# Data-Driven Innovations In Supply Chain Management With Qlik Insights

## INTRODUCTION

### **1.1** Overview

This project aims to revolutionize how we manage supply chains using data and advanced analytics. We're using a tool called Qlik to analyze data and create easy-to-understand visuals. By doing this, we can improve things like logistics, forecasting, and inventory management, making operations smoother and more efficient. We'll also be using real-time tracking to keep an eye on things as they happen, helping us make quick decisions to keep the supply chain running smoothly. Overall, this project is about using data to make supply chain management smarter and more responsive.

### **1.2** Purpose

The purpose of this project is to use data and advanced analytics to make supply chain management better. By analyzing information with tools like Qlik, we aim to improve how we handle logistics, forecasting, and inventory. This will help us run things more smoothly and make decisions faster. Ultimately, our goal is to use data to make the supply chain smarter and more efficient.

## DEFINE PROBLEM / PROBLEM UNDERSTANDING

### **2.1** Specify the business problem

This project aims to improve supply chain management using data-driven insights from Qlik Insights. By using advanced analytics, it plans to make logistics, forecasting, and inventory management more efficient and responsive.
This project seeks to change supply chain management by using Qlik's data insights. With advanced analytics, it aims to improve logistics, forecasting, and inventory management, making operations more efficient and responsive.

### **2.2** Business requirements

Bring together data from different supply chain sources into one place. Use Qlik's visualization tools to make clear and interactive dashboards that give stakeholders a complete view of the supply chain.

Use Qlik's analytics to study past logistics data, find patterns, and improve transportation routes. Set up real-time tracking and monitoring to see where goods are, reduce delivery times, and cut transportation costs.

Use real-time analytics to make quick decisions when unexpected events or changes in demand happen, ensuring the supply chain stays proactive and responsive.

**2.3** Literature survey

A review of research on improving supply chain management with data-driven insights and advanced analytics shows growing interest in this area. Studies highlight the important role of data analytics in changing traditional supply chain processes. Research points out how advanced analytics tools, like Qlik, can improve visibility and decision-making in supply chains. These tools help optimize logistics, improve forecasting accuracy, and make inventory management more efficient.

The literature looks at various techniques and technologies for data-driven supply chain transformations. Successful examples show significant improvements in efficiency and responsiveness across different industries.

The research also discusses the challenges and opportunities of using data-driven insights in supply chains. It emphasizes the need for strong data management practices and a culture that values data to fully benefit from these advancements.

## DATA COLLECTION

**3.1** Collect the dataset

Data collection is like gathering and measuring information in a careful and organized way. It's about collecting data on things we're interested in so we can answer questions, test ideas, see what happens, and learn from the information we gather.

We use datasets from Kaggle.

**3.2** Connect data with Qlik sense

To connect data with Qlik Sense, open the application and navigate to the data load editor. From there, add your data or connect to a source like Excel or a database. Once connected, map your data fields to ensure they align correctly. After mapping, load the data into your app. With your dataset successfully loaded, you can now analyze and visualize your data within Qlik Sense, using its various tools and features to gain insights and make informed decisions.

## DATA PREPARATION

**4.1** Prepare the data for Visualization
Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete.

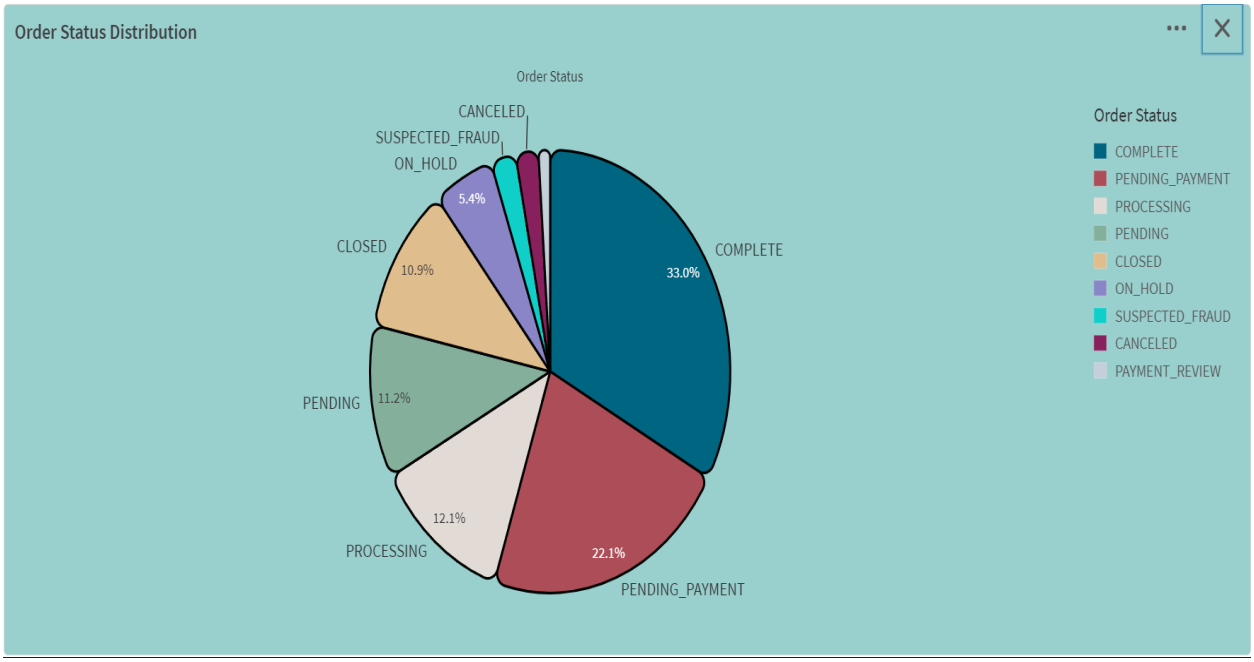
This process helps to make the data easily understandable and ready for creating visualizations to gain insights into performance and efficiency. Since the data is already cleaned, we can move to visualization.

