NAIJAMART

Global Sales, Profitability and Shipping Performance Dashboard

Complete Project Documentation and Final Review

FINAL REVIEW STATUS. Approved as the final portfolio version. Market filters, percentage formatting, year range, chart titles, and discount analysis were corrected and verified. The existing map retirement banner is retained as an accepted Power BI platform limitation.

Platform	Microsoft Power BI Desktop
Dataset	Global Superstore — 51,290 order lines
Analysis period	1 January 2011–31 December 2014
Review date	15 September 2026

Prepared as an employer-facing data analytics portfolio project

1. Executive summary

This Power BI project converts the Global Superstore transactional workbook into a structured analytical model and a four-page interactive dashboard. The solution evaluates sales growth, profitability, customer and market performance, product losses, and shipping efficiency. A hidden report-tooltip page provides product-level context when users hover over supported visuals.

Headline KPI	Validated result
Total sales	$12,642,501.91
Total profit	$1,467,457.29
Profit margin	11.61%
Orders	25,035
Customers	1,590
Units sold	178,312
Average order value	$504.99
Average delivery time	3.97 days
Shipping cost	$1,352,820.69 (10.70% of sales)

Sales increased every year, reaching $4.30M in 2014—90.31% above 2011. Profit more than doubled over the same period. The main commercial risk is discount-driven margin erosion: profit becomes negative in aggregate above the 20% discount band. Tables is the only loss-making sub-category, and several countries with very high average discounts generate substantial losses.

2. Business problem and objectives

NaijaMart requires a consolidated view of global performance so decision-makers can identify growth drivers, margin leakage, valuable customers, and shipping trade-offs. The project answers five questions:

- How are sales, profit, margin, and order volume changing over time?
- Which markets, categories, sub-categories, products, and countries create or destroy value?
- Which customer segments and customers contribute the most revenue and profit?
- How do delivery speed and shipping cost differ by ship mode and market?
- Where should management reduce discount exposure or investigate operating performance?

Scope decisions

The report covers observed historical performance. Sales-target analysis was deliberately excluded because the supplied workbook contains no official targets. This avoids inventing benchmarks and keeps the analysis evidence-based.

3. Dataset profile and validation

Property	Result
Source	Global_Superstore2(3).xlsx — Sheet1
Grain	One order line per row
Rows / columns	51,290 rows / 24 source columns
Order-date range	2011-01-01 to 2014-12-31
Ship-date range	2011-01-03 to 2015-01-07
Geographic coverage	147 countries, 13 regions, 7 markets
Product coverage	10,292 product IDs; 3,788 product names
Duplicate validation	0 complete duplicate rows; 0 duplicate Row IDs
Postal-code blanks	41,296, replaced with “Not Available” for reporting

GRAIN NOTE. An order can contain several product lines. Therefore, 51,290 records represent 25,035 distinct orders. Measures such as Total Orders correctly use DISTINCTCOUNT(Order ID).

4. Data cleaning and transformation log

#	Action	Implementation	Purpose / result
1	Import and staging	Imported the .xlsx workbook and renamed the source query Stg_Sales.	Created a controlled staging layer.
2	Header validation	Confirmed the first row contained valid field names.	No header correction required.
3	Blank-row removal	Removed completely blank records.	Prevented empty records from entering the model.
4	Duplicate validation	Checked Row ID and complete-row duplication; applied duplicate removal.	Validation found no duplicate Row IDs or full rows in the supplied source.
5	Date-locale conversion	Converted Order Date and Ship Date using English (United Kingdom) locale for DD-MM-YYYY text.	Prevented month/day reversal and produced valid Date fields.
6	Data types	Assigned text, whole-number, decimal/currency, and date types by field.	Enabled reliable aggregation and time intelligence.
7	Missing postal codes	Replaced null Postal Code values with “Not Available”.	Preserved rows while making missingness explicit.
8	Text standardisation	Trimmed and cleaned relevant text fields.	Reduced hidden whitespace/control-character inconsistencies.
9	Delivery Days	Added Ship Date minus Order Date.	Created an operational delivery-duration field.
10	Product Key	Concatenated Product ID and Product Name.	Resolved a real key issue: 457 Product IDs map to more than one product name.
11	Location Key	Concatenated Market, Region, Country, State, and City.	Defined a stable geographic grain across 3,819 unique location combinations.
12	Dimensions	Created distinct Customer, Product, Location, and Market tables.	Supported a star-schema design.
13	Fact table	Retained transaction identifiers, foreign keys, financials, shipping fields, and delivery duration.	Created a compact FactSales table.
14	Date table	Created a continuous calendar from the earliest order date to the latest ship date; added Year, Quarter, Month, Month Year, and Day Name; marked as a date table.	Supported sorting and time intelligence.
15	Measure table	Created _Measures with a placeholder column.	Centralised and organised DAX measures.

