# Technical Report

# Haulage Company Performance Analysis Report for 2016-2018.

# Outline

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**1. Introduction**

This project took a deep dive into the performance analysis of Haulage Company for the year 2016-2018. The contributions made from the import and export trends, financial performance and logistics capabilities were evaluated for this international trade company. The goal of this analysis is to identify key insights in the areas of profitability, market trends, operational efficiency and optimization of supply chain services for this company.

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## Objective of the Project

The project aims to achieve the following objectives:

* Analyze revenue trends to gain meaningful insights that can help improve revenues both at the import and export ends.
* Critically examine the operational efficiency around logistics and other offshore procurement and transportation activities.
* Determine how the optimization of logistics activities can help reduce transportation cost and make the processes more revenue generating.
* To identify the year with the highest sales and determine how to replicate strategies and innovation implemented that year to other years.

**Problem Being Addressed**

The analysis would help address the following problem:

* Identifying the most profitable product categories that could lead to an increased profitability
* Cost-efficient operational activities like reducing transportation cost and ensuring only higher reliable transportation modes are applied.
* Determine the trade routes that could help optimize financial outcomes and enhance logistics management.
* The investigation of the cost structure and sales performance of the company for improved revenue generation.

## Overview of Data and Methodologies

The project is based on the in-depth analysis of import and export activities of Haulage Company. The dataset covered the following areas:

* Revenue generated - Detailing revenue and how each product import and export contributed the company’s revenue.
* Transaction data - Records with details on product categories
* Products movement -With information of sourcing and destination countries, the accrued cost and profit.
* Shipping type- for each product at both the sourcing and destination countries.
* Year of each transaction- to determine if a trend in the sales could be explained using the dataset.

## Methodologies

The project analysis was carried out using Microsoft Excel together with some of its functions:

* Pivot Tables & Charts -This was applied to conduct data grouping, analysis and visualization.
* Bar, Column and Pie Charts-supported visual presentation of shipping type, product performance, transportation cost, sales trends from 2016-2018, country performance as sourcing and destination countries.
* Comparative Analysis - Analyzing and comparing the contribution of different products.

# 2. Story of the data

The dataset contains transaction cost, sourcing and destination countries data, sales data from both the import and export countries, profits and shipping type data. The presented information was collated from multiple operational transaction costs within the import and export phases of the company. The dataset was structured in tables containing 992 entries with 17 columns. Covering key metrics like import countries volume of sales, exports countries profit after sales, shipment methodologies applied and product categorization.

Key features of the data are:

* Category, quantity, Unit Price - Determine market demand and sales performance
* Import from, Export To, shipping type-Provide insights into international trades
* Total Sales, Net Profits, Profit Margin-Evaluate Financial success
* Lead time, Year- Analyzes shipment efficiency.

The dataset did provide information on other factors that might be producing lower sales in term of import and export (e.g. custom duties).

# 3. Data Splitting and Preprocessing

The data was observed and found to be clean, and did not have duplicates, inconsistent variables or empty rows. A pre-processing stage of data splitting was carried out by dividing the data into two data categories: dependent and independent variables.

**Independent Variables**

* Category
* Import from
* Export to
* Year
* Shipping type

**Dependent Variables**-

* Price,
* quantities
* Import Date
* Export Date
* Transportation Cost
* Total sales
* Outside cost
* Total Cost
* Net profit

## 

## Industry Context

The industry context from this dataset is that of a business that deals with import and export activities The industry sources internationally and has sourcing and destination countries that help in movement of three basic category of products

Key stakeholders

The business key stakeholders that would use the generated insight to foster and support their operations including maximum revenue and profitability are as follows:

* The Chief Executive Officer (CEO)-Interested in the revenue generated by the company, all innovation and strategies that would support profit optimization
* The financial Team-focus on cost-efficiency in the business with a keen attention to the cost and profit analysis.
* The logistics Team- interested in creating good contracts that support the procurement of goods and countries where these goods are imported from and take a closer look at the shipping analysis to determine shipment optimization strategies.

