NORTHWIND TRADERS

Analysis Report

This report was created to fulfil Mini Project Data Analyst in the Data Science Learning Studio Bootcamp 2023

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Data Science Learning Studio DATA SCIENCE INDONESIA

Project Overview

Background
Northwind Traders is a company that focuses on trading various commodities such as food, beverages, clothing, etc. The board of directors of Northwind Traders wanted to know how their business performed from 1996 to 1998.

Business Goals
An analytics monitoring system is needed in the form of an interactive dashboard that can be used to take insights from the company's operational performance. The insights obtained will be used as a basis for decision making to improve business performance.

Use of Dashboard
The Dashboard can be directly used by the Sales & Marketing, Supply Chain and Logistics Departments as a means of business monitoring and reporting materials to the Board of Directors.

Outcomes

The dashboard consists of 3 pages which can be monitored directly by 3 related departments.

Sales Performance & Profit / Loss

The analysis presented aims to find out how the company's sales performance is and whether the company generates profits or losses.

Shipping Summary

Presents a summary of how the Logistics Department performs in handling goods shipments in collaboration with vendors.

Suppliers & Warehouse

Presents an analysis of how the performance of suppliers in supplying goods and how the condition of the stock of goods owned by the company.

Dashboard tool: Power BI

Dashboard Anatomy

The dashboard consist several tools and function so the user can be easily use it.

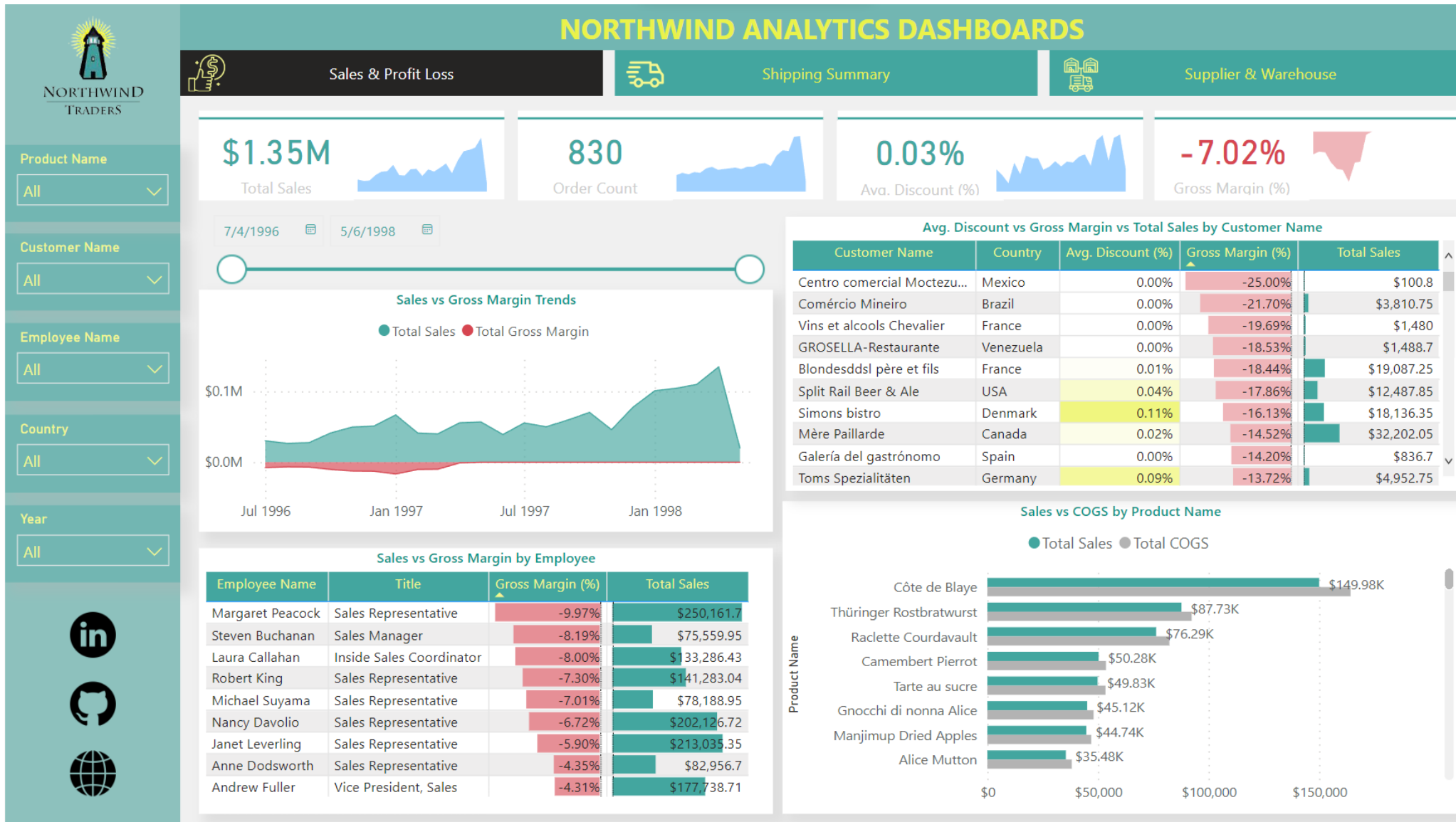| Features	Description
Navigation Page	This features positioned in the above of the dashboard
Filters	The filters consist of dropdowns for categorical data and date slider to filter the dashboard for the range of date.
Color Palette	This dashboard using the palette from Northwind Traders logo that generated by imagecolorpicker.com to make dashboard special tailored.