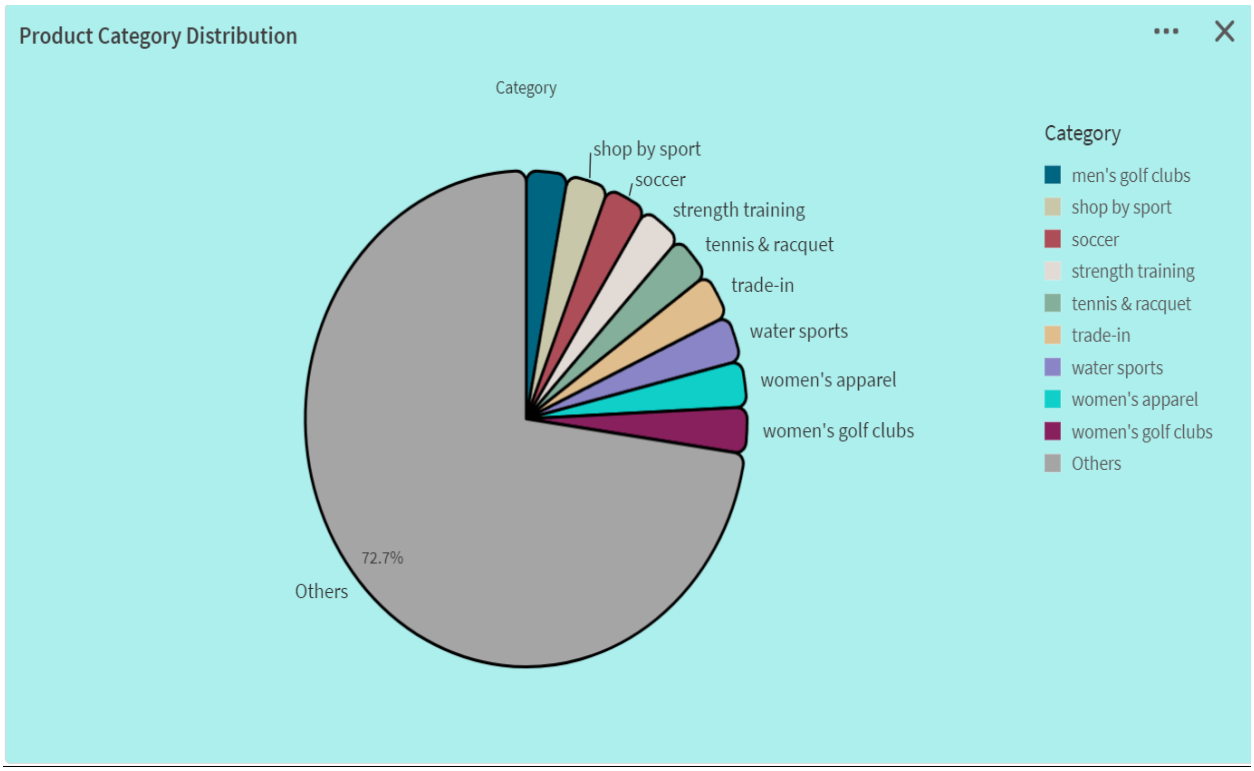
## DATA VISUALIZATIONS

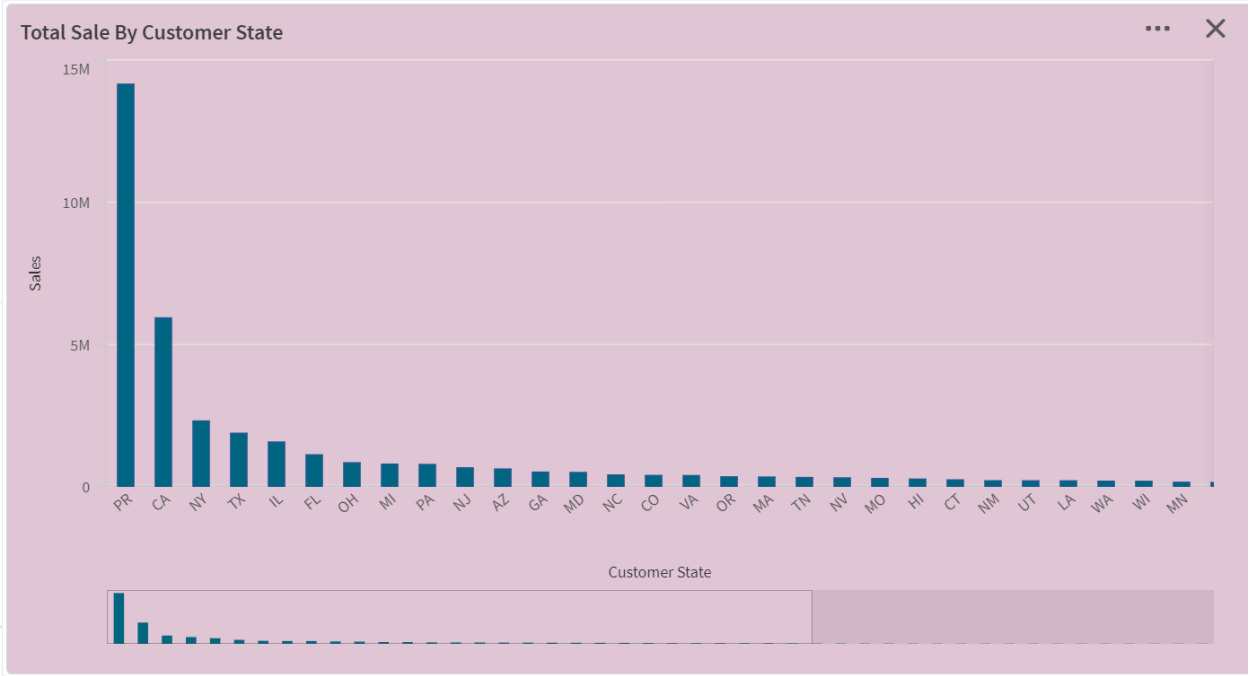
Data visualization means turning data into pictures to help people understand it better. The idea is to make complicated data easier to understand. We use things like charts, graphs, and maps to do this. There are different types of pictures we can make with data.

