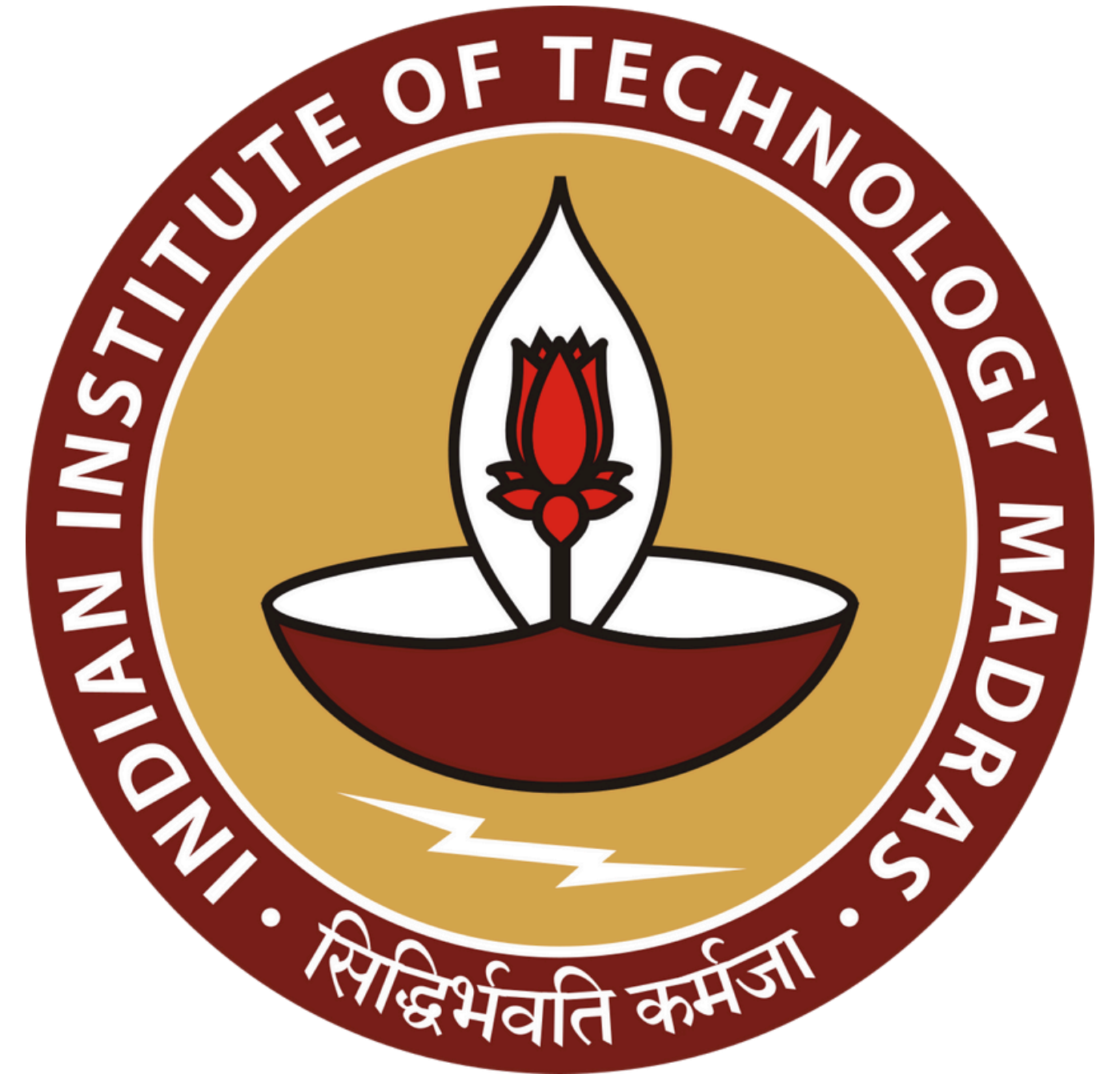Optimizing Inventory and Pricing Strategies for Shree Balaji Mobile Care: A Data-Driven Approach

BDM
CAPSTONE PROJECT

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सिद्धिर्भवति कर्मजा

ABOUT THE BUSINESS

Shree Balaji Mobile Care – Mobile Phones & Accessories Retail Store

- Shree Balaji Mobile Care, a mobile and accessories retailer in Asind, Rajasthan, serves local customers with affordable products and repair services but struggles with inventory inefficiencies, excessive dead stock accumulation, and revenue losses due to inconsistent pricing practices, despite operating successfully since 2014.