5. Data model

The semantic model is a star schema centred on FactSales. Dimension filters flow one way from the one-side to the many-side. The active date relationship uses Order Date; Ship Date is retained as an inactive relationship for future shipping-date analysis.

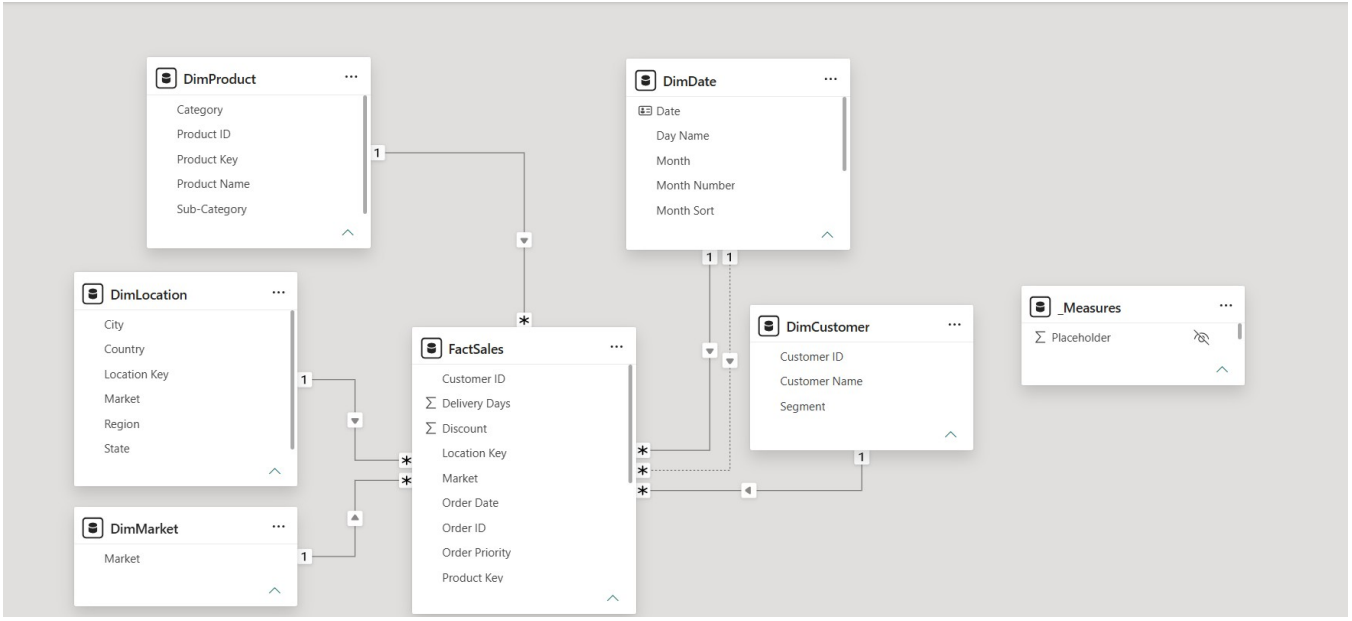

Figure 1. Power BI star schema and relationship layout.

Dimension key	Fact key	Cardinality	Status
DimDate[Date]	FactSales[Order Date]	1:*	Active
DimDate[Date]	FactSales[Ship Date]	1:*	Inactive
DimCustomer[Customer ID]	FactSales[Customer ID]	1:*	Active
DimProduct[Product Key]	FactSales[Product Key]	1:*	Active
DimLocation[Location Key]	FactSales[Location Key]	1:*	Active
DimMarket[Market]	FactSales[Market]	1:*	Active

Calculated fields evidenced in the project

The following model fields were derived rather than supplied as final analytical fields in the source:

Type	Field	Derivation / role
Power Query custom column	Delivery Days	Ship Date − Order Date
Power Query custom column	Product Key	Product ID & "|" & Product Name
Power Query custom column	Location Key	Market & "|" & Region & "|" & Country & "|" & State & "|" & City
Date-table columns	Year, Quarter, Month, Month Year, Day Name	Derived from DimDate[Date]; month and weekday labels sorted chronologically

No additional DAX calculated business columns were evidenced in the submitted material. The supplied DAX logic is measure-based, which is preferable for dynamic filter-context calculations.