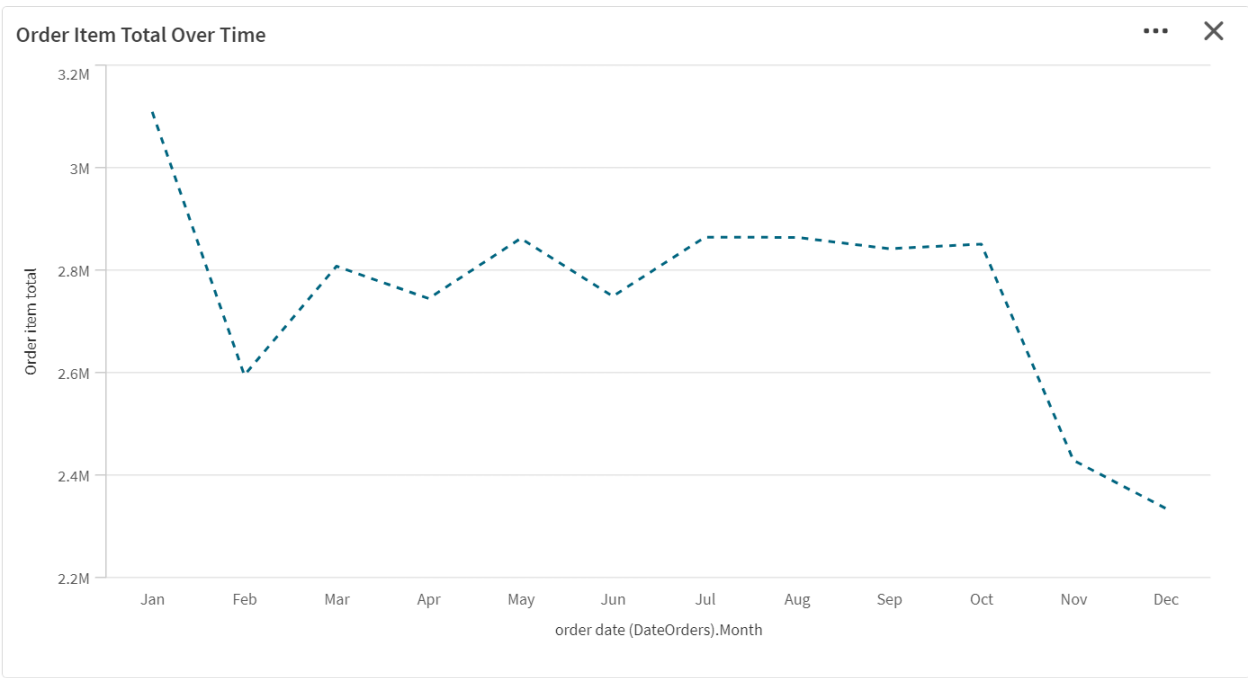
For example, we can use bar charts, line charts, heat maps, scatter plots, pie charts, and maps. These pictures can help us compare things, see how they change over time, show where things are more or less important, find connections between different things, and break down information into parts. In the case of banks, we can use these pictures to compare how well they're doing, track changes over time, show where they're located, and understand things like revenue, customer demographics, workload, and resource allocation.

