

# ***Market Profitability Analysis: France vs Europe***

*"Identifying Key Drivers of Profit Based on Sales Performance"*

Marek Wisniewski

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# Outline

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# Executive Summary

## Project Goal

- Identify the main factors influencing profit in France and compare them to overall European trends.

## Key Insights

- Sales & Gross Sales = strongest profit drivers
- COGS and Sale Price also matter
- Units Sold has weak impact - value > volume
- Some segments are less profitable (Segment Code )

## Conclusion

- Profitability depends more on transaction value than quantity
- Focus on pricing strategy and targeting high-value customers.

# Introduction

In a competitive sales environment, understanding what drives profitability is essential for strategic decision-making.

This project explores:

- Which sales-related factors have the biggest impact on profit,
- How France compares to the European market,
- Whether companies should focus on volume, value, or customer segment to boost returns.

Using real-world financial data, we applied data cleaning, aggregation, correlation analysis, and visualization to extract actionable insights.

# Methodology

## 1. Data Import

Loaded financial dataset containing sales, profit, pricing, and customer segment Information across multiple countries.

Source: <https://www.kaggle.com/datasets/atharvaarya25/financials>

## 2. Data Cleaning & Preprocessing

- Removed special characters (\$, ,, parentheses)
- Trimmed extra spaces and standardized column names
- Converted string values to numeric format

## 3. Data Aggregation

Summarized total Sales and Profit per country.

# Methodology

## 4. Country Filtering

Focused analysis on **France** (highest profit) and **European countries**.

## 5. Correlation Analysis

Assessed which variables correlate most strongly with Profit.

## 6. Data Visualization

Used bar charts, heatmaps, and comparative graphs to identify trends and compare regions.

# Data Cleaning & Preparation

## **1. Column Renaming**

Standardized column names by removing extra spaces.

## **2. Symbol Removal**

Removed currency symbols (\$), dashes (-), and thousands separators (,).

## **3. Negative Value Conversion**

Converted values in parentheses (e.g. (4533.75)) into negative numbers (-4533.75).

## **4. Data Type Conversion**

Transformed key columns (e.g. Sales, Profit, COGS) from text to numeric types.

# Data Cleaning & Preparation

## 4. Missing & Invalid Values

Replaced empty or non-numeric cells with NaN and removed incomplete rows.

## 5. Segment Encoding

Converted the Segment column into numeric codes for correlation analysis:

- Government - 0
- Midmarket - 1
- Enterprise - 2
- Channel Partners - 3



# Exploratory Data Analysis

## Objective

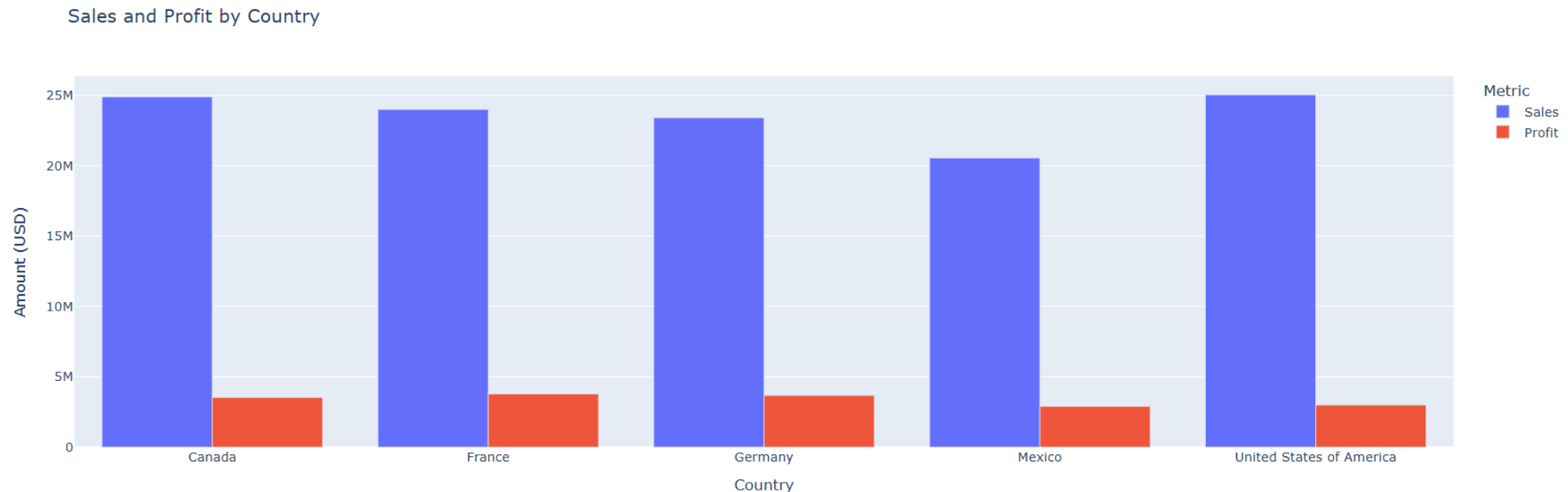
- Understand how Sales and Profit vary across different countries.

