



BDM CAPSTONE PROJECT

INCREASING OPERATIONAL EFFECTIVENESS: KD HERO'S DEMAND AND INVENTORY ANALYSIS

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Introduction

Objective: Enhance KD Hero's inventory and demand management using data-driven strategies.

Scope: Analysis of sales and procurement data (July–December 2024) to identify inefficiencies and recommend improvements.

Key Findings:

- Sales are highly seasonal, peaking during Indian festivals.
- Inventory build-up due to procurement exceeding sales, especially post-festival.
- Static inventory policies led to both overstock and stockouts.

Impact: Recommendations aim to modernize operations, reduce costs, and improve customer satisfaction.



Organization Background

KD Hero Dealership: Established 2019, Darbhanga, Bihar. B2C business specializing in Hero MotoCorp motorcycles and scooters.

Team: 50 employees (sales, service, support)

Annual Turnover: ₹12 crores.

Operational Challenges:

- Manual inventory management.
- Poor demand forecasting.
- Disconnected data systems



FIGURE 1: SHOWROOM IMAGE



Problem Statement

Difficulty in Predicting Demand

The dealership struggles to forecast which models customers will prefer each month. This results in either stockouts of popular bikes or overstocking of less-demanded ones.

Inefficient Inventory Management

Manual and outdated inventory methods lead to inaccurate stock visibility. This causes high carrying costs, slow-moving stock, and missed sales opportunities.

Poor Integration of Sales, Supply & Inventory Data

Disconnected systems prevent timely, data-driven decisions across departments. This delays response to market changes and leads to misaligned procurement.



Methodology

Data Sources

ERP system provided 579 sales and 906 purchase records from July to December 2024. These contained details like model names, VIN, pricing, customer info, and transaction dates.

Tools Used

Microsoft Excel was used for data cleaning, analysis, and visualization.

Techniques:

Time series analysis for seasonality and trends.
Regression modeling to quantify sales drivers.
ABC classification for inventory prioritization.



Sales Trends & Seasonality

Sales Peaked in October :

- Due to Diwali and Dussehra, consumer demand surged, driving October sales to ₹11.09 million.
- August sales remained low despite festivals, likely due to less impactful events or lack of targeted promotions.

Seasonality is the main sales driver, not steady growth

- Regression showed low R^2 (0.22), indicating that sales spikes were tied to festivals, not linear time progression.

Bad Inventory Alignment:

- Post-festive overstocking occurred due to poor adjustment; dynamic inventory can prevent this.