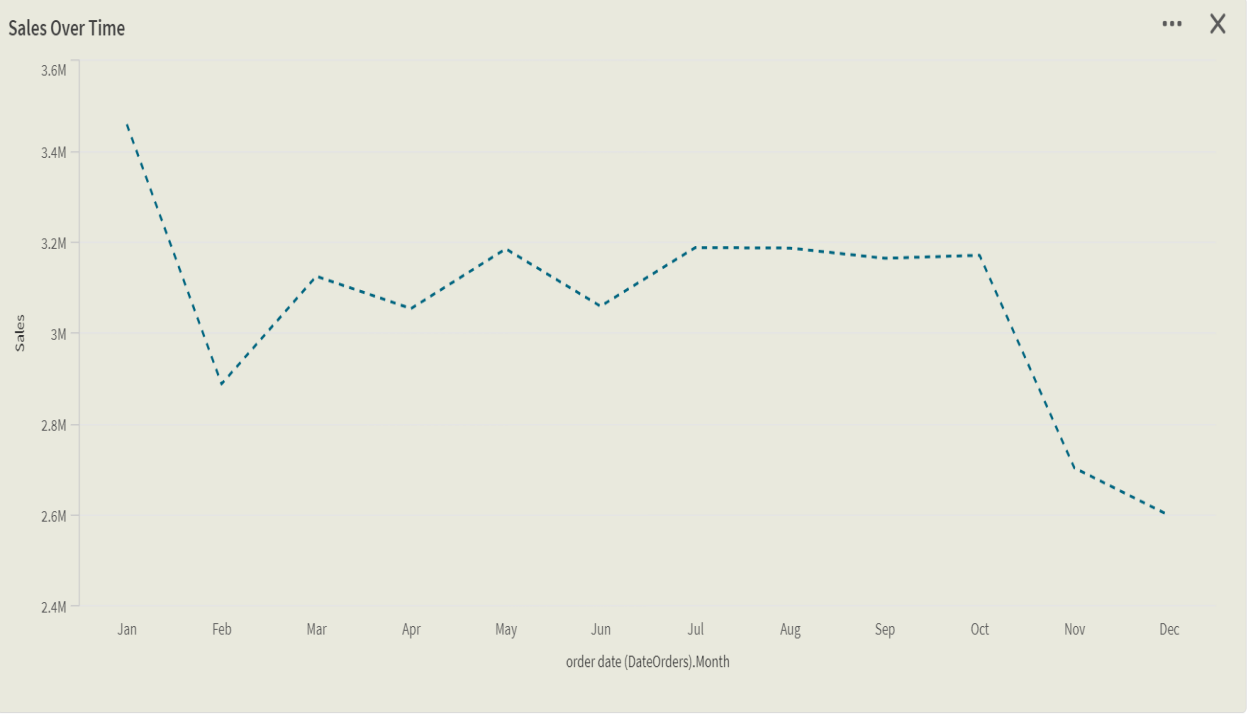
## **5.1** Visualizations




Total Sale By Customer State
15M
10M
5M
0
Sales
PR
CA
NY
TX
IL
FL
OH
MI
PA
NJ
AZ
GA
MD
NC
CO
VA
OR
MA
TN
NV
MO
HI
CT
NM
UT
LA
WA
WI
MN
Customer State


Order Item Total Over Time
3.2M
3M
2.8M
2.6M
2.4M
2.2M
Order item total
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
