Project Report

Data-Driven Innovations In Supply Chain Management With Qlik Insights

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1. Specify The Business Problem

This project aims to revolutionize supply chain management through data-driven insights using Qlik. Leveraging advanced analytics, it seeks to optimize logistics, forecasting, and inventory management, enhancing operational efficiency and responsiveness. This transformative project endeavors 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 revolutionize key facets such as logistics, forecasting, and inventory management, with the overarching goal of elevating operational efficiency and responsiveness to new heights.

2. Abstract

This project, titled "**Data-Driven Innovations In Supply Chain Management With Qlik Insights**," aims to revolutionize supply chain management through the strategic application of advanced data analytics. By leveraging Qlik's powerful visualization and analytical tools, the project seeks to enhance logistics, forecasting, and inventory management, thereby improving overall operational efficiency and responsiveness. The core objectives include integrating and centralizing data from diverse sources, creating intuitive dashboards for real-time insights, optimizing transportation routes, and implementing real-time tracking to reduce lead times and transportation costs. A comprehensive literature survey highlights the transformative potential of data-driven supply chain management, emphasizing its positive impacts on logistics optimization, forecasting accuracy, and inventory management efficiency. The project also explores the social and business impacts, demonstrating significant benefits in various sectors, including banking, telecommunications, and e-commerce. Additionally, the project discusses the scope and analysis of implementing such innovations and concludes with a holistic view of the potential improvements in supply chain practices through data-driven approaches. This endeavor underscores the necessity for robust data governance frameworks and a culture of data-driven decision-making to fully realize the benefits of advanced analytics in supply chain management.

3.Business Requirements

- **Data Integration:** Implement a robust data integration strategy to aggregate and centralize relevant data from diverse supply chain sources.
- **Visualization**: Utilize Qlik's advanced visualization capabilities to create intuitive and dynamic dashboards, providing stakeholders with clear insights into the entire supply chain ecosystem.
- **Analytics:** Leverage Qlik's advanced analytics features to analyze historical logistics data, identify patterns, and optimize transportation routes.
- **Real-Time Tracking:** Implement real-time tracking and monitoring solutions to enhance visibility into the movement of goods, reducing lead times and minimizing transportation costs.
- **Real-Time Decision Making:** 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.

4.Literature Survey

A literature survey on the project theme of revolutionizing supply chain management through data-driven insights and advanced analytics reveals a growing body of research and scholarly articles focused on similar endeavors. 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 emphasizes the positive impact on logistics optimization, forecasting accuracy, and inventory management efficiency. Moreover, it 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, the literature examines the challenges and opportunities associated with the adoption of data-driven insights in supply chain contexts. The literature emphasizes the need for organizations to develop robust data governance frameworks and cultivate a data-driven culture to fully unlock the potential benefits.

5.Social Or Business Impact:

Social Impact Analysis:

Create visualizations to showcase the demographic distribution of supply chain management.Analyze how Data-Driven Innovations in Supply Chain Management have impacted social welfare programs, financial inclusion, and other key areas.Explore any correlations between usage and improvements.

Business Impact Analysis:

Analyze how Data-Driven Innovations in Supply Chain Management have affected businesses, especially in sectors like banking, telecommunications, and e-commerce. Evaluate the impact of Data-Driven Innovations in Supply Chain Management on sales, customer onboarding, and operational efficiency.

6. Setup and Installation

Creating an Account and understanding Qlik Sense cloud

1. Creating an Account Qlik Sense cloud

1. Access the Qlik Sense website(https://www.qlik.com/us/try-buy/download-qlik-sense) and create a new account.
2. Open the Qlik Sense cloud to unlock file.

2. File Placement

1. Navigate to the directory
2. Paste the downloaded desktop unlock file in this directory.

3. Launching Qlik Sense cloud

1. Open the Qlik Sense cloud application.
2. App Creation and Data Upload

7.Create a New App and Upload Data:

1.Create a New App:

1. Click on the "Create App" button to start a new project.

2.Upload the Data File:

1. Go to Skill Wallet and download the project flow data set.
2. In Qlik Sense, upload this data set into the new app.Ensure the dataset is embedded correctly to use the first row as headers if it is not done automatically.

8. Data Preparation

1. Removing Duplicates and Null Values

Data Load Editor:

1. Go to the 'Prepare' tab and open the Data Load Editor.
2. Modify the default Qlik script to handle duplicates and null values as per the requirements.