6. DAX measure catalogue

Measure	Definition	Business meaning
Total Sales	SUM(FactSales[Sales])	Revenue in the current filter context.
Total Profit	SUM(FactSales[Profit])	Profit in the current filter context.
Profit Margin %	DIVIDE([Total Profit], [Total Sales], 0)	Profit as a share of sales.
Total Orders	DISTINCTCOUNT(FactSales[Order ID])	Distinct orders, not order lines.
Total Customers	DISTINCTCOUNT(FactSales[Customer ID])	Distinct customers.
Units Sold	SUM(FactSales[Quantity])	Quantity sold.
Average Order Value	DIVIDE([Total Sales], [Total Orders], 0)	Revenue per distinct order.
Average Discount	AVERAGE(FactSales[Discount])	Mean order-line discount.
Average Delivery Days	AVERAGE(FactSales[Delivery Days])	Mean elapsed delivery days.

Measure	Definition	Business meaning
Total Shipping Cost	SUM(FactSales[Shipping Cost])	Total shipping expenditure.
Shipping Cost %	DIVIDE([Total Shipping Cost], [Total Sales], 0)	Shipping cost as a share of revenue.
Selected Product	SELECTEDVALUE(DimProduct[Product Name], “Multiple Products”)	Tooltip selection label.
Selected Market Title	“Sales Performance: ” & SELECTEDVALUE(DimMarket[Market], “All Markets”)	Dynamic chart title.
Loss-Making Orders	CALCULATE(DISTINCTCOUNT(FactSales[Order ID]), FILTER(FactSales, FactSales[Profit] < 0))	Orders containing at least one negative-profit line.
Loss-Making Sales	CALCULATE([Total Sales], FILTER(FactSales, FactSales[Profit] < 0))	Sales attached to negative-profit lines.
Previous Year Sales	CALCULATE([Total Sales], SAMEPERIODLASTYEAR(DimDate[Date]))	Prior-period sales in a valid date context.
Previous Year Profit	CALCULATE([Total Profit], SAMEPERIODLASTYEAR(DimDate[Date]))	Prior-period profit in a valid date context.
Sales YoY Growth %	DIVIDE([Total Sales] - [Previous Year Sales], [Previous Year Sales], 0)	Sales year-over-year change.
Profit YoY Growth %	DIVIDE([Total Profit] - [Previous Year Profit], [Previous Year Profit], 0)	Profit year-over-year change.
Sales YTD	TOTALYTD([Total Sales], DimDate[Date])	Cumulative sales within the selected year.

MEASURE INTERPRETATION. “Loss-Making Orders” does not mean orders whose final net profit is negative. It counts any order containing at least one negative-profit line. The dataset has 7,541 such orders, while 6,125 orders are net loss-making after all lines are combined.

7. Dashboard structure and interactivity

Page	Primary purpose	Key elements
Executive Overview	Overall performance and trend monitoring	Sales, profit, margin, orders, YoY card, monthly trend, market/category comparisons, country map, Year/Market/Category/Segment slicers.
Product Profitability	Identify profitable and loss-making products	Product KPIs, category/sub-category profit, Top 10 sales products, Bottom 10 profit products, loss table, discount-versus-profit scatter.
Customer and Market Analysis	Compare customers, segments, countries, and markets	Customers, AOV, segment views, market sales/margin, Top 10 customers, country-level table.
Shipping Performance	Evaluate speed and cost trade-offs	Delivery days, shipping cost, shipping-cost ratio, ship-mode comparisons, market delivery time, priority/mode matrix, cost-versus-sales scatter.
Product Tooltip (hidden)	Provide hover-level product details	Selected Product, Total Sales, Total Profit, Profit Margin %, Units/Quantity, and Average Discount.

Cross-filtering and slicers make the pages interactive. The hidden tooltip is designed as a Multi-pane Card. Its intended five panes correspond to Selected Product; Total Sales; Total Profit; Profit Margin %; and a fifth pane containing Quantity and Average Discount. Public documentation describes the analytical behaviour without discussing licensing constraints of the custom visual.

8. Validated findings

Growth and overall performance

- Sales rose from $2.26M in 2011 to $4.30M in 2014, an increase of 90.31%.
- Profit rose from $248.94K to $504.17K over the same period, an increase of 102.52%.
- 2014 sales grew 26.25% year over year; 2014 profit grew 23.89%.
- Overall profit margin is 11.61%, while shipping cost equals 10.70% of sales.