Data Dictionary

Metrics	Chart Type	Color Scheme	Description
OrderID			Number of unique order
Order Date			Date when order occurred
Product			Product name ordered
Unit Sold			Total product ordered in one order (then as re: Quantity)
Unit Price			Price per unit of product
Category			Category of product ordered
Supplier Name			The name of company / vendor / suppliers
Supplier City			The city where supplier located
Supplier Country			The country where supplier located
Units In Stock			Total units in the warehouse
Units On Order			Total units on order to the suppliers

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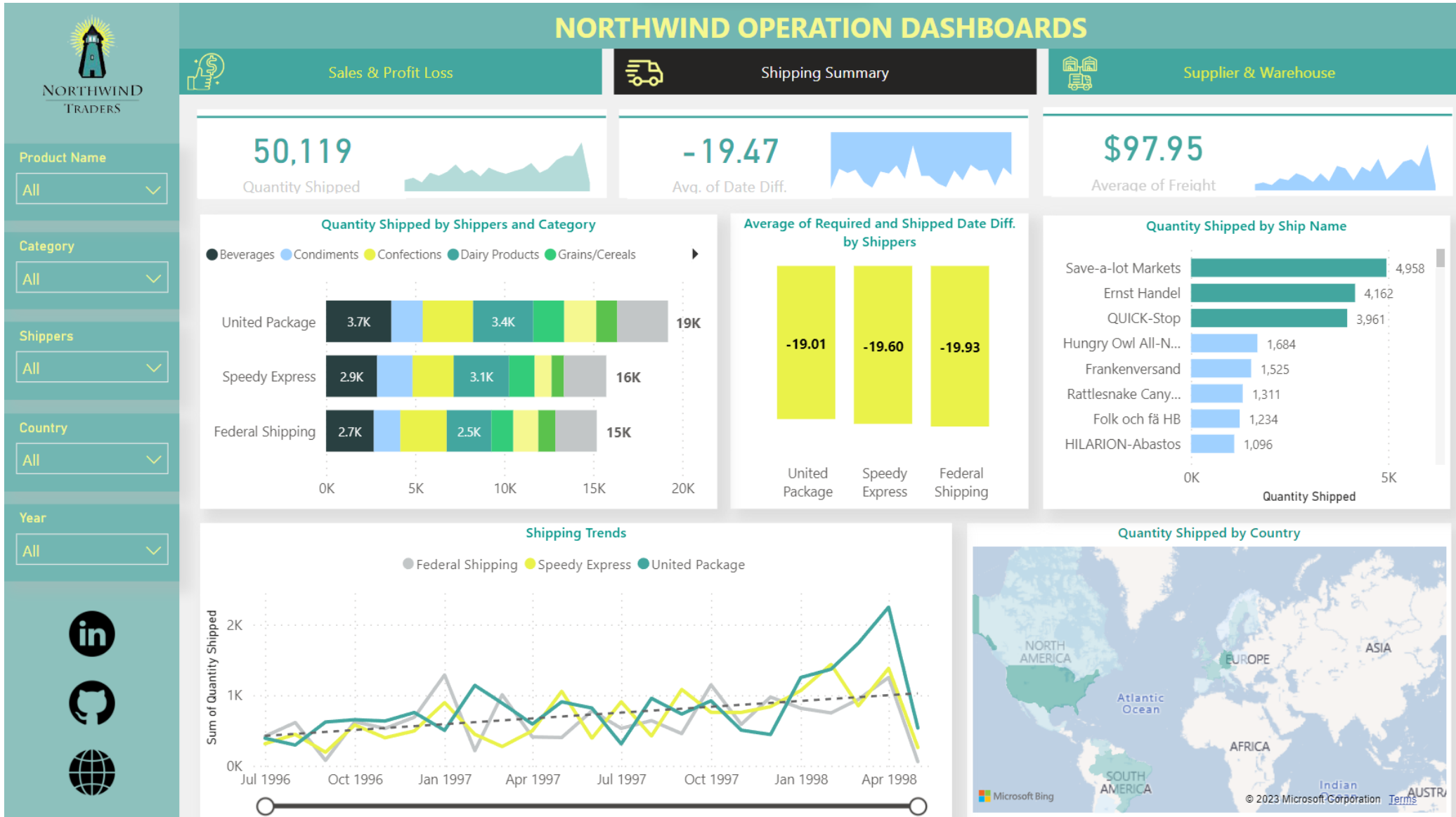# Sales & Profit Loss