2. Sample Code

Data contains all the meta information regarding the columns described in the CSV files. Column descriptions of the dataset include:

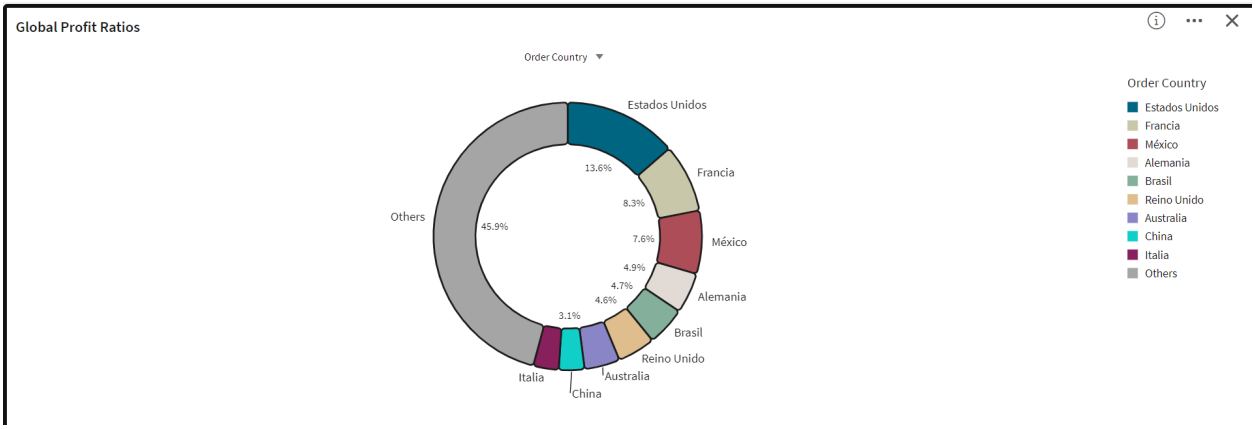
Type: Type Count

Days for shipping (real): Product shipment days
Days for shipment (scheduled): Product getting prepared for shipment
Benefit per item: Profit earned per product
Sales per customer: Number of products purchased by the customer
Delivery: Products 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 Fname: Customer first name
Customer ID: Customer order ID
Customer Lname: Customer 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 ID

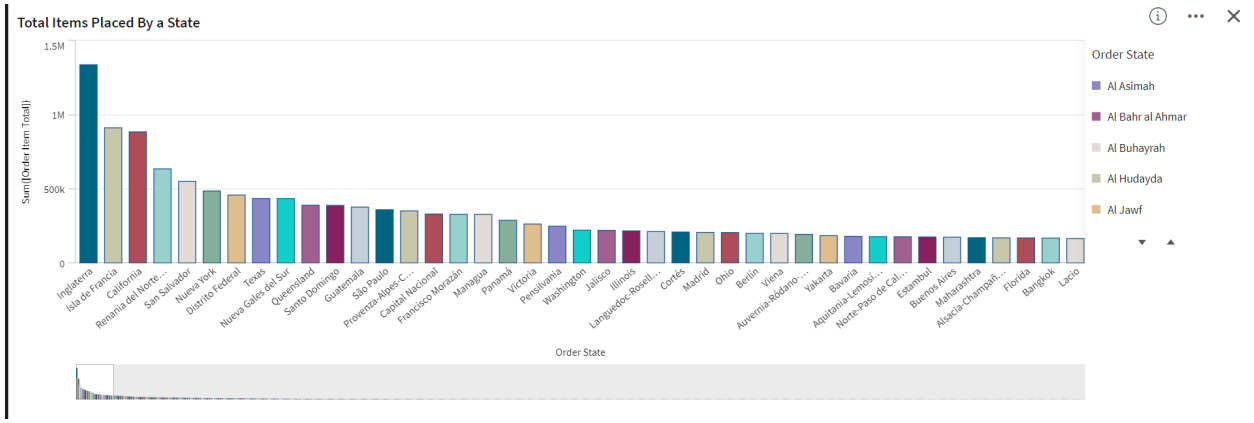
Order date (DateOrders): Customer order date
Order Item Product Price: Product price
Order Item Profit Ratio: Profit ratio
Order Item Quantity: Number of orders placed
Sales: Total number of sales
Order Item Total: Total price of the order placed
Order Profit Per: Product
Order Region: Order placed region
Order State: Order placed state
Order Status: Order delivery status
Order Zipcode: Customer area code
Product Card ID: Product number
Product Category Id: Product category ID
Product: Product name
Product Image: Image of the product
Product Price: Price of the product