## Value to the Industry

The value to the best is optimally generating good sales and improving revenue/profitability. However, the company would also be interested in enhanced decision -making on pricing, sourcing, and logistics and improved financial forecast for the import-export businesses. The insights derived from this analysis will ensure data -driven decisions are employed in the pathways to improving revenue generation and optimization of profitability.

# 4. Pre-Analysis

## Key Trends

The pre-analysis focuses on preliminary trends and patterns derived from the dataset before an actual analysis is conducted. Trends on best performing product categories, best exports countries by profit margins, top import to countries based on the sales volume of their activities and the best year of operations based on the total sales performance, export countries by total sales, import countries cost-efficiency by transportation cost and exporting countries ranking by shipping type.

## Potential Correlations

Based on the preliminary trends and patterns, some potential correlations in the relationship of the variables were derived:

* Top-Performing category base on sales value
* Top import countries base on sales
* Best export countries base on net profit
* Export countries with the cheapest transportation cost
* Import country with the highest outside cost
* Export countries with the lowest total cost
* Export countries with the highest total cost
* Best-selling year base on sales
* Top export countries base on sales
* Product category base on shipping type
* Export countries with the best shipping type.

**Initial Insights**

The preliminary trends, patterns and potential correlations helped in the generation of some initial insights:

* Identify the best -selling product category by import and export and optimize this product availability to help maximize revenue and profits.
* Determine the top countries in terms of total cost of imported product category.
* Spotlight the top-performing import countries in terms of the volume of their trade with the company, the strategy countries should be prioritized by the haulage company and leverage to maximize trade and revenue. Cost-efficient shipping carriers to help identify the shipping
* The best shipping type is based on the total cost. This could help identify and optimize this shipping type for a large volume of product categories.
* Identify the best year for this business based on generated revenue and net profit. Innovations implemented this year could be replicated for the others to ensure improved revenue.

# 5. In-Analysis

# Unconfirmed Insights

The unconfirmed insights that were identified after the analysis were:

* Egypt is the key export country, indicating high trade volume and profitability from this region. A total of $2,467,402 net profit and $70,497,193 in sales were the metric attributed to Egypt.
* The product category with the best sales was home tools account for $177,147,992 in sales and this figure far exceeded the other two products combined (Electronics $87,077,251 and office tools $2,525,090).
* China is the leading import country implying that a significant portion of goods or raw materials are sourced from China.
* Egypt, ($2,467,402), Syria ($1,904,005) and Lebanon ($1,106,356) are the top three destinations by net profit. This indicates a strong export relationship with Middle Eastern countries.
* The leading export countries were Egypt, Syria, Lebanon, Jordan and UAE. This fact reinforces these countries' claims as strategic export partners at different levels of profitability.
* China tops the list as the critical trade partner with a whooping sales volume of $66.7M.
* A diversified import base suggests a strong supply chain resilience and reduced risk.
* The sale values showed a steady raise from UAE ($25.56M) to Egypt ($70.49M).
* UAE ($383,471) demonstrated the lowest transportation cost with Egypt having the highest ($1.06M). Even with this cost, Egypt still tops the net profit chart and this might be an indication of strong demand and market structure.

The comparison of the different export countries along the analyzed metrics gives insights to the countries that have strategically positioned themselves as top trade destinations.

## 

## Recommendations

A deep dive into the initial insights led to the generation of recommendations that would be positioned Haulage Company as a major market competitors in the import and export arena.

* The company should expand marketing and sales efforts on Home Tools as a product focus for the most profitable category.
* Expansion of markets in similar countries within the region (Middle Eastern) could help increase trade relations with these countries as seen with the strong export performance of Egypt and Syria.
* To maintain and improve shipping efficiency, the company should prioritize fast-speed shipping for large volumes of the highest sales product and introduce this to other countries for adoption.
* China remains the dominant import source, but diversifying suppliers across other high-performing import countries (e.g. Greece and Switzerland) could help mitigate supply chain risk and disruptions. The risk from a sourcing approach and related to the use of a single country or organization is highest for the supply chain when there is no diversification of suppliers. The COVID-19 pandemic was a test for supply chains of several businesses in terms of their resilience and risk appetite.
* Optimization of transportation costs by exploring alternative shipping types, bulk shipping options and adopting fast-speed shipping will help reduce the cost of transportation for top export countries like Egypt and Syria, thereby improving their profitability.