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- Key insights show that 62% of sales revenue comes from 3 high-performing categories (Smartphones, Earphones, Power Banks), while 46.2% of total inventory (624 units worth ₹21.59 lakh) remains unsold, requiring strategic inventory optimization, pricing standardization, and dead stock clearance to enhance profitability and sustainable growth.

PROBLEM STATEMENT & OBJECTIVES

Shree Balaji Mobile Care faces critical operational challenges despite stable customer demand since 2014. The business struggles with excessive dead stock accumulation of 624 units (46.2% of total purchases) worth ₹21.59 lakh, particularly in low-demand categories like Mobile Covers (90.2% unsold), Screen Protectors (80.4%), and Phone Stands (83.3%).

Additionally, pricing inconsistencies due to bargaining practices cause annual revenue loss of ₹5.27 lakh, squeezing profit margins in high-value categories like smartphones and laptops. These issues limit capital efficiency, restrict growth opportunities, and threaten long-term profitability.

Eliminate dead stock accumulation through clearance campaigns targeting 60% stock reduction and ₹1.2–1.5 lakh capital recovery.

Optimize inventory procurement by reducing underperforming categories and expanding high-performers (Smartphones, Earphones, Power Banks).
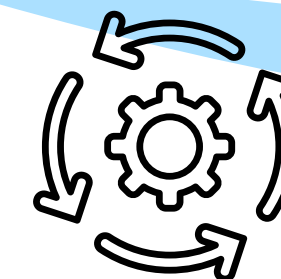
Implement structured pricing framework to reduce average discounting from 2.91% to ≤1.5% and recover at least ₹2.6 lakh revenue annually.

Achieve 15–20% annual revenue growth (~₹8–10 lakh) through optimized inventory, standardized pricing, and digital adoption.

DATA COLLECTION & METHODOLOGY

Primary Data Collection Process

- Duration: March – May 2025 (3-month comprehensive analysis)
- Data Source: Business records verified with owner Mr. Sampat Lal Kumawat
- Collection Method: Conversion of handwritten records into structured digital format with multiple validation cycles
- Categories Analyzed: 14 product categories (Smartphones, Earphones, Power Banks, Mobile Covers, etc.)
- Total Data Points: 182 transaction records, covering 1,351 units purchased, 727 sold, 624 unsold

Key Variables Collected

- Sales Performance: Units purchased, units sold, remaining stock levels
- Financial Data: Cost price, selling price, profit margins per category
- Temporal Patterns: Monthly and seasonal sales trends
- Inventory Movement: Purchase dates, stock turnover rates

Analytical Methodologies Applied

- Analytical Methodologies Applied
- Inventory Turnover & Dead Stock Analysis
- Pricing Variance & Revenue Loss Analysis
- ABC Classification (Pareto Principle)
- Seasonal Responsiveness & Demand Forecasting
- Capital Efficiency & Risk Assessment
- Correlation & Benchmarking vs Industry Standards

Tools & Technology

- Excel: Pivot tables, revenue/loss calculations, inventory KPIs
- Python (pandas, matplotlib, seaborn, statsmodels): Statistical analysis, forecasting, correlation modeling, and visualization
- Ensured data accuracy through systematic cleaning, outlier detection, and cross-verification with business records