order date (DateOrders).Month


Sales Over Time
3.6M
3.4M
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Sales
Jan
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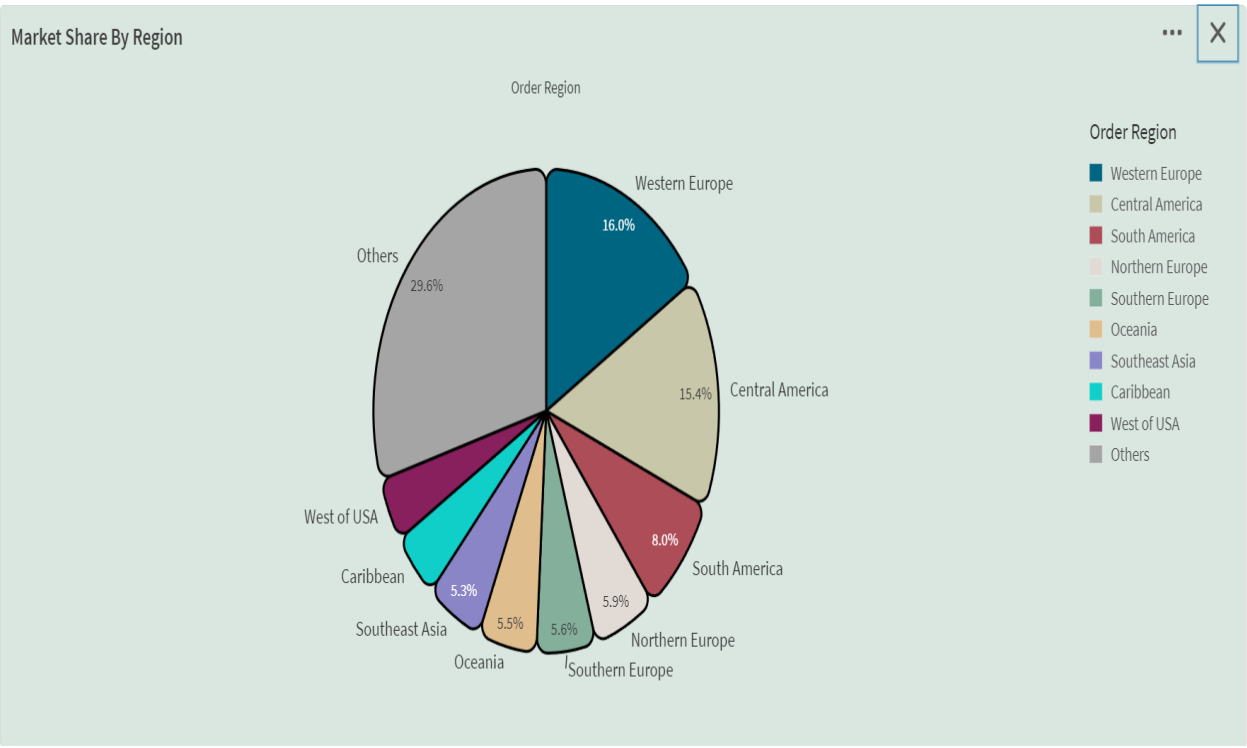
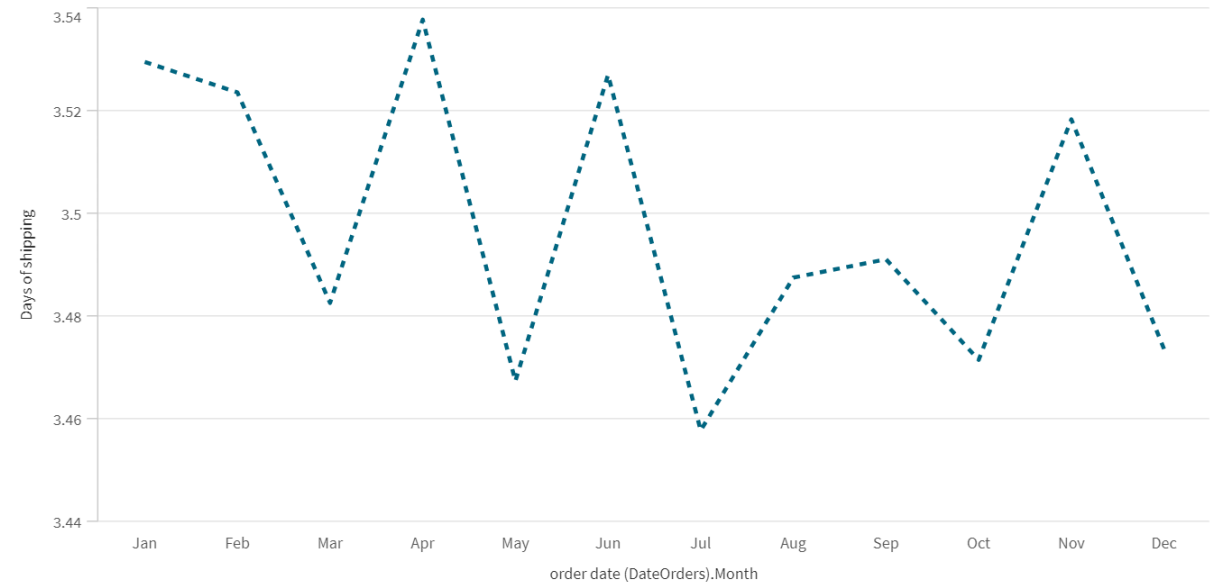
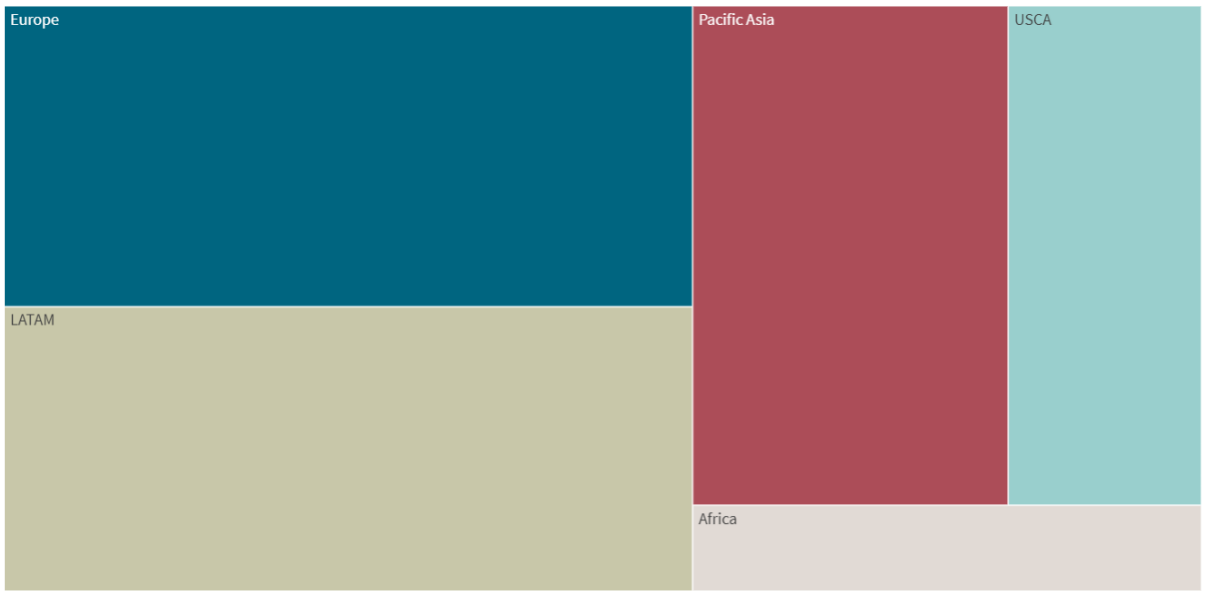
order date (DateOrders).Month