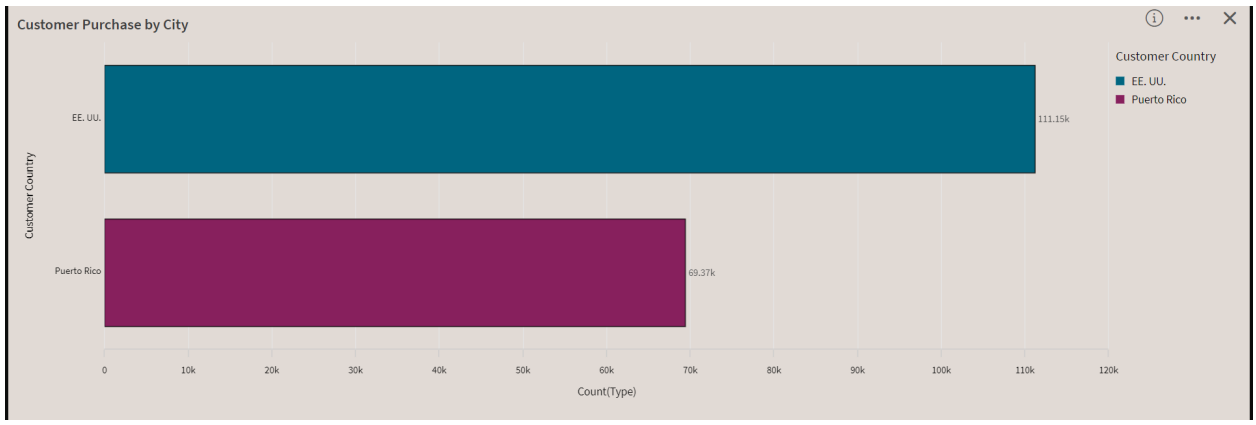
9. Visualization Creation

Pie Chart

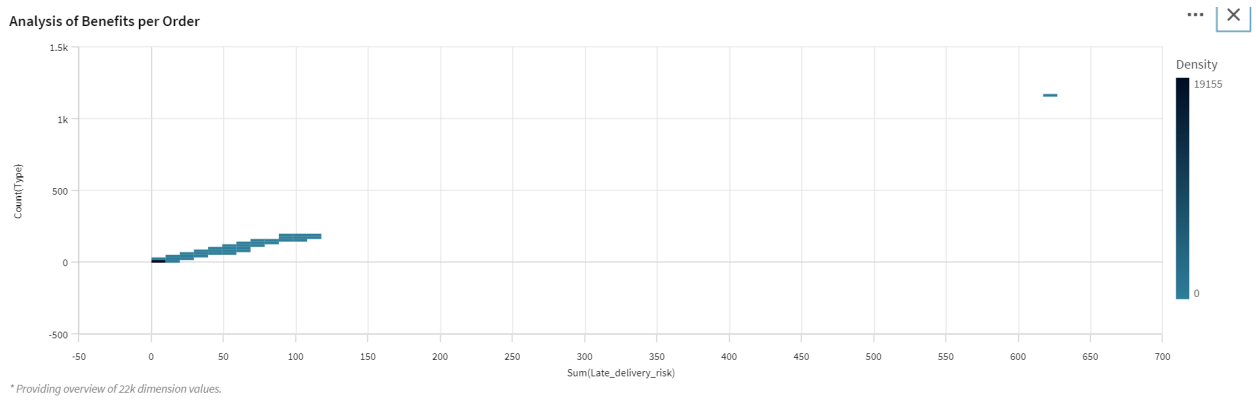


Bar Graph