KEY INSIGHTS FROM ANALYSIS


Figure 3.1: Inventory Performance by Category
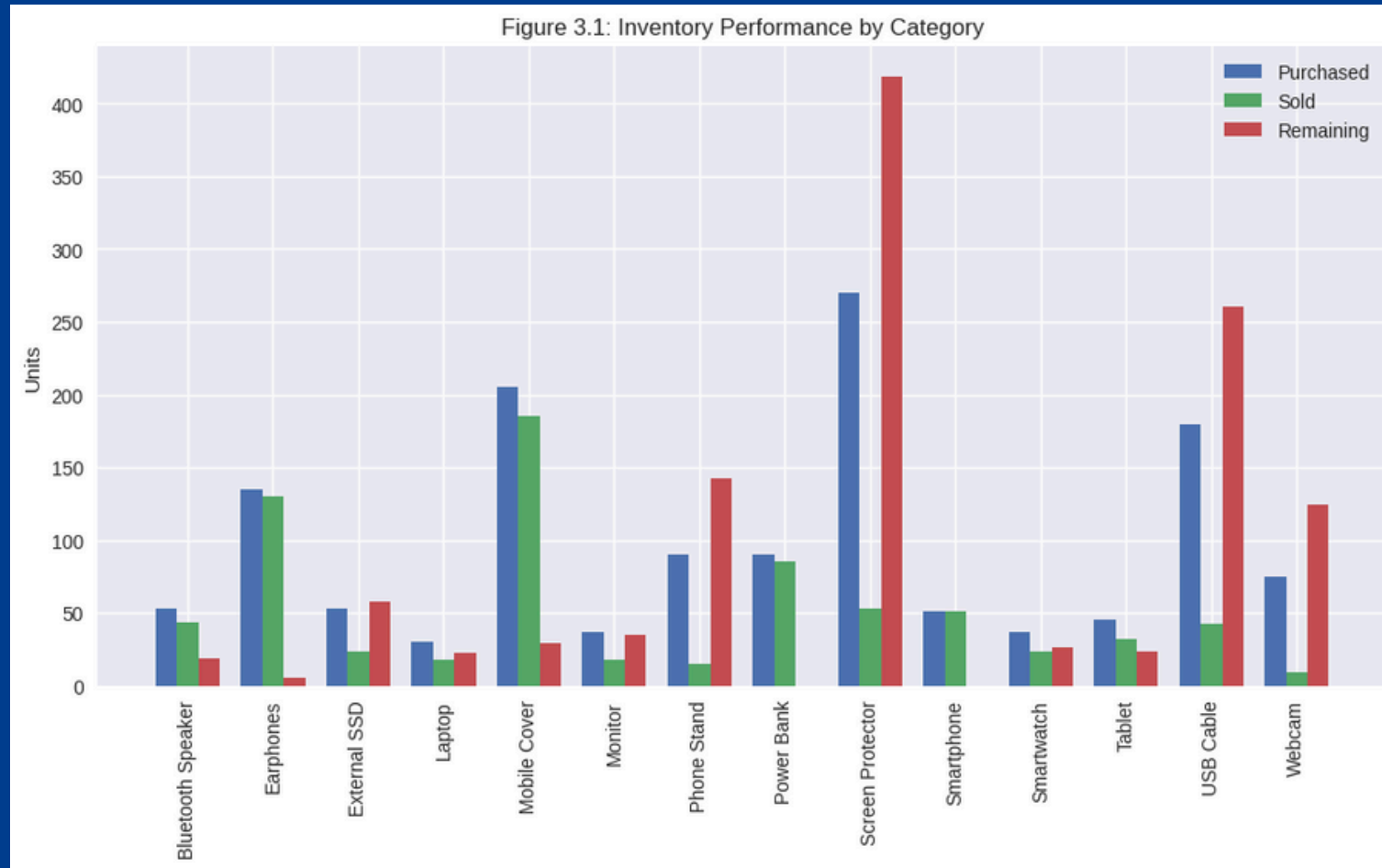
- High-Volume Category Dominance – Smartphones (100% turnover), Earphones (96.3%), and Power Banks (94.4%) demonstrate excellent performance and strong customer demand.
- Moderate Mid-Tier Performance – Tablets and Laptops provide strong revenue but only moderate efficiency, requiring balanced procurement.
- Critical Underperformer Impact – Screen Protectors (80.4% unsold), Mobile Covers (90.2%), and Phone Stands (83.3%) trap working capital and reflect poor procurement.