Market Share By Region
Order Region
Western Europe
16.0%
Central America
15.4%
South America
8.0%
Northern Europe
5.9%
Southern Europe
5.6%
Oceania
5.5%
Southeast Asia
5.3%
Caribbean
West of USA
Others
29.6%
Order Region
Western Europe
Central America
South America
Northern Europe
Southern Europe
Oceania
Southeast Asia
Caribbean
West of USA
Others

## Average Shipping Days Over Time



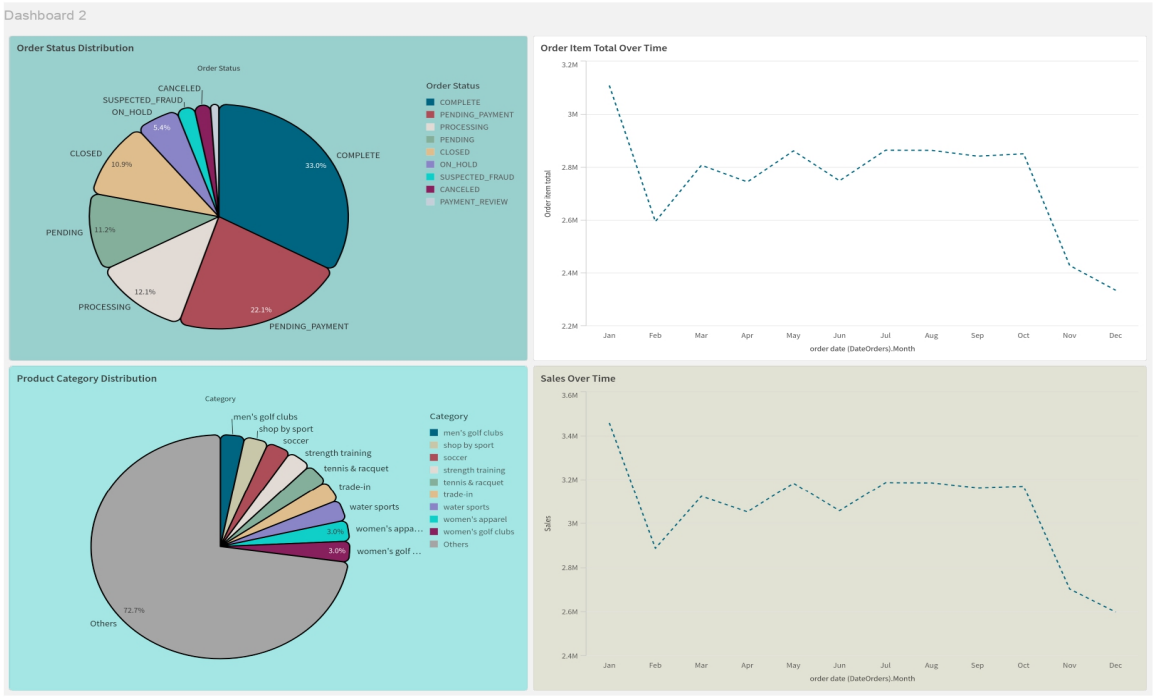

## Top Five Markets



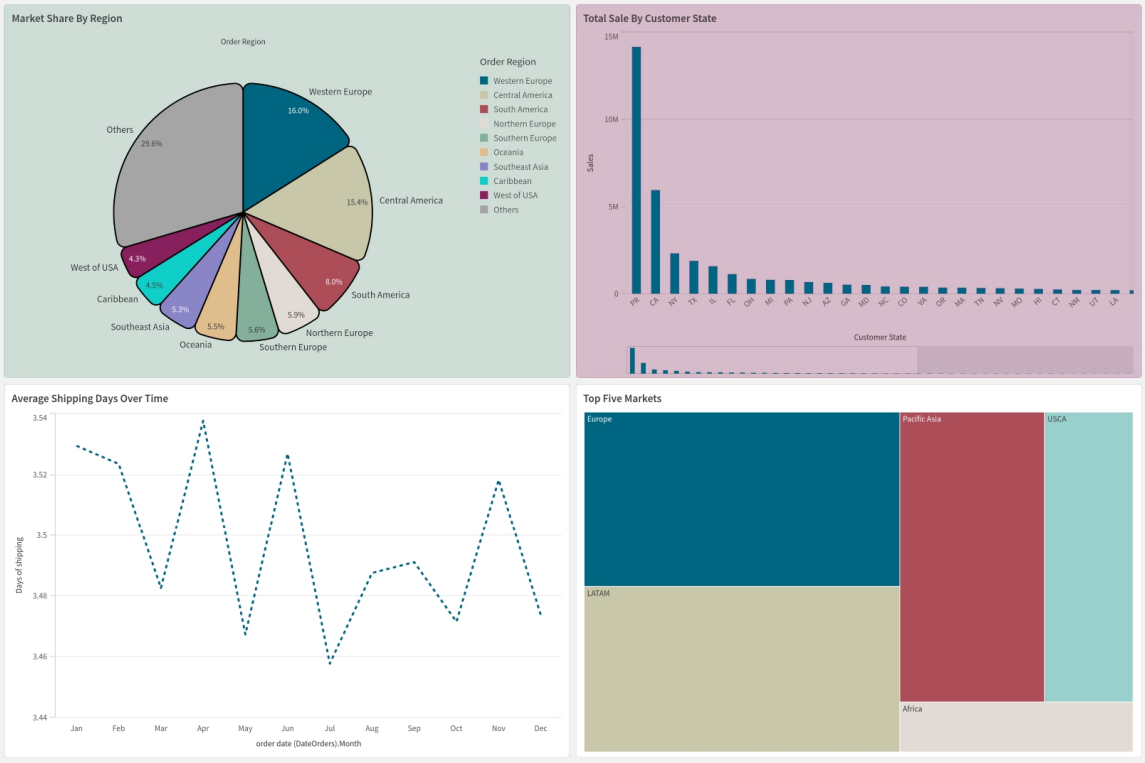
## DASHBOARD

A dashboard is like a computer screen that shows information in a clear and easy-to-read way. It's often used to keep an eye on things happening right now and to understand data quickly. Dashboards are made for different jobs or situations, like in businesses, finance, factories, or hospitals.
They can show important numbers or facts, like how well something is doing or if there are any problems. You'll see this information presented as pictures, like charts, graphs, or tables.

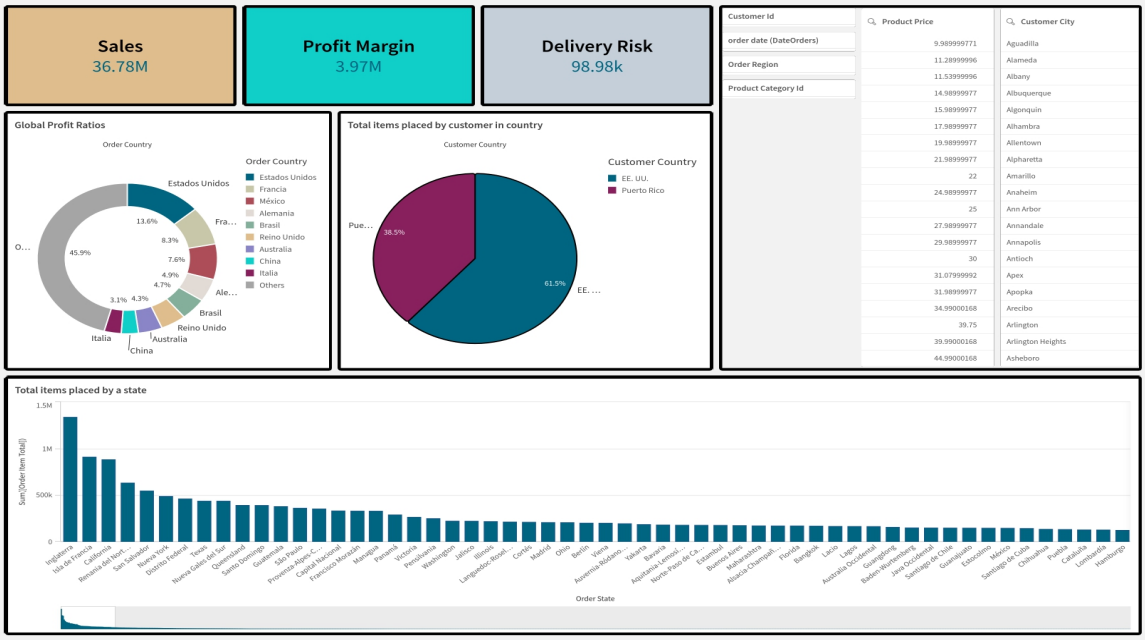
### **6.1** Responsive and Design of Dashboard