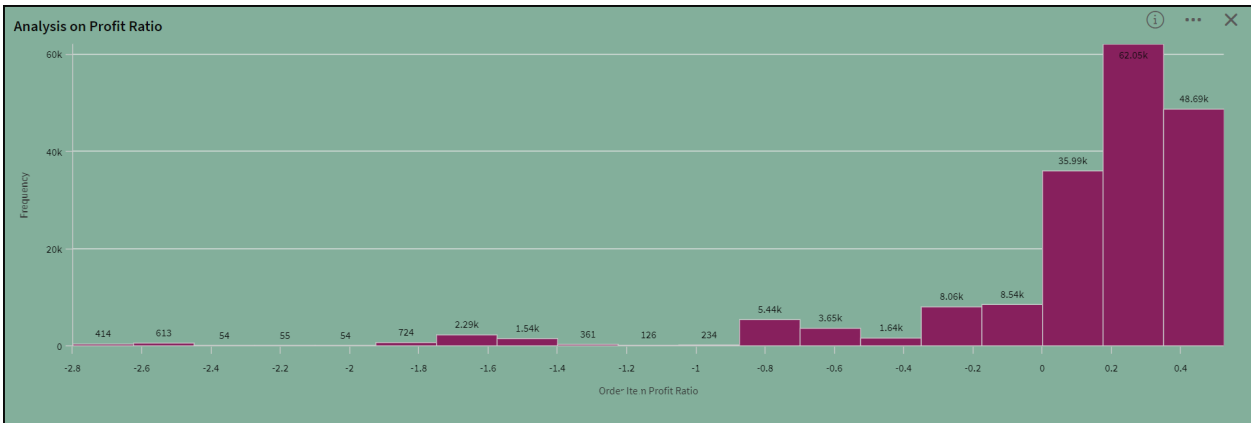


Scatter Plot



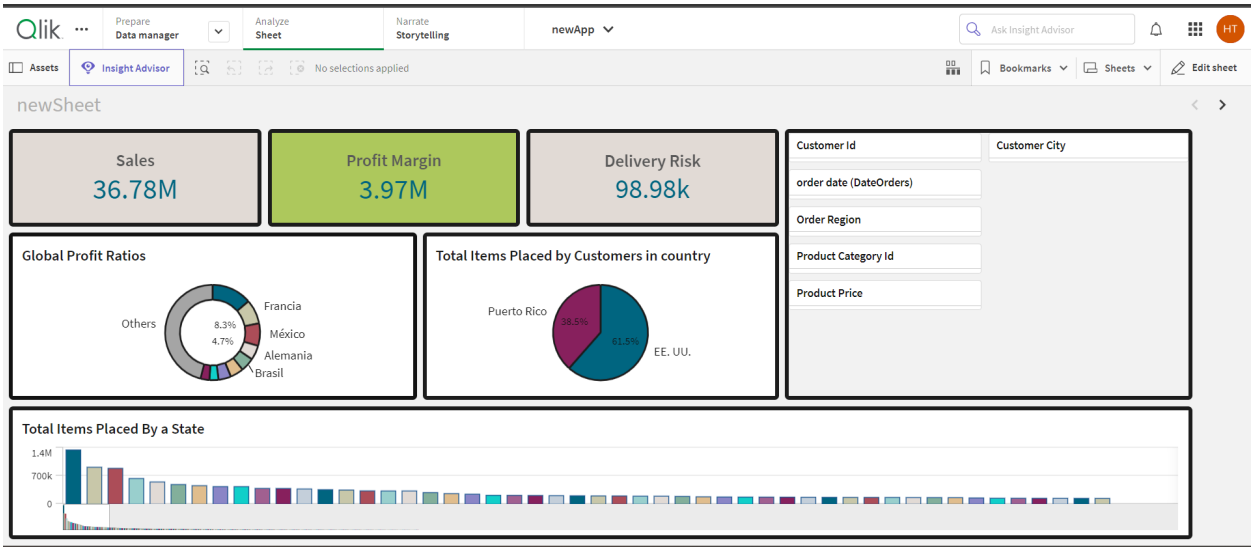
** Providing overview of 22k dimension values.*

