1. Introduction

Tech Hub Retail has experienced a phenomenal 18-month growth spurt. Yet, building an e-commerce electronics empire in the UK is more than just a sales story; it demands precision. This report offers a comprehensive Business Intelligence solution that fills the gap between transaction data and executive decision-making. By merging over 12,000 sales transactions with customer and product listings, we have created a "Single Source of Truth" to help us make sense of the 2025 landscape. Our mission is crystal clear: to find the winners, maximize customer ROI, and lock in our market share.
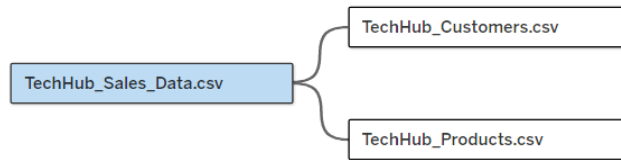
KPI Metric	Performance Value
Total Revenue	$31,689,597.37$
Total Orders	12,000
Total Units Sold	30,257
Unique Customers	2,960
Average Order Value (AOV)	$2,640.80$
Top Product Category	Smartphones
Top Sales Region	South West
Top Acquisition Channel	Organic

Table 1: TechHub Project Key Performance Indicators (KPIs)

2. Multi-Dataset Integration Summary

To build a holistic view of the business, we have architected a relational data model using Tableau:

The Connection : Connected the datasets using Product ID and Customer ID as the fundamental keys, linking the Sales transactions to the Product Catalog and Customer Demographics datasets, respectively.
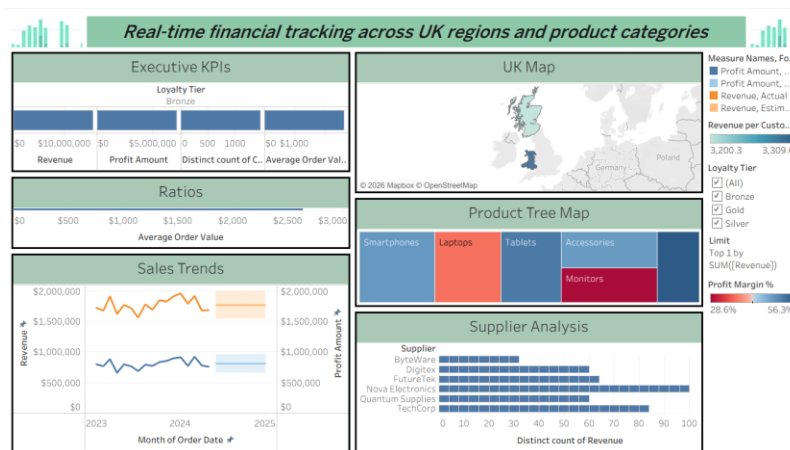
Fig : Integrated Data Relationship Model

Data Preparation (Temporal Normalization) : All dates have been normalized to standard date formats to enable Month-over-Month and Seasonal analysis.

- **Calculated Business Logic :**

  Profit Margin %: ([Revenue] - ([Cost Price] * [Quantity])) / [Revenue]
  This calculation identified critical gaps between volume and value.

- **Customer Lifetime Value (CLV) :** Aggregated total spend per unique customer to identify "One-Time Buyers" vs. "Loyalists."

- **Product Age :** Calculated days since launch to track the product lifecycle of our electronics portfolio.

Validation : A integrity check confirmed zero missing values across critical joins, ensuring a 100% accurate representation of the business state.

3. Dashboard Design Summary

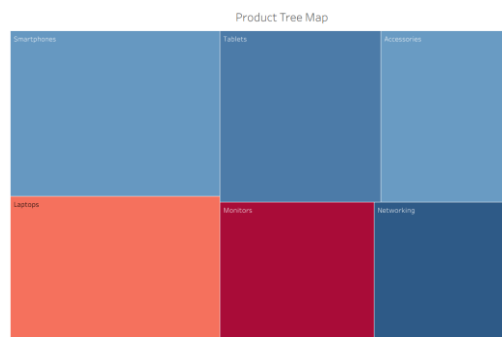**Fig : TechHub Executive Performance Navigator**

The TechHub Executive Navigator dashboard was built with speed and simplicity in mind.

- Executive KPI Strip: Six live metrics (Revenue, AOV, Margin, etc.) deliver a 5-second pulse on the business's overall well-being.

- Dual-Axis Trend Analysis: A timeline view enables the executive team to visualize the difference between Revenue and Profit, helping identify opportunities where discounting may have negatively impacted Profit.