## Dashboard 3




## Dashboard 1



**REPORT**

## **7.1** Report Creation

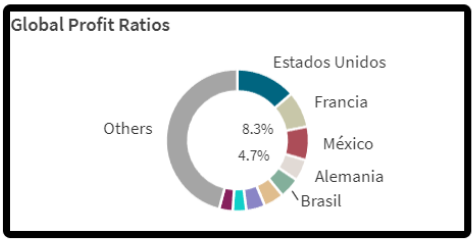
Dashboard 1:

- KIP chart for sales

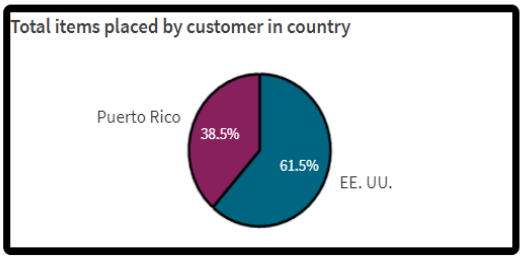

- KIP chart for Profit Margin


- KIP chart for delivery risk

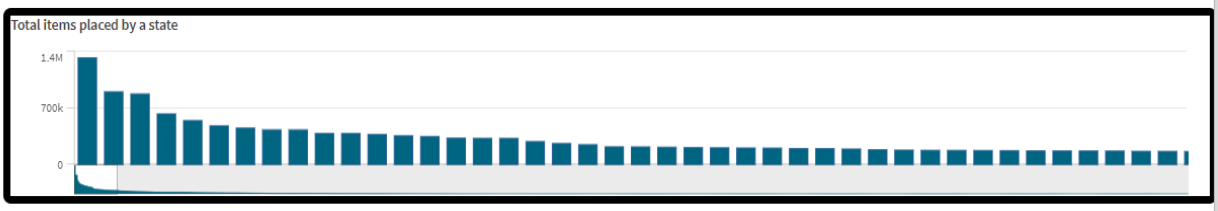

- PIE CHART for Global Profit Ratios




- PIE CHART for Total Item placed by customer in country

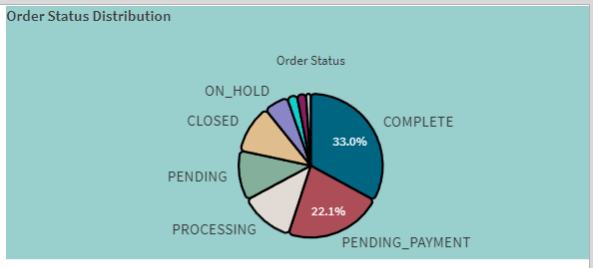



- BAR CHART for Total item placed by a state

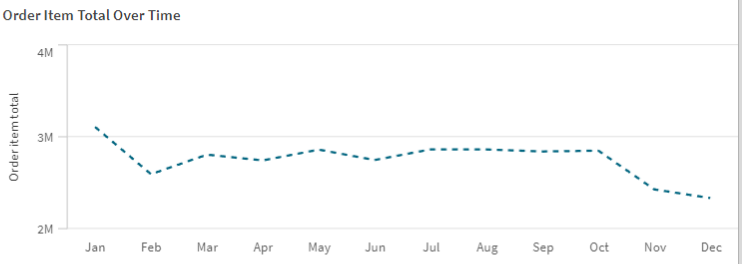


## Dashboard 2 and 3:

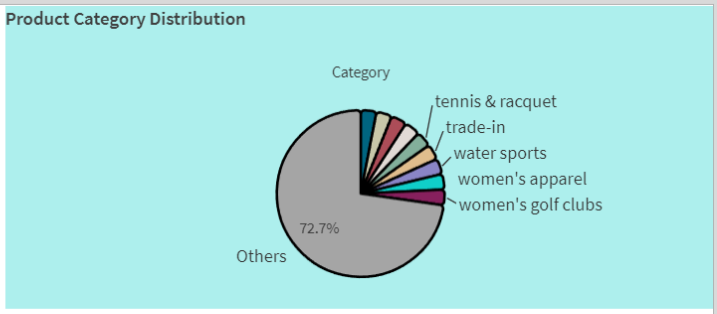
First, we have the 'Order Status Distribution' pie chart. This chart shows the percentage of orders in different statuses, such as Pending, Shipped, Delivered, and Cancelled. As you can see, the largest portion is for Delivered orders, indicating that most of our orders are successfully reaching customers



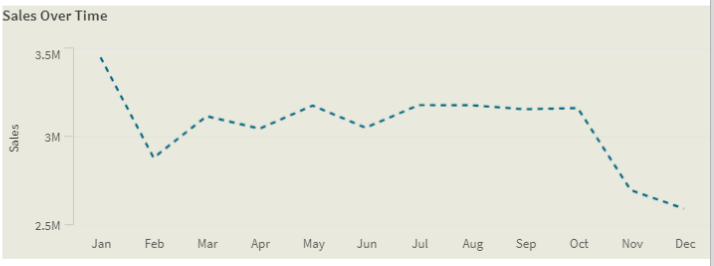

Here we have the 'Order Item Total Over Time' line chart. This chart shows the sum of order item totals over different time periods, such as months or years. It helps us understand the overall sales trend. We can see a steady increase in order totals, indicating growing sales.