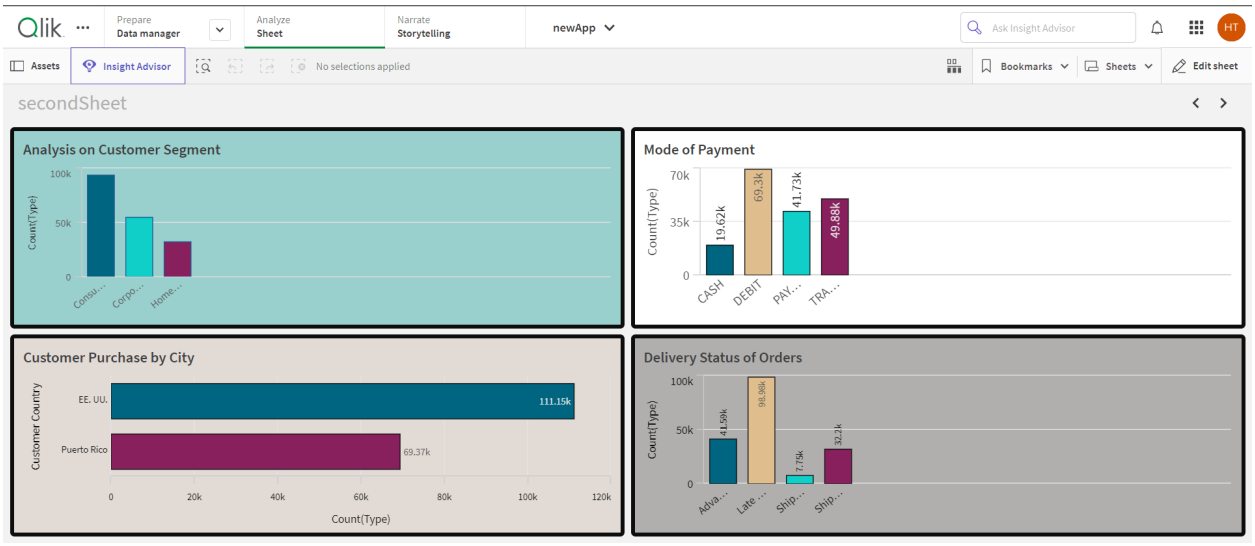
Histogram

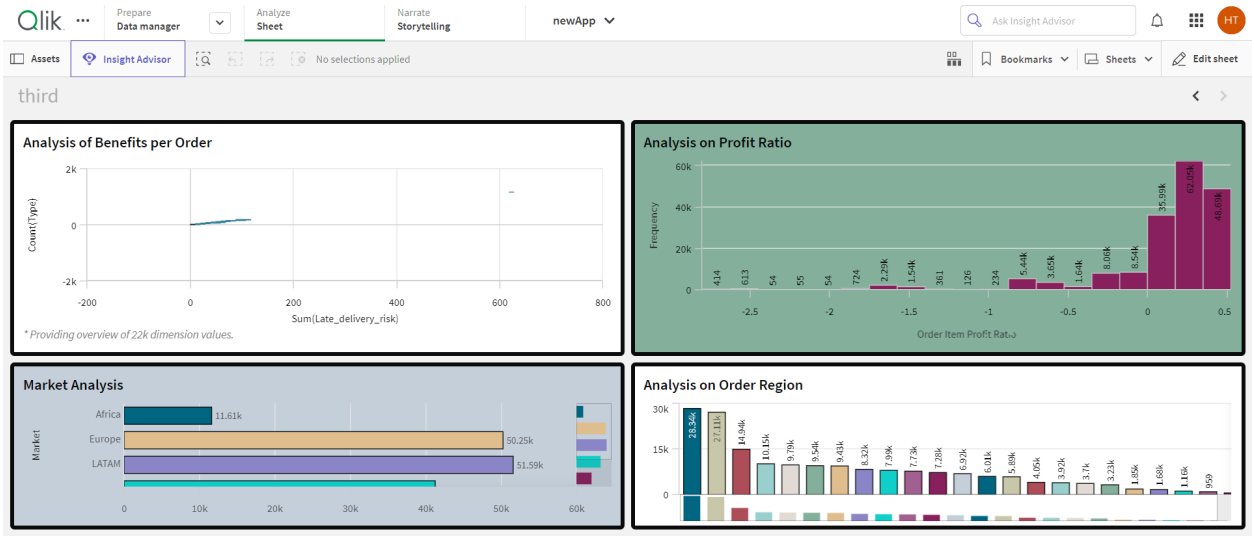


10. Dashboard and Storytelling

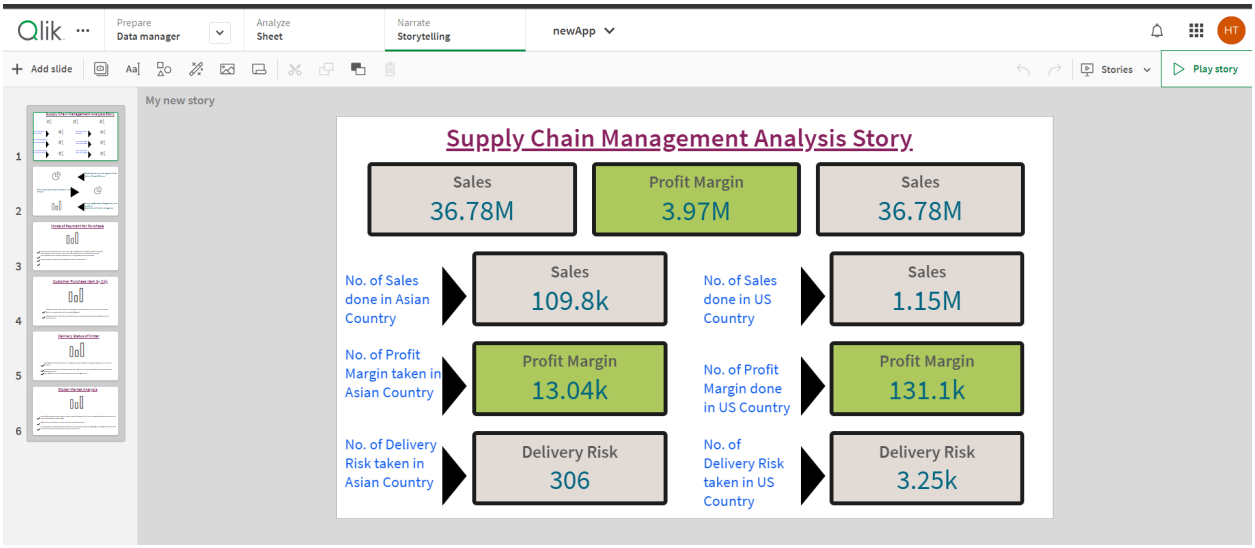
Dashboard

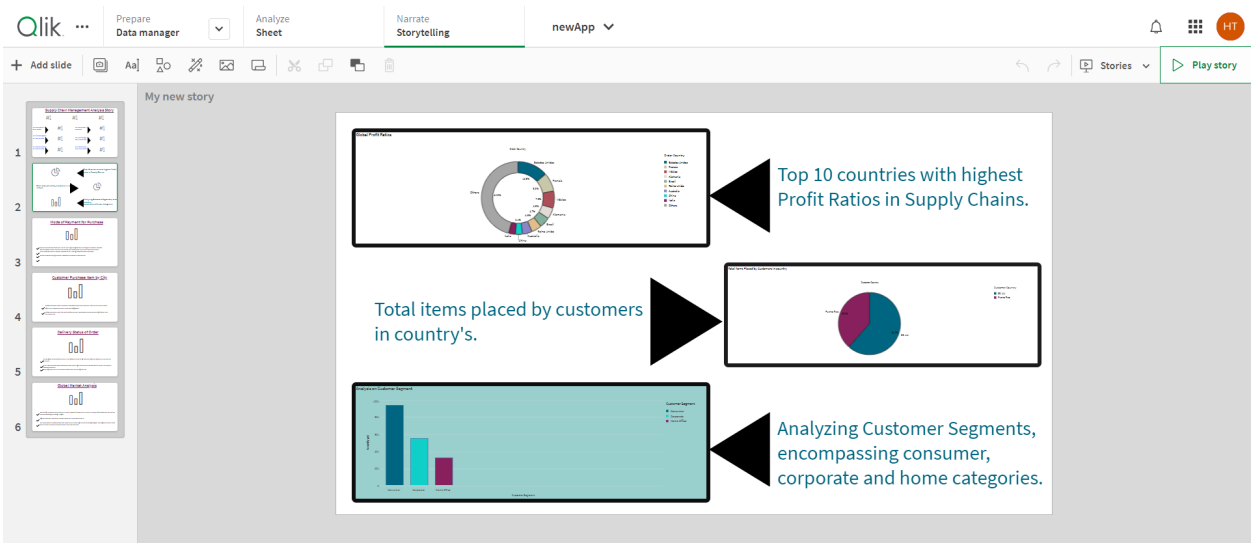