## Analysis Techniques Used in Excel

The analysis of the data was carried out using Microsoft Excel and taking advantage of the Pivot tables function. Key techniques used in excel were:

* Filtering and sorting - This was used in the analysis of best performing import countries by cost and by sales, export countries by sales and transportation cost.
* Comparative analysis using bar and column charts- Product category performance by sales, Strategic export countries by sales and critical trade partner in importation by sales,
* Pie and Doughnut Charts perfect for showing part of a whole as applied in analyzing sales by year and sales by shipping type.
* Line graph for analyzing the top 5 export countries contribution to the total sales

# 6. Post-Analysis and Insights

The post -analysis provided key insights into export performances (Top export countries by transport cost and net profit), Import performance (by top import countries by cost and sales) and financial/product performance (total sales revenue, best-selling year, best performing products by sales and shipping cost by type)

The following were the main insights from the analysis:

**Sales Performance categorization**

* Overall sales across all years in focus (2016-2018)- $266,750,330.
* Best-selling Product category: Home Tools, followed by Electronics and office tools.
* The revenue generated and attributed to each of the product category are:
* Home Tools: $177,147,992
* Electronic: $87,077,251
* Office Tools: $2,525,090

**Best Sales Year**

* Best Sales Year
* 2017 was the highest sales performing year with a grossing revenue of $113,263,359
* 2016 was the second-best year accounting for a revenue of $94,211,808
* 2018 was the lowest sales year with a revenue of $59,275,166

The company should replicate strategies employed in 2017 for subsequent years to boost sales and maintain high revenue.

**Sourcing Efficiency/Import performance**

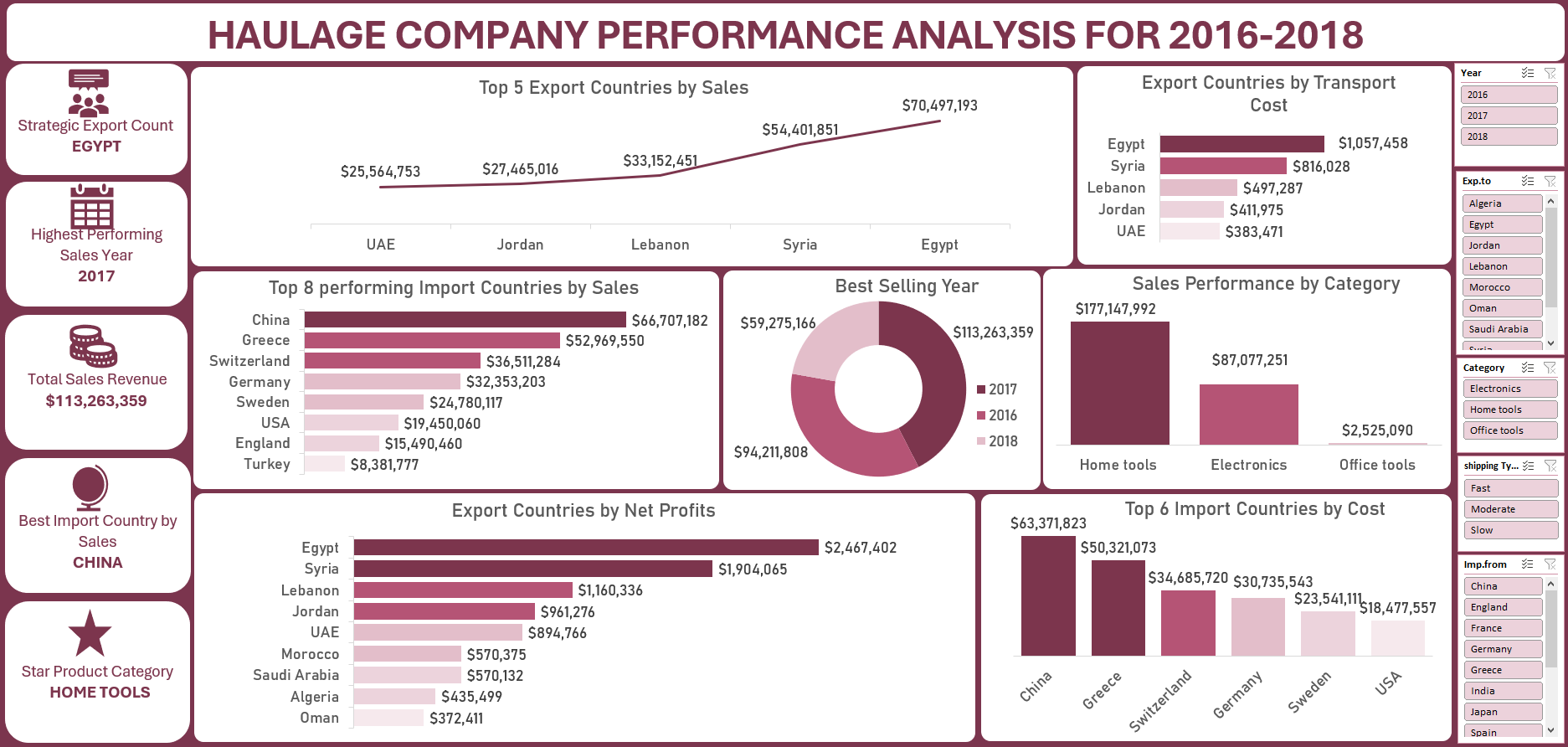
* Top import countries by Sales: China was the leading import sources by $ 66,707,182 followed by Greece ($52,969,550) and Switzerland ($36,511,284)
* Top Import countries by cost: As expected, China also top the chart as the highest import country base on cost ($63,371,823), then Greece ($50,321,073) and Switzerland ($34,685,720)