Figure 3.2: Capital Tied in Unsold Inventory
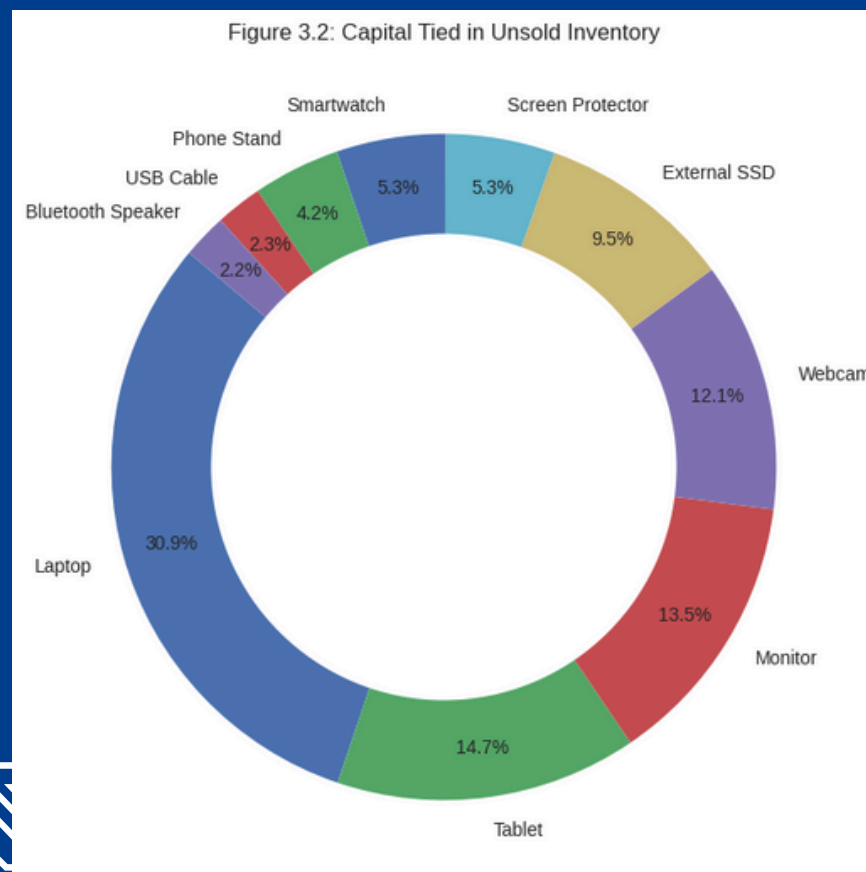
- Revenue Concentration Risk – Laptops (30.9%), Tablets (14.7%), and Monitors (13.5%) account for nearly 60% of tied-up capital, creating heavy business dependency.
- Market Validation Success – Earphones and Power Banks show strong turnover efficiency with minimal capital lock.
- Underperforming Segment Crisis – Low-demand items (Screen Protectors, USB Cables, Phone Stands) tie up working capital despite weak contribution to revenue.

KEY INSIGHTS FROM ANALYSIS

Figure 3.3: Cumulative Revenue Impact Analysis
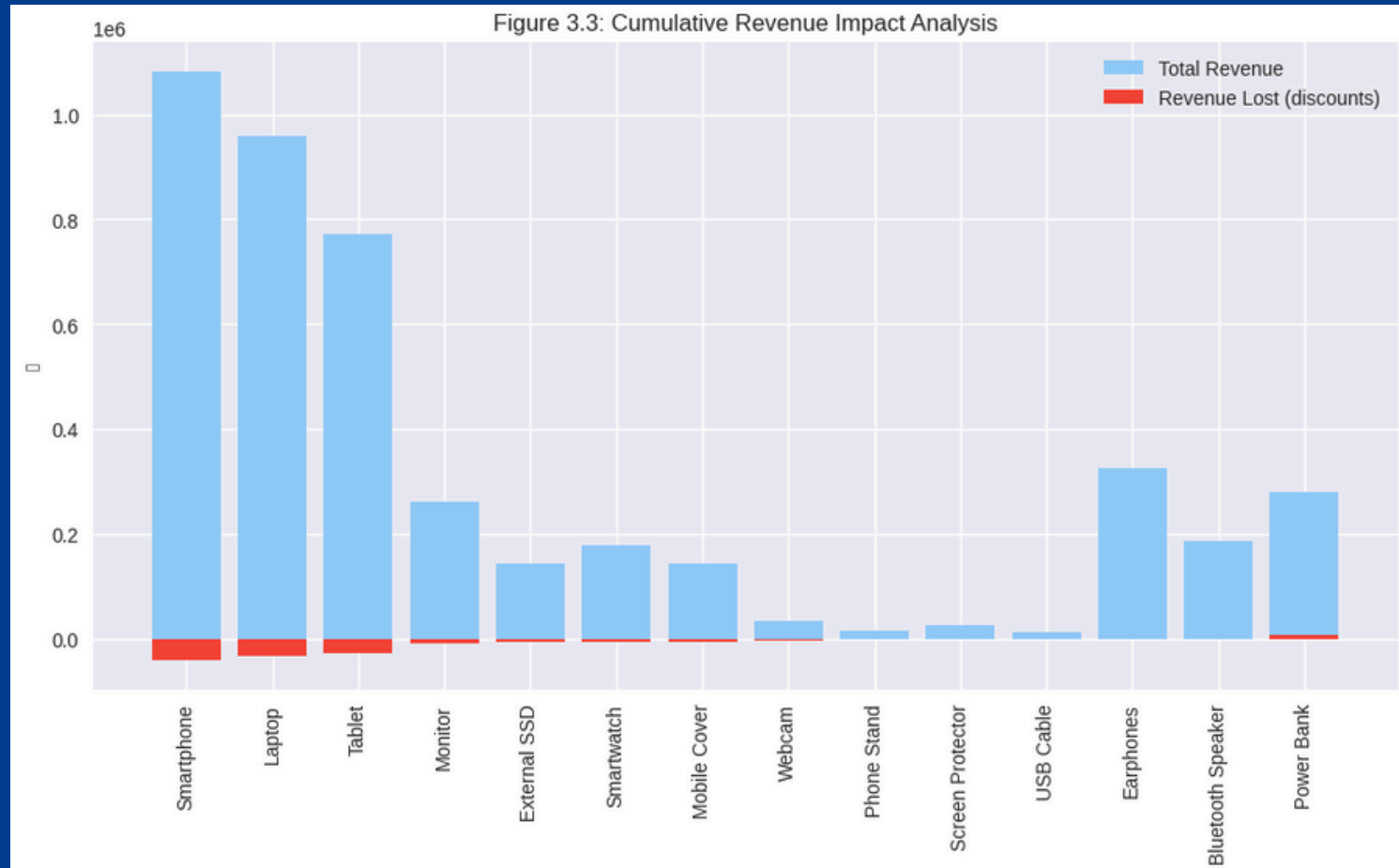
- Revenue Erosion – Informal bargaining reduces annual revenue by ~₹527,760, with Smartphones, Laptops, and Tablets suffering the highest absolute losses.
- Strategic Focus Requirement – Structured pricing and discount bands can recover nearly 50% of this leakage (~₹263,880).
- Efficiency Gap Analysis – Bargaining disproportionately affects high-value electronics, squeezing margins.