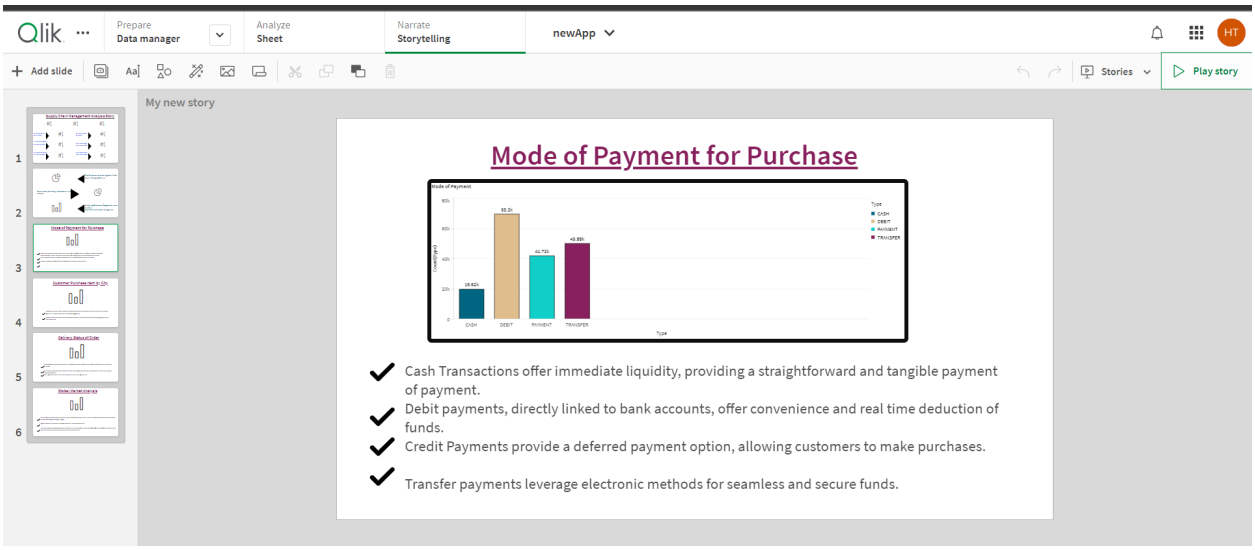


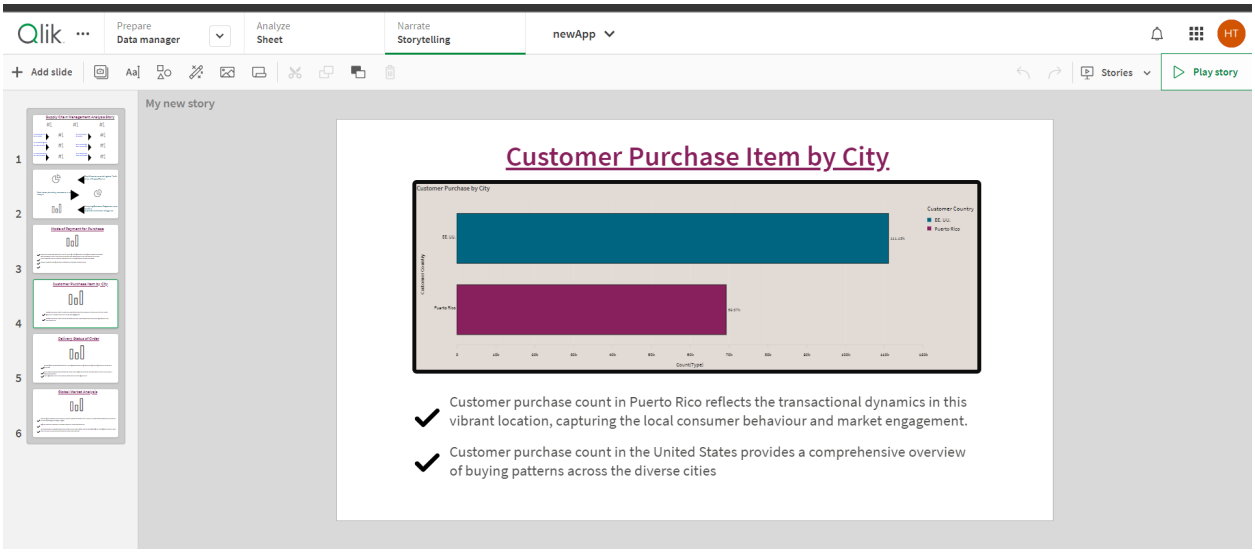


Storytelling






Prepare
Data manager
Analyze
Sheet
Narrate
Storytelling
newApp
Add slide
Stories
Play story
My new story
Mode of Payment for Purchase
Cash Transactions offer immediate liquidity, providing a straightforward and tangible payment 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 funds.