## Visualization

- Grouped Bar Chart: Sales and Profit by Country

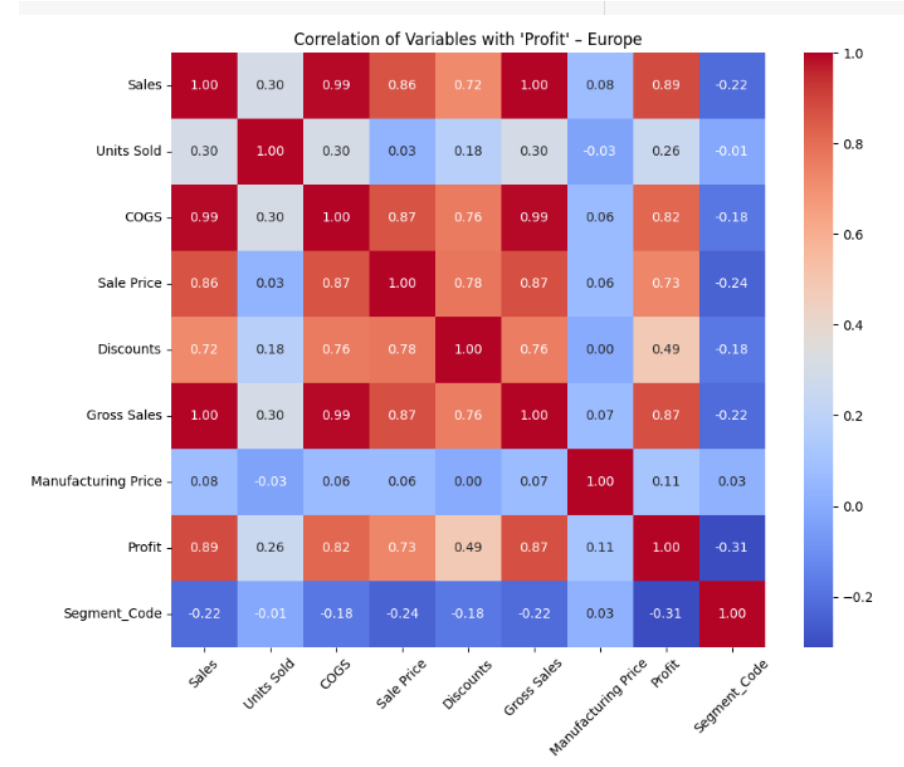
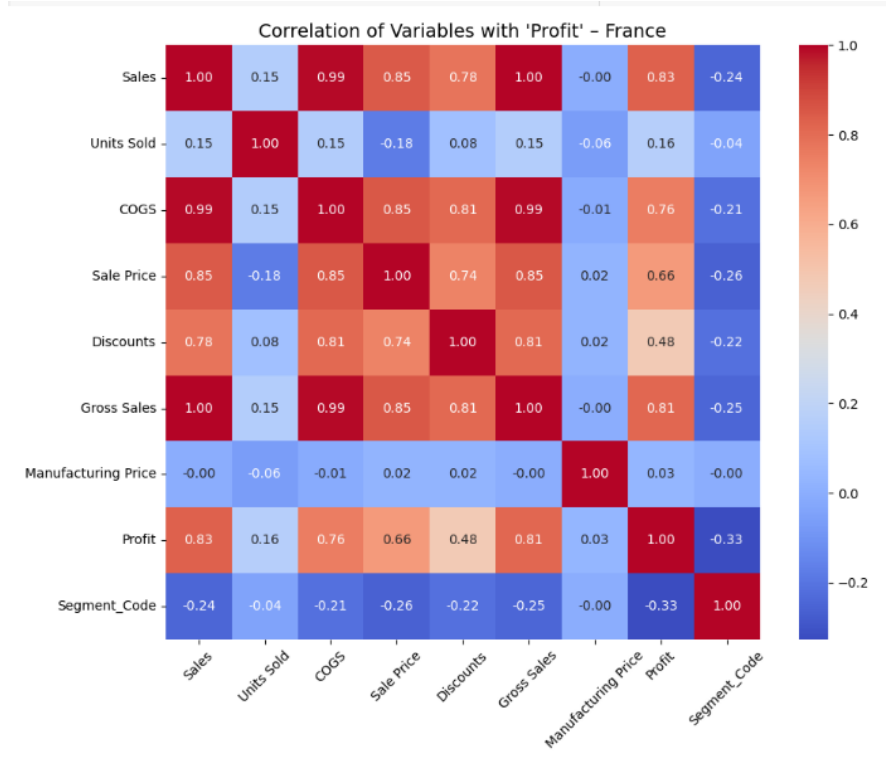
## Insights:

- Countries with high sales do not always have high profit.
- France had one of the highest profits, making it the focal point for deeper analysis.
- Some countries show high sales but low or even negative profit, indicating potential inefficiencies or pricing issues.



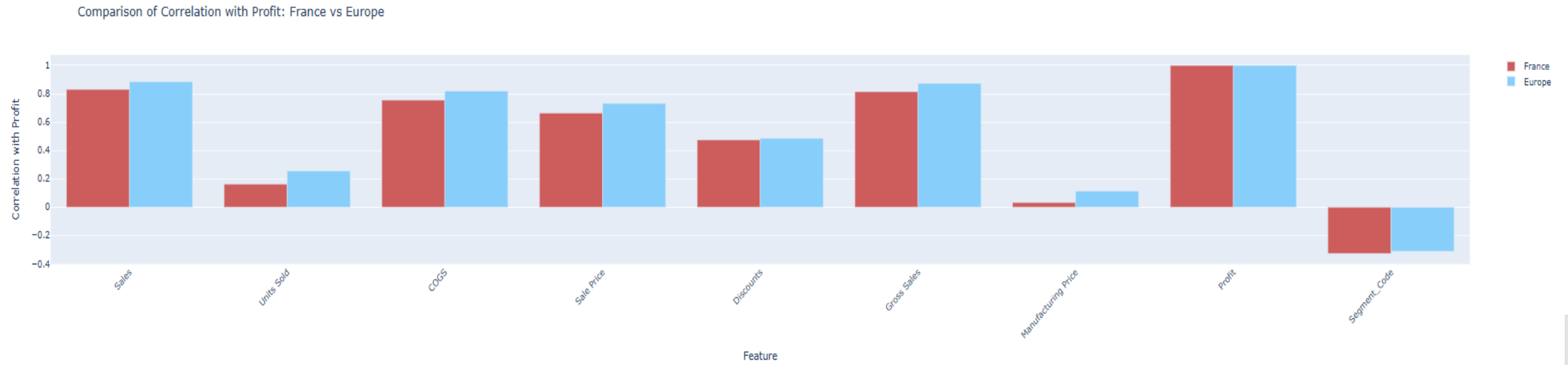
# Correlation Heatmaps: France and Europe

These heatmaps show correlation between Profit and other numerical features. France and Europe share similar patterns, but France shows slightly stronger dependency on Discounts and Sale Price



# Comparative Correlation Analysis

Compare how different variables relate to Profit in France vs the European region.



# Key Findings & Insights

- Sales and Gross Sales are the top profit drivers.
- Units Sold has weak impact – value matters more than volume.
- COGS and Sale Price also show strong positive influence.
- Customer Segment (Segment\_Code) negatively affects profit.
- France and Europe show similar correlation patterns.
- Focus on high-value sales and profitable segments.

# Conclusion

- Profitability is driven more by total sales value than by volume.
- Targeting high-value products and profitable customer segments leads to better outcomes.
- France and Europe show similar patterns, confirming that strategies used in France may also work well across Europe.
- Understanding which variables impact profit the most helps businesses make informed pricing and marketing decisions.

# Thank You

## Thank You for Your Attention

Marek Wisniewski

Email: [marekwisniewskiuk@gmail.com](mailto:marekwisniewskiuk@gmail.com)

GitHub: <https://github.com/M4R3K21/Comparison-of-Correlation-with-Profit-France-vs-Europe>

LinkedIn: <https://www.linkedin.com/in/marek-wisniewski-209930320/>

Location: Manchester, UK