Weekly Sales Trends for Top Products
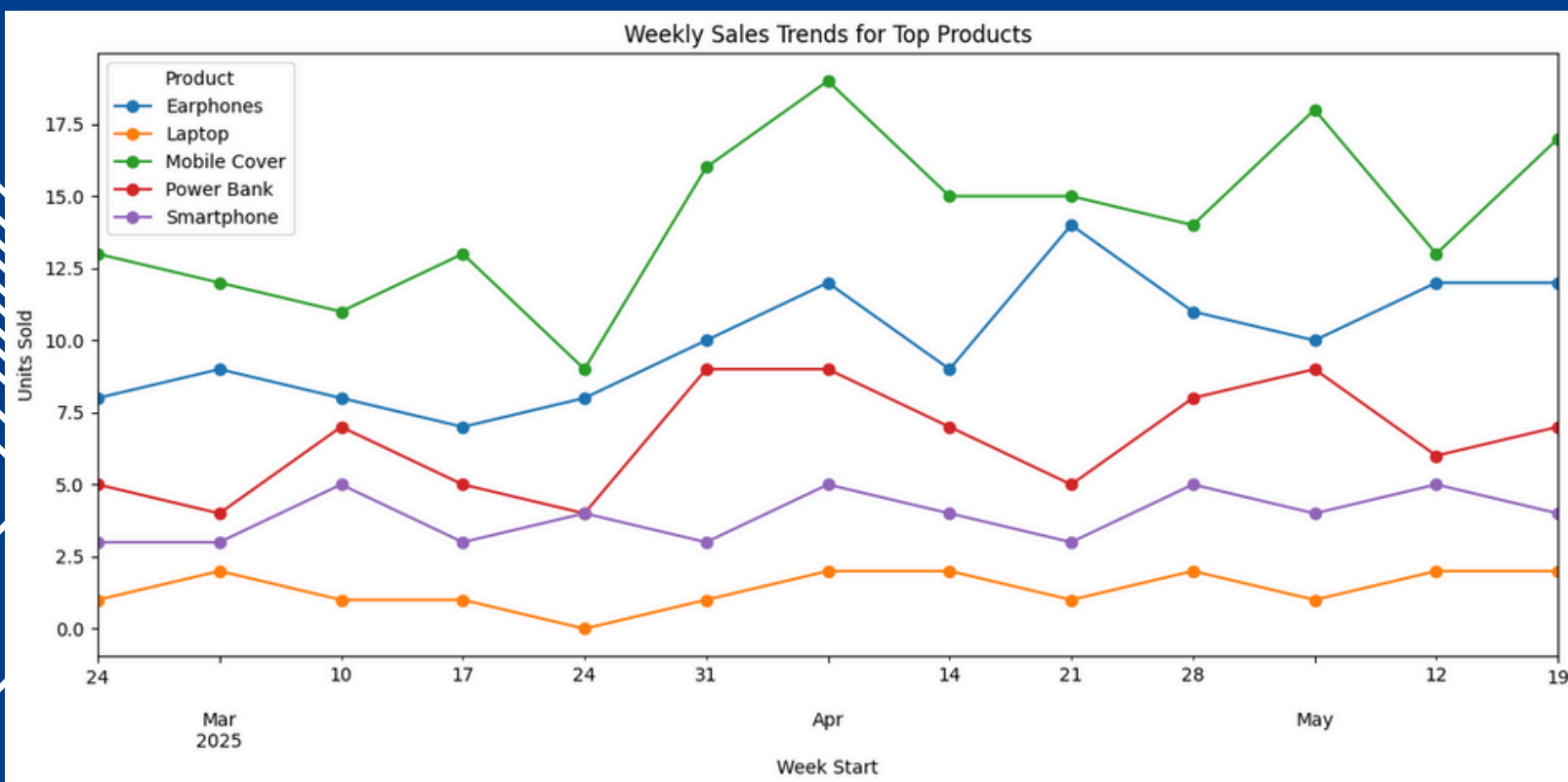
- Seasonal Demand Pattern – Mobile Covers show strong weekly growth (+15.2% MoM), while Power Banks spike in summer months.
- Market Validation – Earphones maintain steady demand growth (+12.8%).
- Declining Segments – Screen Protectors, Phone Stands, and USB Cables show stagnant/declining weekly sales.
- Efficiency Gap – Smartphones maintain stable demand but require consistent inventory availability.