Prepare
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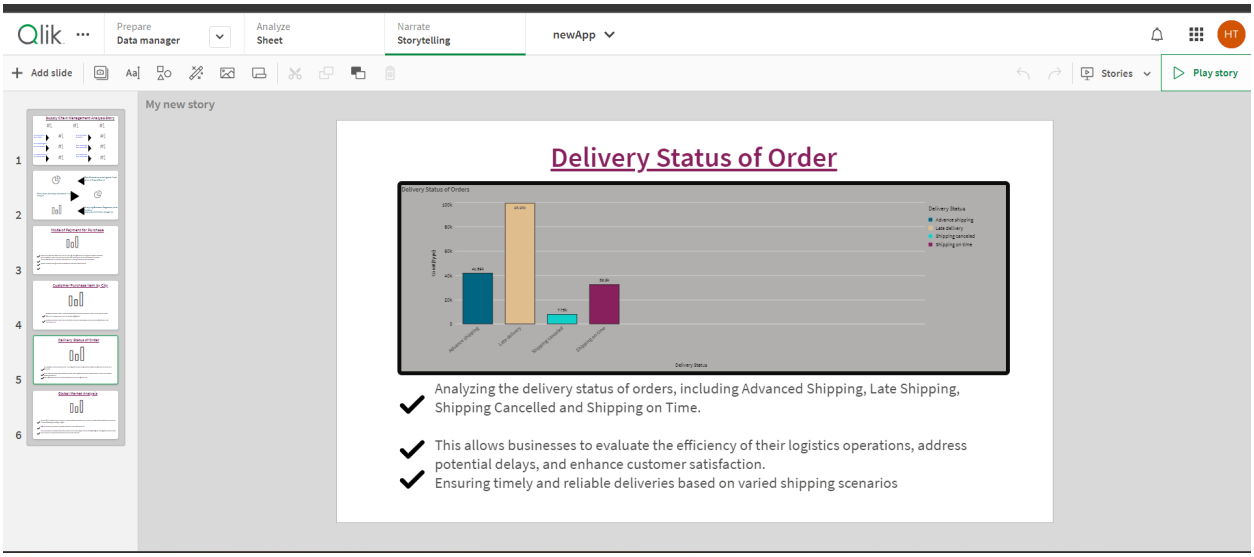
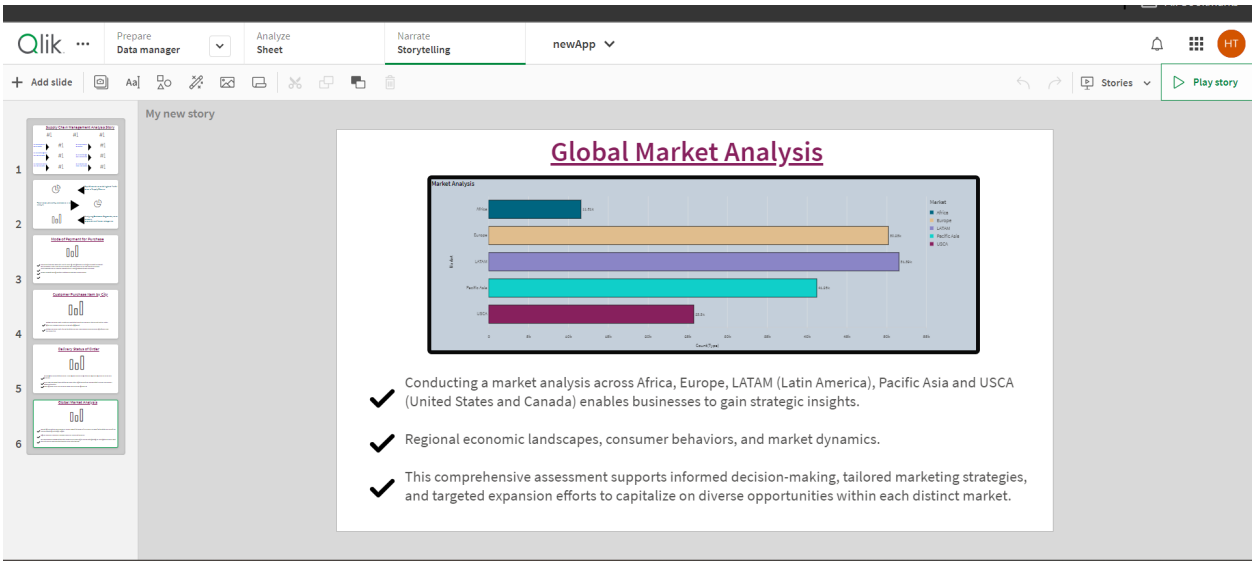
newApp
Add slide
Stories
Play story
My new story
Customer Purchase Item by City
Customer purchase count in Puerto Rico reflects the transactional dynamics in this vibrant location, capturing the local consumer behaviour and market engagement.
Customer purchase count in the United States provides a comprehensive overview of buying patterns across the diverse cities


Prepare
Data manager
Analyze
Sheet
Narrate
Storytelling
newApp
Add slide
Stories
Play story
My new story
Delivery Status of Order
Analyzing the delivery status of orders, including Advanced Shipping, Late Shipping, Shipping Cancelled 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



11.Project Analysis and Scope:

The project aims to provide a comprehensive solution for supply chain management using Qlik's advanced analytics and visualization capabilities. By integrating data from various sources and analyzing it in real time, businesses can gain valuable insights into their supply chain operations. The scope of the project includes logistics optimization, inventory management, forecasting, and real-time decision-making. The project also explores the potential social and business impacts, providing a holistic view of the benefits of data-driven supply chain management.

12.Conclusion:

The Data-Driven Innovations In Supply Chain Management With Qlik Insights project showcases the transformative potential of advanced analytics and data integration in optimizing supply chain operations. By leveraging Qlik's powerful tools, businesses can enhance their logistics, improve forecasting accuracy, and manage inventory more efficiently. The project not only aims to improve operational efficiency but also seeks to create a significant social and business impact. The findings and insights from this project can serve as a benchmark for other organizations looking to revolutionize their supply chain management practices through data-driven innovations.

Github Repository Link: https://github.com/HarshvardhanT/Qlik-Project