**Export Performance/ Destination Countries metrics.**

* Top export Countries by Sales: Egypt recorded the highest export sales for the period under review and this was followed by Syria and Lebanon as the top 3 destinations. Sales showed a steady increase from UAE ($25,564,753) to Egypt ($70,497,193) which indicates that these countries all have a growing market demand for the category of products.
* Best export countries by transportation cost: UAE tops the chart for this category with a transport cost of $383,471 and Egypt has the highest ($1,057,458) in the top 5 export countries analyzed. Transportation cost varies significantly across these countries and impacts net profit margins.
* In net profit by export countries, Egypt ($2,467,402) tops the list of best 8 countries by profit while Oman was the lowest in profit ($372,411)

# 7. Data Visualization and Charts

Dashboard for Haulage Company Performance Analysis Report for 2016-2018



* **Chart 1: Sales Performance by Category**

This column chart is showing product Category by sales generated.

The chart indicates that the best product category was Home Tools with a solid sales revenue of ($177,147,992), this was followed by Electronics with a sales revenue of $87,077,251 and Office Tools ($2, 525,090). The sales figures generated by Home Tools exceeds the sum of the other two categories put together. This benchmark Home tools as the strategic category for the Haulage Company.

**Chart 2: Best Selling Year**

This doughnut chart provides insights for the profitability of each year in the analysis. 2017 was the highest sales performing year with a grossing revenue of $113,263,359 while 2016 was the second-best year accounting for a revenue of $94,211,808 and 2018 was the lowest sales year with a revenue of $59,275,166. A further deep dive into what strategies and innovation were implemented in 2017 could help the company denote ways of replicating these in future years to boost revenue.

**Chart 3: Top 5 Export country performance by Transport cost.**

This bar chart helps to showcase accrued cost of transportation to each export country with emphasis on the top 5. The chart shows Egypt accounting for the highest cost of transportation which amounted to $1,057,458 and UAE had the lowest ($383,471). Implementation of strategies to help reduce this cost for a strategic export country like Egypt would further improve the profitability from this country.