Market performance

Market	Sales	Profit	Margin	Sales share
APAC	$3.586M	$436.00K	12.16%	28.36%
EU	$2.938M	$372.83K	12.69%	23.24%
US	$2.297M	$286.40K	12.47%	18.17%
LATAM	$2.165M	$221.64K	10.24%	17.12%
EMEA	$0.806M	$43.90K	5.45%	6.38%
Africa	$0.784M	$88.87K	11.34%	6.20%
Canada	$0.067M	$17.82K	26.62%	0.53%

APAC is the largest revenue market. EU delivers the strongest margin among the four high-volume markets. Canada has the highest margin but represents only 0.53% of sales, so it should not be treated as the main global performance benchmark. EMEA requires attention because its 5.45% margin is materially below the portfolio average.

Product and discount performance

- Technology leads category profitability with $663.78K profit and a 13.99% margin.
- Office Supplies produces $518.47K profit at a 13.69% margin.
- Furniture produces $285.20K profit at only 6.94% margin.
- Tables is the only loss-making sub-category: −$64.08K profit, −8.46% margin, and 29.07% average discount.
- Aggregate profitability becomes negative above the 20% discount band. Discount and profit have a moderate negative association (Pearson r = −0.316), which supports investigation but does not prove causation.
- Negative-profit lines represent $2.49M, or 19.70% of sales.

Customer and country performance

Consumer generates the most revenue ($6.51M) and profit ($749.24K), but margins are similar across Consumer (11.51%), Corporate (11.54%), and Home Office (11.99%). The United States leads country profit at $286.40K. Turkey (−$98.45K) and Nigeria (−$80.75K) are the largest country losses, alongside very high average discounts of 60% and 70%, respectively. Sean Miller appears among the highest-sales customers but contributes a small net loss (−$409.71), demonstrating why revenue and profit must be reviewed together.

Shipping performance

Ship mode	Avg. delivery	Sales	Shipping cost	Cost / sales
Standard Class	5.00 days	$7.579M	$614.63K	8.11%
Second Class	3.23 days	$2.566M	$314.11K	12.24%
First Class	2.18 days	$1.831M	$308.10K	16.83%
Same Day	0.04 days	$0.667M	$115.97K	17.38%

Faster modes carry substantially higher shipping-cost ratios. Same Day is fastest but uses 17.38% of its sales value in shipping cost, more than double Standard Class. The result supports selective rather than default use of expedited service.

9. Business recommendations

Priority	Recommendation
Tighten discount governance	Introduce approval thresholds above 20%, especially for Tables and in high-loss countries. Test product- and market-specific thresholds rather than imposing one global rule.
Repair the Tables offer	Review supplier cost, freight, pricing, and promotion design for Tables. Pause or renegotiate combinations that remain negative after shipping cost and discount.

Priority	Recommendation
Protect high-volume profitable markets	Prioritise APAC, EU, and US retention and availability; together they generate 69.91% of sales. Use EU's margin performance as a comparison point for other large markets.
Create an EMEA recovery plan	Drill into EMEA by country, product, discount, and shipping mode to explain the 5.45% margin before increasing volume.
Use profit-qualified customer targeting	Do not rank customers by sales alone. Add profit and margin thresholds to account plans; review high-sales customers that produce losses.
Set shipping policies by economics	Default appropriate orders to Standard Class and require business justification for Same Day/First Class where the margin cannot absorb a 16–17% shipping-cost ratio.
Monitor loss exposure	Track net loss-making orders separately from orders containing negative lines, and add discount-band and country exception views for monthly review.

10. Challenges and resolutions

Challenge	Resolution / learning
Ambiguous DD-MM-YYYY dates	Used Change Type with Locale and English (United Kingdom), preventing month/day reversal.
Non-unique product identifier	Profiled product fields and created Product Key from ID plus name; 457 IDs map to multiple names.
Geographic dimensionality	Created a composite Location Key at Market–Region–Country–State –City grain.
Two relevant date roles	Kept Order Date active and Ship Date inactive against a shared date table.
No target dataset	Removed the proposed Sales Targets analysis rather than inventing targets.
Order lines versus orders	Used DISTINCTCOUNT(Order ID) for orders and documented measure grain.
Tooltip design	Created a hidden report-tooltip page with product-aware measures.
Copied visual filters discovered during QA	Identified product Top-N filters incorrectly carried into market visuals; exact remediation is listed in the private release checklist.
Map deprecation warning	Flagged the current map for replacement with a supported map visual before publication.
YoY card context and formatting	Flagged the multi-year card for an explicit latest-year calculation and percentage formatting.