KEY INSIGHTS FROM ANALYSIS

- Category A (Vital Few) – Smartphones, Tablets, and Laptops contribute 62.4% of total revenue, proving their critical role.
- Category B (Important Few) – Earphones and Power Banks add 15.2% with strong turnover, validating customer preference.
- Category C (Trivial Many) – Remaining 8 categories together contribute only 22.4% of revenue but absorb substantial inventory and capital.

Product Performance Matrix (ABC Classification)

- 80/20 Sales Pattern – Smartphones, Laptops, and Tablets generate the majority of revenue, emphasizing their strategic importance.
- Strategic Focus Requirement – High-performing categories need continued priority, while underperformers require clearance or bundling.
- Efficiency Gap Analysis – Accessories like USB Cables, Phone Stands, and Screen Protectors contribute marginally but hold excess stock.
- Capital Misallocation – Excess capital tied in underperformers highlights procurement inefficiency.

Figure 3.6: Pareto Analysis of Revenue Contribution
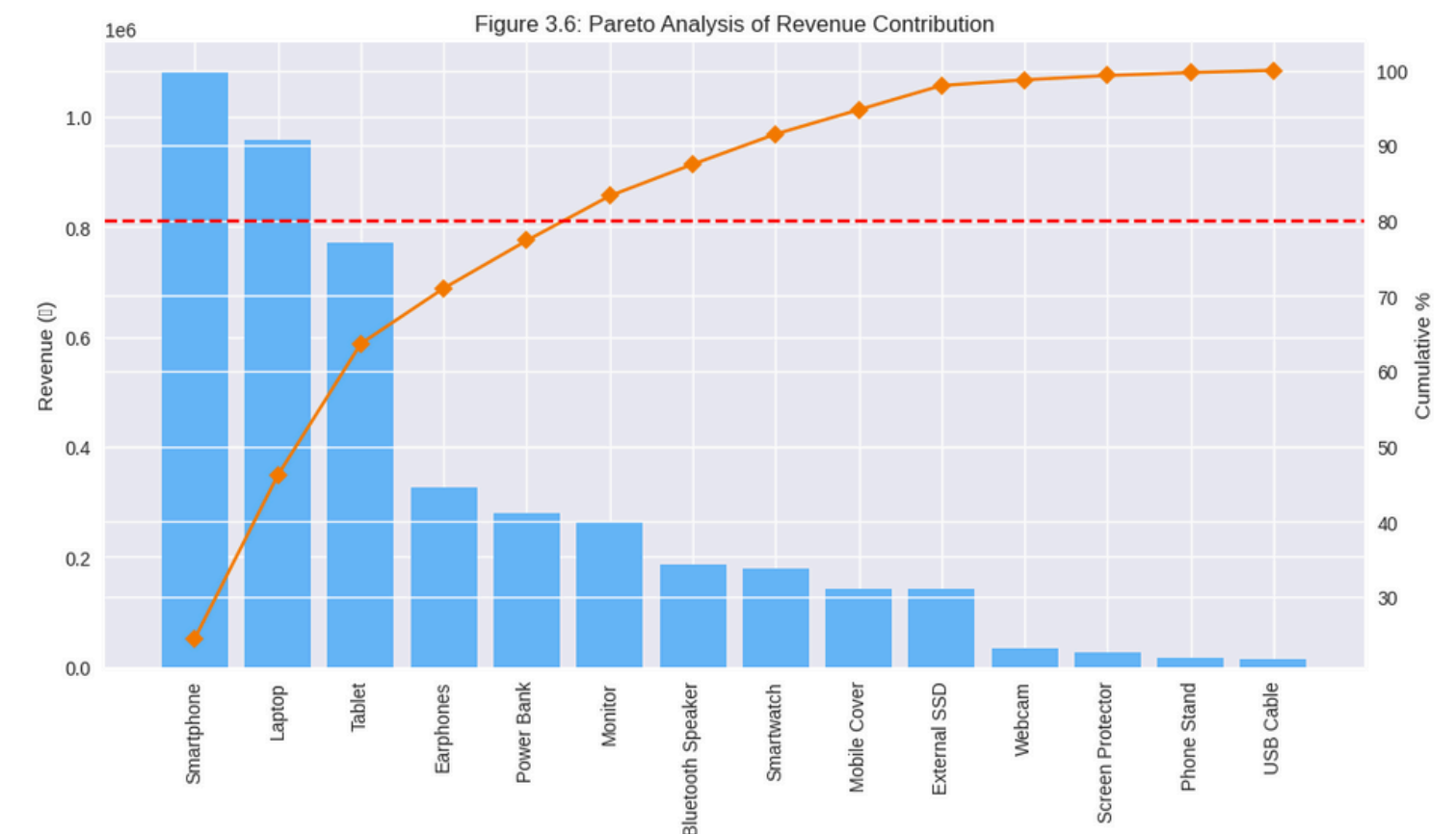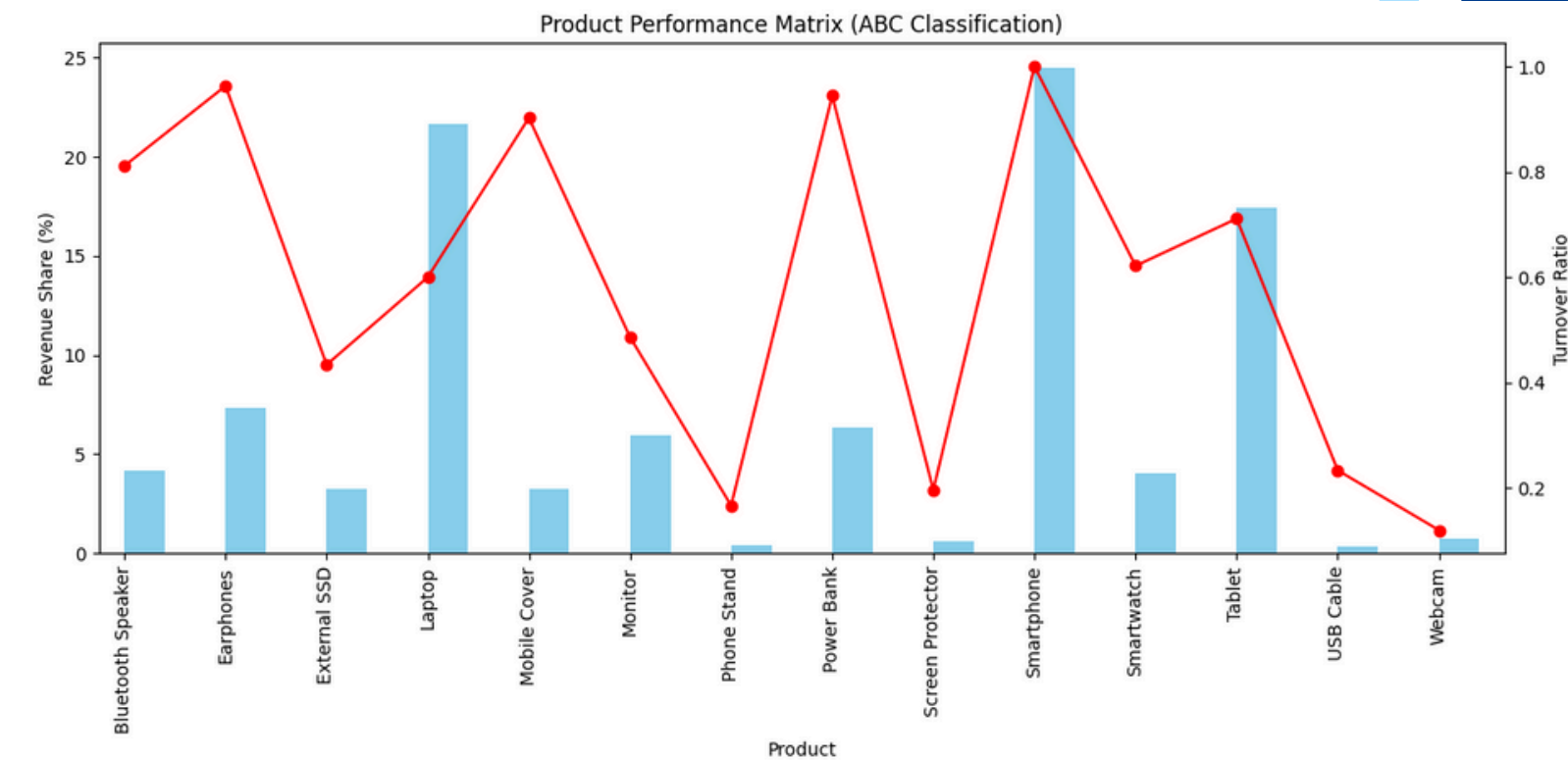
INTERPRETATION & RECOMMENDATIONS

