**Technical Report: Global Sales and Customer Trends Dashboard**

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**2. Introduction**

**Objective of the Project:**  
To analyse global customer purchasing behaviour, sales distribution, and product demand across various countries and order sizes using Power BI. The goal is to uncover top-performing markets, customer segments, and inventory movement trends.

**Problem Being Addressed:**  
Understanding which countries, customers, and product categories drive the most revenue is critical for business growth and operational efficiency. This report seeks to identify key sales contributors and patterns to guide business strategy.

**Key Datasets and Methodologies:**  
The analysis uses data from multiple related tables covering transactions, customer details, quantities, invoices, and country classifications. Power BI was used to create a dashboard combining DAX measures, visual KPIs, and interactive slicers.

**3. Story of Data**

**Data Source:**  
Internal e-commerce transaction data spanning multiple countries and customer groups.

**Data Collection Process:**  
Data was collected through sales invoices and order records linked by customer ID and invoice number. It includes geographic segmentation and order-level granularity.

**Data Structure:**

* **E-Commerce Table**: Contains core fields like Country, Description, Quantity, Customer ID, and Invoice No.
* **Customer ID / Invoice No Tables**: Uniquely identify and relate customers and orders.
* **Quantities Table**: Used to normalize and track stock movement.
* **Territories Table**: Links country with geographical zones.

**Important Features and Their Significance:**

* **Total Sales & Quantity**: Key revenue and volume indicators.
* **Country Breakdown**: Reveals market contributions.
* **Order Size**: Distinguishes large vs. small transaction impacts.
* **Stock Code**: Tracks inventory by item.

**Data Limitations or Biases:**  
Order value and pricing details are standardized, but external factors such as seasonality or marketing efforts were not included in this analysis.

**4. Data Splitting and Preprocessing**

**Data Cleaning:**  
Minimal cleaning was required due to relational structure. Key transformations involved merging and calculating fields like total sales (unit price \* quantity).

**Handling Missing Values:**  
Power BI managed null values with default blank handling. Relationships were enforced using unique keys.

**Data Transformations:**  
Calculated columns and measures were used to derive total quantity, sales by region, order type segmentation, and average unit prices.

**Data Splitting:**

* **Dependent Variables**: Total sales, total order count.
* **Independent Variables**: Country, order size, quantity, stock code.

**Industry Context:**  
This project falls within e-commerce analytics and retail intelligence.

**Stakeholders:**  
Sales managers, inventory controllers, regional managers, and strategic planning teams.

**Value to the Industry:**  
Helps prioritize top-performing regions, optimize stock levels, and personalize customer targeting.

**5. Pre-Analysis**

**Identify Key Trends:**

* United Kingdom dominated sales with over £8.17M.
* Large orders contributed ~80% of total sales value.
* Highest quantities were associated with stock codes 22197 and 84077.

**Potential Correlations:**

* Higher unit quantity correlates with countries showing greater sales volume.
* Smaller customer base in high-revenue countries suggests quality over quantity.

**Initial Insights:**  
High-value transactions are concentrated in a few countries, suggesting possible localization or brand affinity.

**6. In-Analysis**

**Unconfirmed Insights:**

* Small orders may be more common globally but less impactful on revenue.
* Stock code 22197 has consistent movement across markets and may indicate a best-selling product.

**Recommendations:**

* Focus marketing and supply efforts on the UK, Australia, and Switzerland.
* Expand availability of top stock codes in underperforming regions.

**Analysis Techniques Used in Power BI:**

* DAX for total sales, average unit price, and quantity by stock code
* Slicers and filters for dynamic region/order size analysis
* Relationship modelling for scalable insights

**7. Post-Analysis and Insights**

**Key Findings:**

* 32 customers made a total of 26K orders contributing to £9.73M in sales.
* Small orders make up nearly 20% of sales yet dominate in quantity.
* Visual KPIs highlight the UK's strategic dominance in revenue.

**Comparison with Initial Findings:**  
Data confirmed assumptions about regional dominance and reinforced the importance of segmenting by order size.

**8. Data Visualizations & Charts**

* **Bar Charts**: Total sales by country, quantity by stock code
* **Donut Chart**: Sales distribution by order size
* **Map Visual**: Total order heatmap across global regions
* **KPI Cards**: Customer count, sales value, average unit price

A screenshot of a computer

AI-generated content may be incorrect.

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Each visual element supports strategic clarity and geographic targeting.

**9. Recommendations and Observations**

**Actionable Insights:**

* Strengthen logistics and stock planning for high-volume items in UK and Australia.
* Reevaluate order size strategies to boost high-margin small orders.
* Use customer segmentation to upsell in regions with smaller quantities.

**Optimizations or Business Decisions:**

* Tailor marketing by territory based on order type behaviour.
* Target high-performing SKUs with bundled offers in low-performing countries.

**Unexpected Outcomes:**

* Despite a small number of customers, some countries deliver outsized revenue indicating high repeat business potential.

**10. Conclusion**

**Key Learnings:**  
Sales are disproportionately driven by large orders and a few dominant regions. Power BI enables layered analysis that guides customer and inventory strategies.

**Limitations:**  
Customer demographics and seasonal variations are not included. Full profit margin data is also excluded.

**Future Research:**

* Include customer churn and lifetime value analysis.
* Integrate external factors like promotional campaigns and competitor pricing.

**11. References & Appendices**

**References:**

* Internal e-commerce sales system exports
* Power BI relationship schema and calculated measures

**Appendices:**

* Power BI .pbix model file
* Global sales dashboard screenshot
* Data relationship diagram (included)