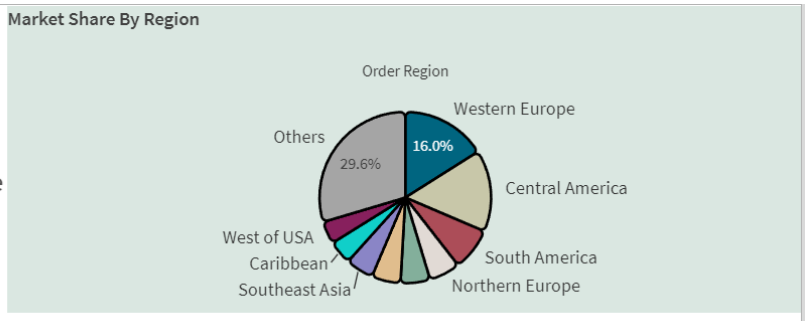

Next, we have the 'Product Category Distribution' pie chart. This chart represents the count of product IDs in different categories. It helps us understand which categories have the most products available. For example, the Electronics category has the highest number of products.



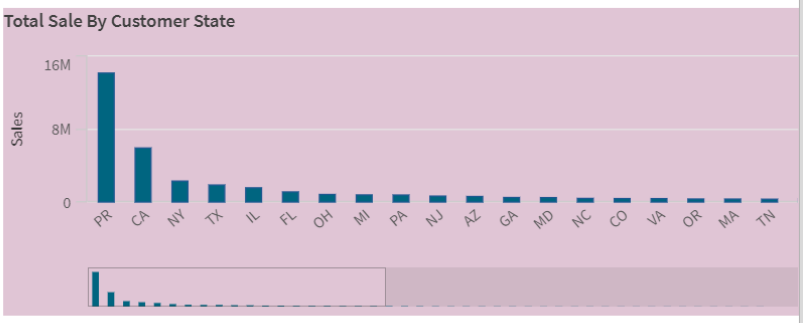

Next, we have the 'Sales Over Time' line chart. This chart visualizes the sum of sales across different months. It helps us track our sales performance over time. We can see seasonal trends and identify peak sales periods, such as the holiday season



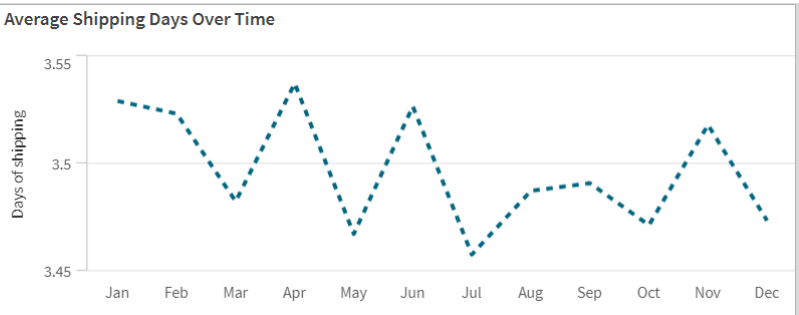
- Here is the 'Market Share by Region' pie chart. This chart displays the market share based on the sum of sales in different regions. It gives us a clear picture of which regions contribute the most to our sales. For instance, the North region has the highest market share



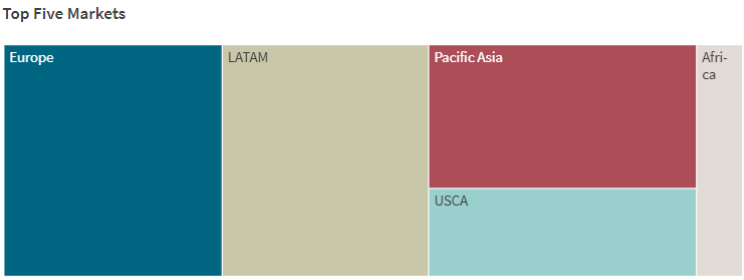

- Next is the 'Total Sales by Customer State' bar chart. This chart displays the total sales amount in each customer state. It helps us identify our top-performing states. For instance, Puerto Rico has the highest sales, followed by california




- Moving on, we have the 'Average Shipping Days Over Time' line chart. This chart shows the trend of average shipping days across different months. For example, we can see a decrease in shipping days in recent months, indicating improved logistics




- Finally, we have the Tree Map for market sales. This visualization displays the sales data across different markets in a hierarchical manner. Larger blocks represent higher sales, making it easy to identify top markets at a glance. For example, the block for the Europe and Latam market is the largest, indicating it's our top-performing market.



## PERFORMANCE TESTING

**8.1** Amount of data Rendered

"Amount of Data Loaded" means how much data has been brought into a system, software, or database. It's like measuring how many things you've put into a box or a container. This tells us how much data is ready to be looked at or used in the system.

**8.2** Utilization of data filters

"Utilization of Filters" means using filters in a system or software to pick out specific information from a bunch of data. It's like using a strainer to get just the noodles from a pot of soup. Filters help us focus on the important stuff by setting rules about what we want to see or work with.