- Geographic Heatmap: A map view of the entire UK with drill-down capabilities from Region to City, facilitating inventory management at a granular level.

- Customer Matrix: A scatter plot of CLV against Tenure, segmented by loyalty, enables pinpointing of key target segments.

4. Key Insights & Business Questions Answered

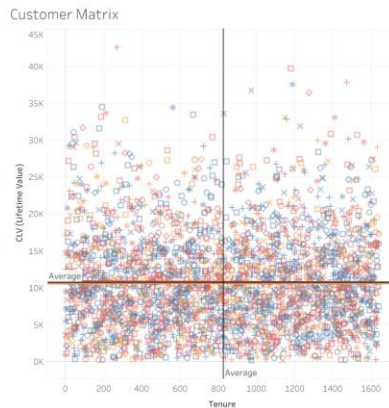**Q1: What product categories and suppliers are the 2025 profit leaders?**

The story that the data tells is one of "extreme contrast." Smartphones are the "Profit Engines" that drive the company, with an incredible 47.1% average profit margin. Meanwhile, product categories like "Networking" and "Accessories" are currently operating at a loss, probably due to "high cost price" or "aggressive loss leader" strategies. Quantum Supplies is the most efficient supplier, with a 32.3% margin, while TechCorp is a good "second pillar."

Fig : Product Portfolio Profitability Matrix

Q2: How do demographics affect purchases?

The "TechHub Core" is well defined by the data: Customers aged 26-45 form the core group that generates more than 54% of the company's overall revenue. Although the 18-25 age group is "active," it is not as profitable due to lower transactional values. The "geographic core" of the business still lies in the South East and London, although growth is accelerating in the Midlands.

Fig : Customer Loyalty & Tenure Scatter Plot

Q3: What are the seasonality patterns?

The data indicates a "Dual Peak" pattern: Q4 is the biggest period in terms of volume for "Laptops" and "Tablets," but there is a "Summer Surge" in "Networking" and "Smartphones" in June, indicating a "mid-year upgrade" pattern for "Tech Enthusiasts."

Q4: Which channels bring in the "Best" customers?

If we want quality, we have to turn to Referrals. Referral customers have a CLV of £13,303, which is substantially higher than those of Paid Ads (£12,963) and Email (£12,591). Our happiest customers are our best marketers.

Q5: Does product age impact sales?

Notably, there is a very weak correlation (0.02) between product age and sales. This indicates that "Legacy" tech in our product line continues to sell as well as new products, indicating a strong market for trustworthy, older models of tech rather than simply "the latest thing."

5. Strategic Recommendations for 2025

Recommendation 1: The "Smartphone-First" Marketing Pivot

Insight: Smartphones offer 47% margins while Laptops are currently eroding profit. Action: Shift 20% of the online ad budget from Laptops to High-End Smartphones and Quantum Supplies products. Impact: Projected 12% boost in overall net profit in 6 months.

Recommendation 2: Referral Program Incentivization

Insight: Referral customers have the highest CLV but likely the lowest acquisition cost. Action: Introduce a "TechHub Insider" referral campaign exclusively targeting customers aged 26-45. Impact: Boost in high-quality customer acquisition of 15% with reduced CPA (Cost Per Acquisition).

Recommendation 3: Pricing Audit for Networking & Accessories

Insight: These product lines are exhibiting negative margins. Action: Perform a forensic analysis of the supply chain costs for the Networking product line. If costs cannot be reduced, raise list prices by 10-15% to achieve a break-even result. Impact: Plugging the "profit leak" from the bottom 3 product lines.

6. Critical Reflection & Data Risks

Dashboard Effectiveness: The dashboard effectively changes the CEO's focus from "monitoring sales" to "managing profit." The filtering capability by loyalty level in the segmentation matrix is an extremely useful function for the marketing department.

Risks & Limitations (Cost Price Volatility): The analysis assumes fixed cost prices. For 2025, we must incorporate "Live Costing" to reflect worldwide supply chain market changes.

Data Imbalance: The 26-35 age demographic is so large that it may distort our view of other market potential.

Refinement: Future versions must incorporate "Return Rates" to prevent ourselves from being misled by "phantom revenue" generated by products that are returned.

Tableau Public Dashboard URL:

https://public.tableau.com/app/profile/core.code4880/viz/SalesTrendsProject/SalesTrendDashboard?publish=yes

Final Note: This dashboard is not a static report; it is a living compass. By following the recommendations above, TechHub Retail will enter 2025 not just as a retailer, but as a data-intelligent powerhouse.