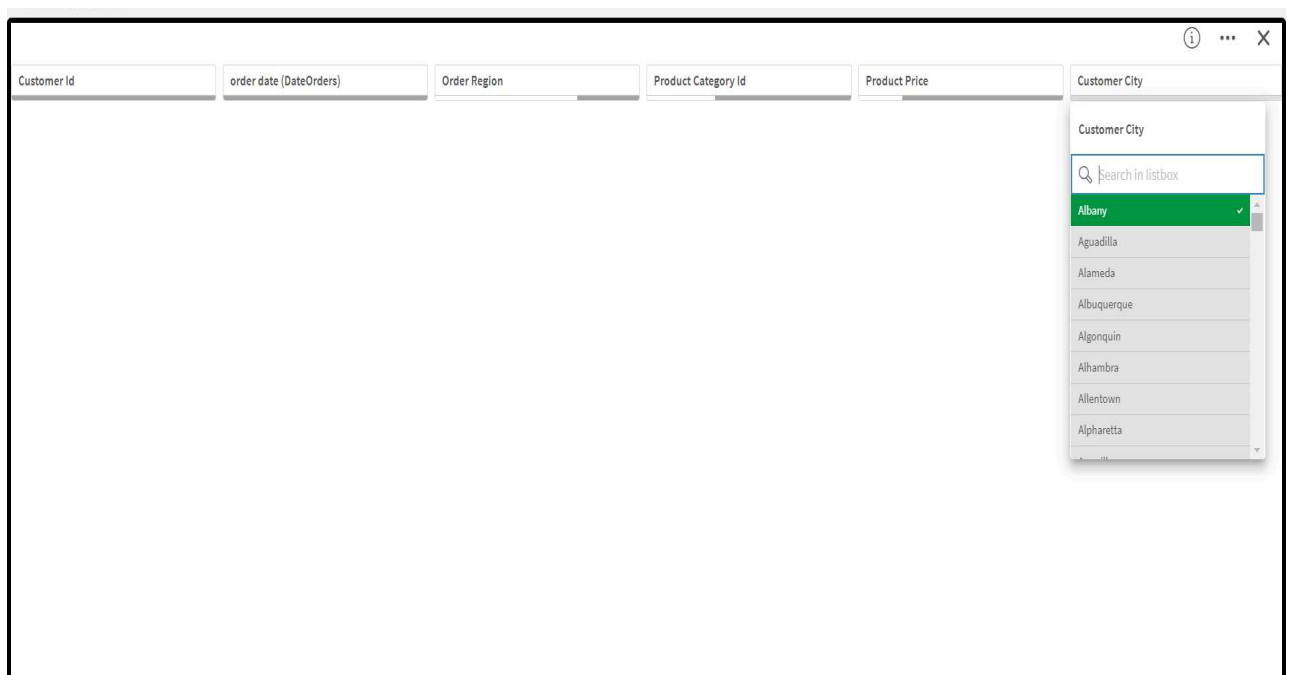
- ✓ Conducting a market analysis across Africa, Europe, LATAM (Latin America), Pacific Asia, and USCA (United States and Canada) enables businesses to gain strategic insights.
- ✓ Regional economic landscapes, consumer behaviors, and market dynamics.
- ✓ This comprehensive assessment supports informed decision-making, tailored marketing strategies, and targeted expansion efforts to capitalize on diverse opportunities within each distinct market.



8. Performance Testing.

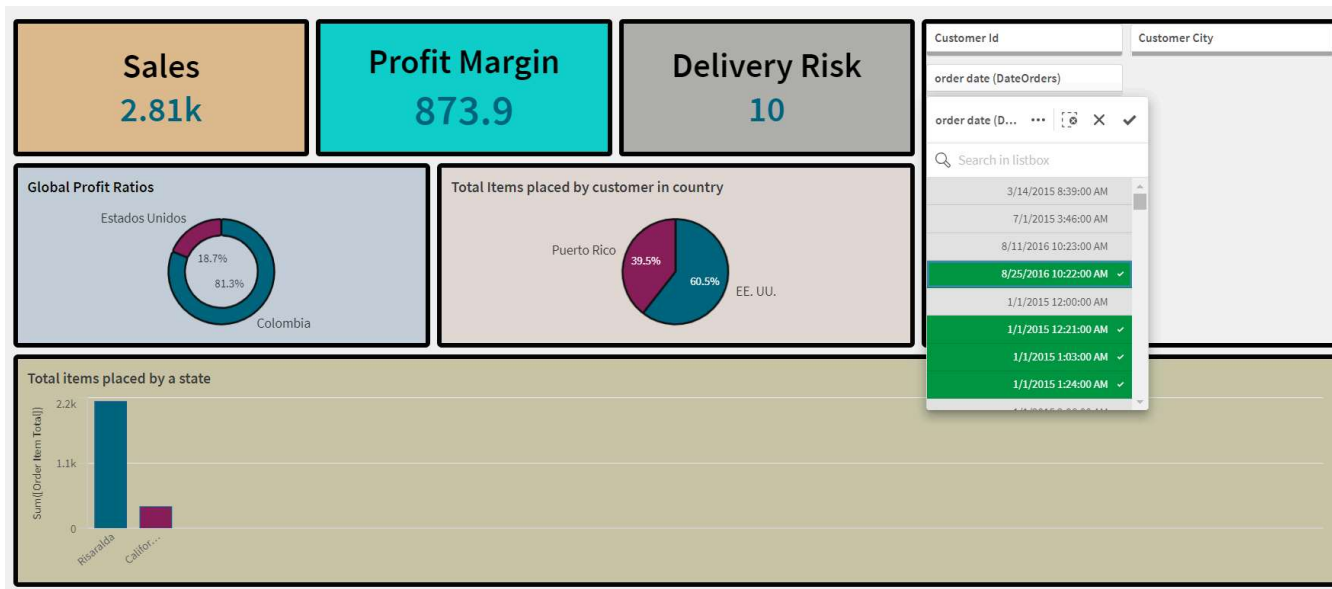
8.1 Amount Of Data Loaded.

"Amount of Data Loaded" refers to the quantity or volume of data that has been imported, retrieved, or loaded into a system, software application, database, or any other data storage or processing environment. It's a measure of how much data has been successfully processed and made available for analysis, manipulation, or use within the system.



8.2 Utilisation Of Data Filters.

"Utilisation of Filters" refers to the application or use of filters within a system, software application, or data processing pipeline to selectively extract, manipulate, or analyse data based on specified criteria or conditions. Filters are used to narrow down the scope of data, focusing only on the relevant information that meets certain predefined criteria.



8.3 No Of Visualisations / Graphs.

- Global Profit Ratios
- Total Items placed by customer in country
- Total Items placed by a state
- Analysis on customer segment
- Mode of payment
- Customer purchase by city
- Delivery status of orders
- Analysis on benefit per order
- Analysis on profit ratio
- Market Analysis
- Analysis on order region.