Dead Stock Problem

- Immediate Dead Stock Clearance – Execute aggressive 50-60% discounts on Regular/Slim Fit Trousers targeting ₹45,000-50,000 capital recovery within 90 days through strategic bundling with high-performers and wholesale partnerships for cost-recovery liquidation.
- Procurement Optimization Strategy – Reduce trouser category procurement by 70%, limit trouser purchases to maximum 20 units per style until sell-through rates exceed 60%, and establish 90-day performance rules with automatic clearance pricing.
- Dead Stock Prevention Framework – Implement pre-season exit strategy with predetermined clearance dates (March for winter items, September for summer products) and weekly tracking of sell-through rates with intervention thresholds at 60-day intervals.

Pricing Inconsistencies and Revenue Optimization

- Immediate Pricing Framework – Introduce structured discount tiers: max 5% on Smartphones/Tablets/Laptops, 8% on Earphones/Power Banks, and 12% on low-value accessories to control margin erosion while maintaining flexibility.
- Revenue Recovery Strategy – Replace informal bargaining with minimum pricing floors and a loyalty program (3% for repeat buyers, 5–10% bulk discounts), targeting ₹263,000–270,000 annual recovery from reduced price leakage.
- Pricing Control Framework – Deploy a digital billing system to track deviations, apply monthly variance checks, and enforce a "No-Discount Zone" for top-selling smartphones, using cross-sell bundles to preserve customer value without price cuts.

CONCLUSION & NEXT STEPS

- Project Impact Achievement – Successfully identified ₹2,159,300 trapped capital in unsold inventory and established a data-driven inventory and pricing optimization framework, enabling Shree Balaji Mobile Care to achieve sustainable profitability through systematic dead stock clearance and structured discount policies.
- Business Transformation Results – Analysis revealed 46.2% dead stock inefficiency, 2.91% pricing variance with ₹527,760 annual revenue loss, and 62.4% revenue concentration risks, providing evidence-based solutions for inventory optimization and revenue recovery strategies.
- Analytical Framework Value – Implemented Inventory Turnover, ABC Analysis, Pareto Evaluation, and Price Variance Modeling, creating permanent analytical capabilities for data-driven procurement, pricing control, and competitive advantage maintenance.

- Expected Financial Impact – Projected 40–60% dead stock reduction, 75% turnover improvement, and ₹800,000–1,000,000 annual revenue growth through inventory rebalancing, minimum pricing floors, and systematic cash flow management within 12 months.
- Next Steps Implementation – Execute accessory clearance campaigns, increase Smartphone procurement by 40%, enforce tier-based discount rules, and establish 90-day inventory and pricing performance monitoring systems for sustainable operations.
- Future Growth Opportunities – Digital integration (billing + CRM), category expansion in premium accessories, and customer analytics development will create a foundation for e-commerce adoption, market expansion, and long-term business sustainability.

THANK YOU

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