**Chart 4: Shipping Type by Total Cost**

The analysis of the best shipping type as attributed to the total cost. This insight derived was that Fast-Speed shipping type has the less cost attribute with $53,045,483. While the Moderate -speed type accounted for the highest cost of $131, 242,548. The company could apply this cheapest shipping type in a strategic export country (Egypt) and gain savings with increased revenue and profits.

**Chart 5: Best Export Countries by Net profit.**

As expected, Egypt with the highest sales revenue of all the export countries also tops this chart with the highest net profit of $2,467,402. Of all the 8 countries analyzed, Oman was the lowest in net profit of $372,411. This could explain why this country was not recorded as top 5 in sales revenue.

**Chart 6: Top Performing Import Countries by Sales**

China ($66, 707,182), tops the list of import countries with the highest sales and strategic trade partner for the Haulage Company. This chart also indicates a diversification in the company suppliers base and this would help in cases of supply chain disruption due to natural disasters or pandemics (e.g. COVID-19 pandemics).

**Chart 7: Sale performance of Export Countries**

Egypt has positioned itself as a strategic export country and its sales performance supports this. From the line graph above, Egypt ($70,497,193) performed better in generating sales revenue than any of the top 5 export countries. UAE ($25,564,753) was the lowest of all top 5 destination countries. However, Haulage could be seen as doing a great job with sales revenue generation due to the steady increasing nature of the revenue generated from UAE to Egypt.

**Chart 8: Import countries performance by cost**

The Column chart provided insight to the cost attributed to each sourcing company and again China ($63,371,823) accumulated the highest cost. This was expected as they are a critical trade partner with high volume of sourcing by the Haulage company. The USA ($ 18,477,557) had the lowest cost of the top 6 import countries by cost, however they are not strategic for Haulage and exploring more businesses with them might not increase profit on its own.

# 8. Observations and Recommendations

# This project brought out meaningful insights that the company might implement to improve on all areas of their services. As part of the work done here are some observations and recommendations for further consideration by the company top management and leadership.

## Observations

* Egypt is the top export market which makes it a strategic export country. However, they possess the highest transportation cost.
* China is the leading import country in sales and costs, efficient supplier management could help improve supply chain performance especially as related to cost.
* The highest performing year was 2017, suggesting sales growth with strong market demand and operational efficiency.
* Moderate-speed shipping is the most expensive based on shipping cost, if the company prioritized this shipping mode, it might lead to inefficiencies in logistics planning or small frequent purchases.
* Home Tools leads the market that is a strong indication of preferred customers demand for this product category when compared to the other product.
* Haulage company activities with the top 5 import countries shows supplier diversification which might help in mitigating any supply chain risk during pandemics.
* Potential markets in countries like Germany, Sweden and USA if this is well thought out.
* 2016 was the second leading year based on sales volume with a sale of $94,211,808
* There was a rise in sales volume as attributed by the revenue from 2016 to 2017, however 2018 experience a dropped in revenue from sales.
* For the product category, home tools performed better than the other two products (Electronics & Other tools) combined

## Recommendations

* A recommendation for supplier diversification across other high-performing import countries apart from China (e.g. Greece and Switzerland) can help mitigate supply chain risks.
* Expanding and optimizing sales efforts for the most profitable category (Home Tools) could help boost revenue.
* Prioritize Fast-Speed shipping over Moderate and Slow-speed to reduce cost and maximize profit.
* Egypt and Syria lead the pack in strong export performance, market expansion through increasing trade relations in similar markets could help boost revenue.
* Egypt is the top export market and has high transport costs, exploring alternative transportation routes could help reduce this cost.

# Conclusion

The Haulage company has shown strong growth in export sales, particularly in Egypt and Syria, despite high transport costs. Import dependency on China presents a supply chain risk that can be mitigated through supplier diversification. Categories like Home Tools dominate sales performance indicating the opportunity for growth in sales.

To further enhance profitability and operational efficiency, there is a need for Haulage company to optimize shipping logistics, diversify and manage suppliers better, explore more innovative options on the high-demand product categories. With the insights shown from the increasing sales performance of the export countries, there are strong opportunities for this company to strive and gain market advantage.