Dashboard View

Dashboard Details

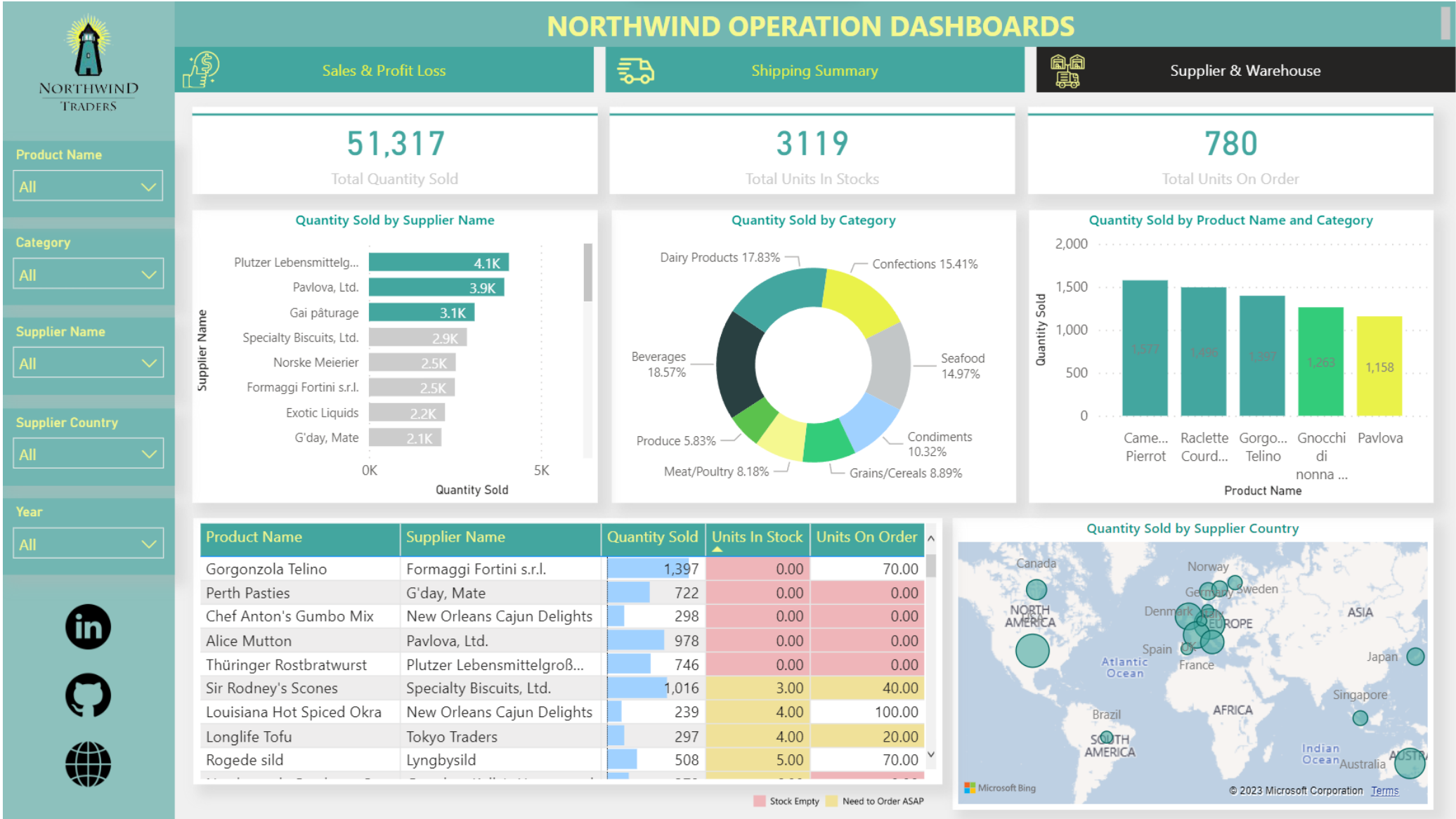| Metrics	Chart Type	Color Scheme	Reasoning	Key Insight
Summary Card	Card	Blue = to highlight positive value Red = to highlight negative value (emergency alert)	To summarize several key metrics • Total Sales • Total Order Count • Average Discount in Percent • Total Gross Margin in Percent	• Total Sales : for almost 2.5 years, the company successfully generate of 1.35M sales • Order Count : 860 order count • Average Discount : 0.03% (very low) • Gross Margin : -7.02% (the company is in loss condition)
Sales vs Gross Margin Trends	Stacked Area Chart	Blue = idem Red = idem	To see how the trend different from total sales and gross margin. I want to see how many gap between the 2 metrics Gross Margin = Sales – COGS	• Sales in the uptrend condition for from 1996 to early 1998, and down start from April 1998. • From 1996 until mid of 1997, company has higher gap of gross margin (loss) and then decrease for the next period.
Sales vs Gross vs Discount Margin by Customers	Table with Bar and Background Conditional Formatting	Blue = idem Red = idem Yellow = to make a difference for discount	• To see the pattern is total sales and discount can impact to the gross margin (loss)? • To see which customer that contribute for highest loss.	• Save a-lots-Markets and QUICK-Stop is the top 2 customer with highest sales • Higher total sales and discount tend to impact to the higher loss.
Sales vs Gross Margin by Employee	Table with Bar Conditional Formatting	Blue = idem Red = idem	• To see the relational pattern of total sales and gross margin • Who is the employee that contribute to the highest sales and loss?	Steven Buchanan as a Sales Manager generate the lowest Total Sales and number 2 of Loss in percent
Sales vs COGS by Product Name	Stacked Bar Chart	Blue = idem Red = idem	Which product that contribute the highest sales and highest COGS (Cost of Good Sold)?	Almost for each product making COGS higher than sales. That is made the company in lost condition

