

Group No.6 — Insights & Storytelling Report

Dashboard: ELT Workflow (Fact Sales (ELT), Customers (ELT), Products (ELT), Date (ELT))

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Deliverable: Deliverable 4 — Power BI dashboard insights

Introduction

This two-page summary documents the visual design choices, analytical findings, performance metrics, and business recommendations derived from the ELT-driven Power BI dashboard. The dashboard combines cleaned ELT fact and dimension tables with MOLAP summary tables for validation. Its goal is to provide an executive single-page view for performance monitoring, operational follow-up, and strategic decision-making.

Visual Design Logic

The dashboard is designed for a single-page executive layout, providing immediate insight into business performance while allowing drill-down and ad-hoc exploration.

- **KPI Row (Top)**
Quick “one-second” decision-making metrics:
 - **Total Revenue:** 9.75M
 - **Total Orders:** ~26K
 - **ARPO (Avg Revenue per Order):** ~376
 - **YoY Growth %:** ~12%
 - **Top Region (optional card):** highest-revenue country at a glance
- **Time Series (Left)**
Monthly revenue trend using Date (ELT) hierarchy with drill-down. Shows seasonality and peak months. Continuous axis and data labels highlight monthly spikes.
- **Category Bar Chart (Centre)**
Top-5 category view from Products (ELT)[Category]. Highlights product families driving revenue — Home Decor dominates. Top-N filter focuses analyst attention.
- **Stacked Column (Right)**
Revenue by Country segmented by Customer Signup Year. Acts as a cohort proxy (substitute for loyalty tier) to reveal how cohorts contribute across geographies.
- **Matrix (Bottom)**
Customer-level summary: Name, Country, ARPC, Total Orders, Total Revenue. Enables account prioritization and targeted outreach.
- **Interactivity**
Slicers for Year, Month, Country, Category. Drilldowns and bookmarks allow ad-hoc checks without leaving the dashboard.

Key Insights

1. High Aggregate Revenue but Geographic Concentration

- **Total Revenue \approx 9.75M**
- The United Kingdom dominates revenue. This concentration indicates both dependence risk and growth opportunity for expansion.

2. Clear Seasonality and Late-Year Peaks

- Monthly trend shows pronounced uplift in Oct–Dec (holidays/promotions).

3. Category Leadership

- Home Decor leads substantially in both quantity and revenue.
- Accessories and Kitchen follow as secondary contributors.

4. Healthy Per-Order Economics, Concentrated Buyers

- **ARPO \approx 376, ARPC \approx 2.23K**
- A small set of high-value customers generate a large portion of revenue, with a long tail of smaller buyers.

Data / Pipeline Observations (ELT)

- **Date Join Fixes:** Resolved earlier gaps by switching to date-based join (`dt_date` → `dim_date.full_date`) and indexing.
- **MOLAP Validation:** Aggregates now align closely with fact totals.
- **Outliers:** Some countries show unusually high revenue per customer (possible bulk/B2B orders or duplicates).
- **Price Fallbacks:** Certain products used median unit prices; review to prevent margin distortion.

Performance Metrics & Anomalies (DAX + Checks)

Primary DAX Measures:

- Total Revenue = `SUM('Fact Sales (ELT)'[Total Amount])`
- Total Orders = `DISTINCTCOUNT('Fact Sales (ELT)'[Invoice ID])`
- ARPO = `DIVIDE([Total Revenue], [Total Orders])`
- ARPC = `DIVIDE([Total Revenue], DISTINCTCOUNT('Customers (ELT)'[Customer ID]))`
- YoY Growth % = `(CurrentYear - PriorYear)/PriorYear` (via `DATEADD` on Date (ELT))

Anomalies & Validation Checks:

- **Date join mismatch (resolved):** Previous revenue shortfall fixed using indexed date join.
- **Country outliers:** Investigate extreme revenue per customer values.

- **Price fallbacks:** Some products used median price — requires review for margin accuracy.

Business Recommendations (Next Steps)

1. Inventory & Promotional Planning for Peak Months

- Increase stock and marketing spend from September onward to capitalize on Oct–Dec demand.
- Plan logistics and supplier capacity ahead of time.

2. Category-Focused Growth

- Prioritize product investment, merchandising, and promotions for Home Decor and top 3 categories.
- Test bundles and cross-sell campaigns to increase ARPO.

3. Geographic Strategy

- Revenue concentrated in select countries; run experiments in secondary markets (localized promotions, currency, fulfillment options).

4. High-Value Customer Program

- Retain top accounts using matrix exports.
- Offer loyalty tiers or account-management services to increase LTV.

5. Data & Pipeline Operationalization

- Schedule nightly/weekly MOLAP refreshes and ANALYZE after bulk loads.
- Implement monitoring alerts for unexpected revenue drops.

6. Actionable Dashboard Additions

- Add drill-through to order lists for top customers.
- Create an “Action” bookmark with export buttons for sales outreach lists.

Closing Summary

The ELT-based Power BI dashboard successfully balances executive KPI monitoring with operational drill-downs.

- Confirms **healthy revenue growth (YoY ≈ 12%)**,
- Highlights **strong category concentration (Home Decor)**,
- Reveals **measurable seasonality (year-end peaks)**.

Implementing the recommended inventory, retention, and geographic strategies will convert insights into revenue growth while reducing risk. Maintaining ELT pipeline hygiene (date matching, indexing, MOLAP refreshes) ensures continued analytic accuracy and trust.