11. Changes from the original instructions

Change	Reason
Added a dedicated staging query named Stg_Sales	Separated source preparation from reporting tables.
Created Product Key rather than relying only on Product ID	The source identifier is not unique across product names.
Created both DimLocation and DimMarket	DimLocation preserves detailed geography; DimMarket supports direct market slicing and titles.
Extended DimDate to latest Ship Date	Maintained coverage for the inactive Ship Date relationship, although order analysis ends in 2014.
Excluded Sales Targets	No official target values were supplied.
Added a hidden product tooltip	Improved interactivity and product-level context.
Used a separate _Measures table and display folders	Improved maintainability and navigation.

Change	Reason
Added loss and shipping measures	Expanded the original analysis to focus on risk and operational cost.

12. Final quality review

The corrected PBIX file, dashboard PDF, and final screenshots were reviewed against the source workbook. The principal calculation and configuration issues identified during the first review were resolved.

Status	Area	Final review result
Verified	Sales by market	Copied Product Top 10 filtering was removed. Values now match the source: APAC $3.586M, EU $2.938M, US $2.297M, LATAM $2.165M, EMEA $0.806M, Africa $0.784M, and Canada $0.067M.
Verified	Profit margin by market	Copied Product Bottom 10 filtering was removed. Market margins now match the source, from Canada at 26.62% to EMEA at 5.45%.
Verified	Sales YoY Growth card	The card is percentage-formatted and reports the latest-year comparison. The displayed 2014-versus-2013 result is 26.25%.
Verified	Shipping Cost % card	The card is percentage-formatted and displays the validated 10.70% result.
Verified	Discount versus profit scatter	Average Discount is used on the X-axis and displayed as a percentage.
Verified	Year slicers	The visible order-analysis range ends in 2014.
Verified	Titles and labels	The final project title and principal visual titles were standardised.
Verified	Tooltip interaction	The hidden Product Details tooltip responds to product context. The free Multi-pane Card displays generic pane labels, but the assigned measures remain documented.
Accepted limitation	Executive Overview country map	The visual continues to show a Power BI retirement banner. Replacement requires an enabled supported map option; the owner elected to retain the current visual. This does not alter the underlying country values.
Accepted limitation	PDF page rendering	The Product Profitability page displayed correctly in Power BI and in the supplied screenshot. One PDF rendering displayed a black area; the dashboard page itself was verified from the screenshot.

13. Limitations and responsible interpretation

- The dataset is historical (2011–2014 orders) and does not represent current commercial performance.
- The source contains no budget, target, returns, customer acquisition cost, fulfilment SLA, or inventory data.
- Discount-profit correlation is descriptive, not causal; product mix, market, and freight may also explain losses.
- Average Delivery Days uses calendar-day subtraction and does not distinguish business days or promised delivery dates.
- Loss-Making Orders and net loss-making orders are different definitions and should not be interchanged.

14. Portfolio-ready project summary

Built an interactive Power BI dashboard from 51,290 Global Superstore order lines to analyse $12.64M in sales across seven markets. Cleaned and standardised the Excel source in Power Query, resolved locale-sensitive dates, created composite product and location keys, designed a star schema with active and inactive date relationships, and developed DAX measures for sales, profitability, loss analysis, YoY performance, and shipping efficiency. The analysis showed that sales grew 90.31% from 2011 to 2014, Tables generated a $64.08K loss, and profitability became negative above the 20% discount band in aggregate. Recommendations focused on discount governance, Tables remediation, EMEA margin recovery, profit-qualified customer targeting, and selective expedited shipping.

Skills demonstrated

Power BI Desktop • Power Query • Data cleaning • Star-schema modelling • DAX • Time intelligence • KPI design • Interactive tooltips • Business analysis • Data storytelling • Quality assurance

15. Final assessment

The project demonstrates a strong end-to-end analytics workflow: raw-data preparation, dimensional modelling, measure creation, interactive reporting, quality assurance, and business interpretation. The analytical foundation is sound, the source-level results are reproducible, and the corrected final version is suitable for inclusion in an entry-level data analytics portfolio. The retained map banner and the noted PDF rendering behaviour should be understood as presentation limitations rather than calculation errors.