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Shipping Summary

Snapshot

Dashboard Details

Metrics	Chart Type	Color Scheme	Reasoning	Key Insight
Summary Card	Card	Blue = main color of northwind logo	To summarize several key metrics • Total Quantity Shipped • Average Required and Shipped Date Difference • Average Freight per Shipping	• Total Sales : about 50,119 unit sold • Avg. Day Difference : usually unit shipped 19 days before required date • Avg. Freight Cost : $97.95 per shipping
Quantity Shipped by Shippers and Category	Stacked Horizontal Bar Chart	Sequential	To see which shippers who has most quantity shipped and how the distribution to the product category	• United Package is the shippers with the most number of quantity shipped. • The 3 shippers have similar distributions of product category shipped.
Average Required and Shipped Date Diff. by Shippers	Vertical Bar Chart	Yellow	To see which shippers who have faster shipping before required date	• United Package is the faster than other 2 shippers • The difference of three shippers is not too difference
Quantity Shipped by Ship Name	Horizontal Bar Chart	Blue	To see which ship name with the most shipping	Save a-lot-Markets is the most Ship Name with quantity shipped
Shipping Trends	Line Chart	Northwind Palette (Categorical)	To see the shipping trends between the 3 shippers	In the long term shown uptrend and similar pattern between the shippers
Quantity Shipped by Shipping Country and Shippers	Choropleth Map	Blue	To see which country with most quantity shipped	United State and Germany is the top to country with quantity shipped

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Suppliers & Warehouse

Dashboard View

NORTHWIND OPERATION DASHBOARDS

Sales & Profit Loss	Shipping Summary	Supplier & Warehouse

51,317	3119	780
Total Quantity Sold	Total Units In Stocks	Total Units On Order

Product Name — All
Category — All
Supplier Name — All
Supplier Country — All
Year — All

Quantity Sold by Supplier Name

Supplier Name	Quantity Sold
Plutzer Lebensmittelg...	4.1K
Pavlova, Ltd.	3.9K
Gai pâturage	3.1K
Specialty Biscuits, Ltd.	2.9K
Norske Meierier	2.5K
Formaggi Fortini s.r.l.	2.5K
Exotic Liquids	2.2K
G'day, Mate	2.1K

Quantity Sold by Category

- Beverages 18.57%
- Dairy Products 17.83%
- Confections 15.41%
- Seafood 14.97%
- Condiments 10.32%
- Grains/Cereals 8.89%
- Meat/Poultry 8.18%
- Produce 5.83%

Quantity Sold by Product Name and Category

Product Name	Quantity Sold
Came... Pierrot	1,577
Raclette Courd...	1,496
Gorgo... Telino	1,397
Gnocchi di nonna ...	1,263
Pavlova	1,158

Product Name	Supplier Name	Quantity Sold	Units In Stock	Units On Order
Gorgonzola Telino	Formaggi Fortini s.r.l.	1,397	0.00	70.00
Perth Pasties	G'day, Mate	722	0.00	0.00
Chef Anton's Gumbo Mix	New Orleans Cajun Delights	298	0.00	0.00
Alice Mutton	Pavlova, Ltd.	978	0.00	0.00
Thüringer Rostbratwurst	Plutzer Lebensmittelgroß...	746	0.00	0.00
Sir Rodney's Scones	Specialty Biscuits, Ltd.	1,016	3.00	40.00
Louisiana Hot Spiced Okra	New Orleans Cajun Delights	239	4.00	100.00
Longlife Tofu	Tokyo Traders	297	4.00	20.00
Rogede sild	Lyngbysild	508	5.00	70.00

Stock Empty — Need to Order ASAP

Quantity Sold by Supplier Country

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Dashboard Details

Metrics	Chart Type	Color Scheme	Reasoning	Key Insight
Summary Card	Card	-	To summarize several key metrics • Total Quantity Sold • Total Unit in Stock • Total Units On Order	-
Quantity Sold by Suppliers	Horizontal Bar chart	-	To rank suppliers based on product sold	In the overall. German suppliers is the top supplier with the most total unit sold.
Quantity Sold by Product Category	Donut chart	Sequential	To see the share of product category sold	Beverages product dominate the number of quantity product sold
Quantity Sold by Supplier Country	Bubble Maps	-	To see which	Steven Buchanan as a Sales Manager generate the lowest Total Sales and number 2 of Loss in percent
Stock Update	Table	-	To give the update stock conditions in summary • Which product with most sold? • Which product in empty stocks? • Which product is in order?	Several product in empty stock conditions, need to order ASAP.