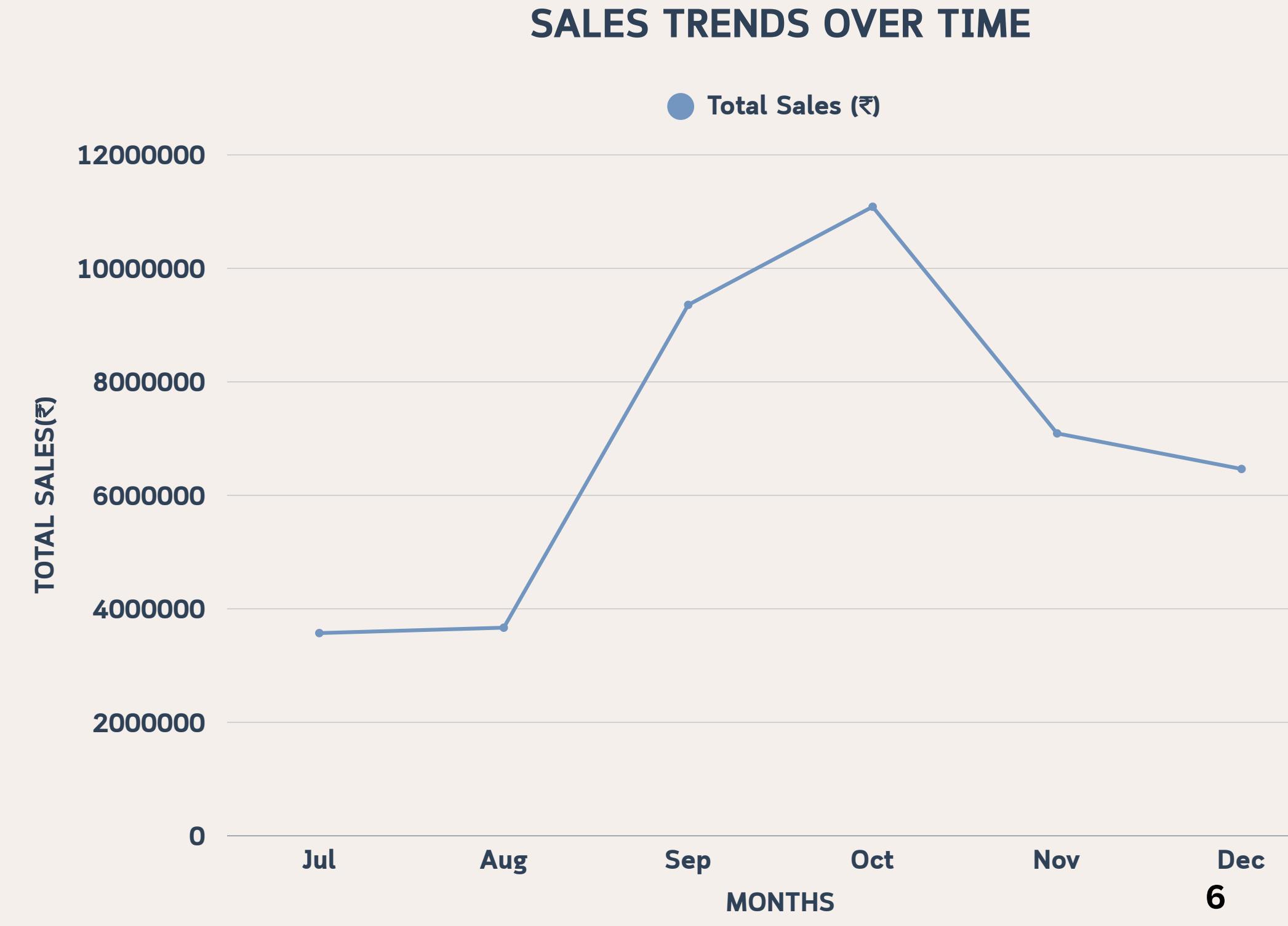


FIGURE 2: SALES TREND OVER TIME



Inventory & Procurement Issues

MONTHLY PURCHASE vs SALES VOLUME

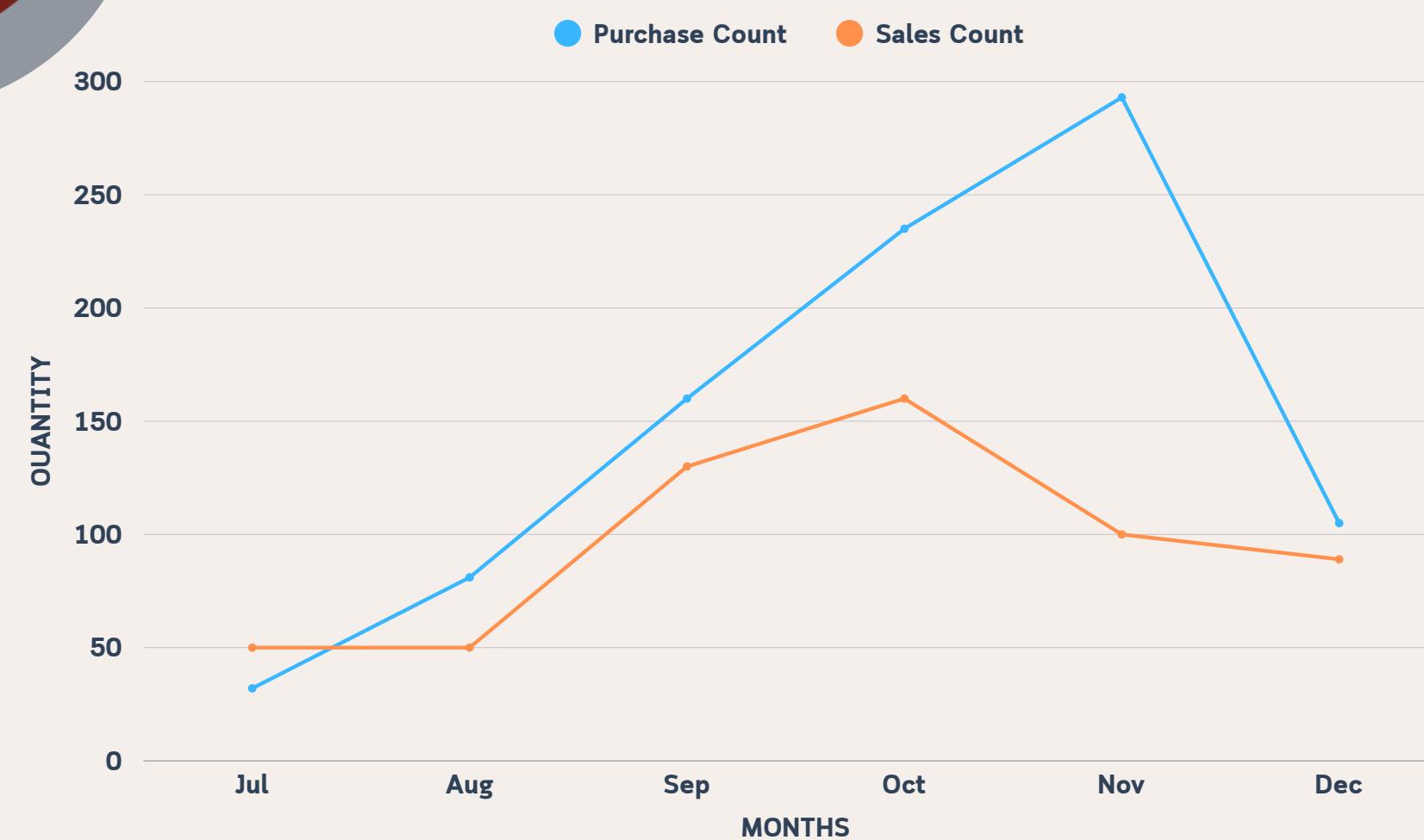


FIGURE 3: MONTHLY PURCHASE VS SALES VOLUME

INVENTORY GROWTH OVER TIME

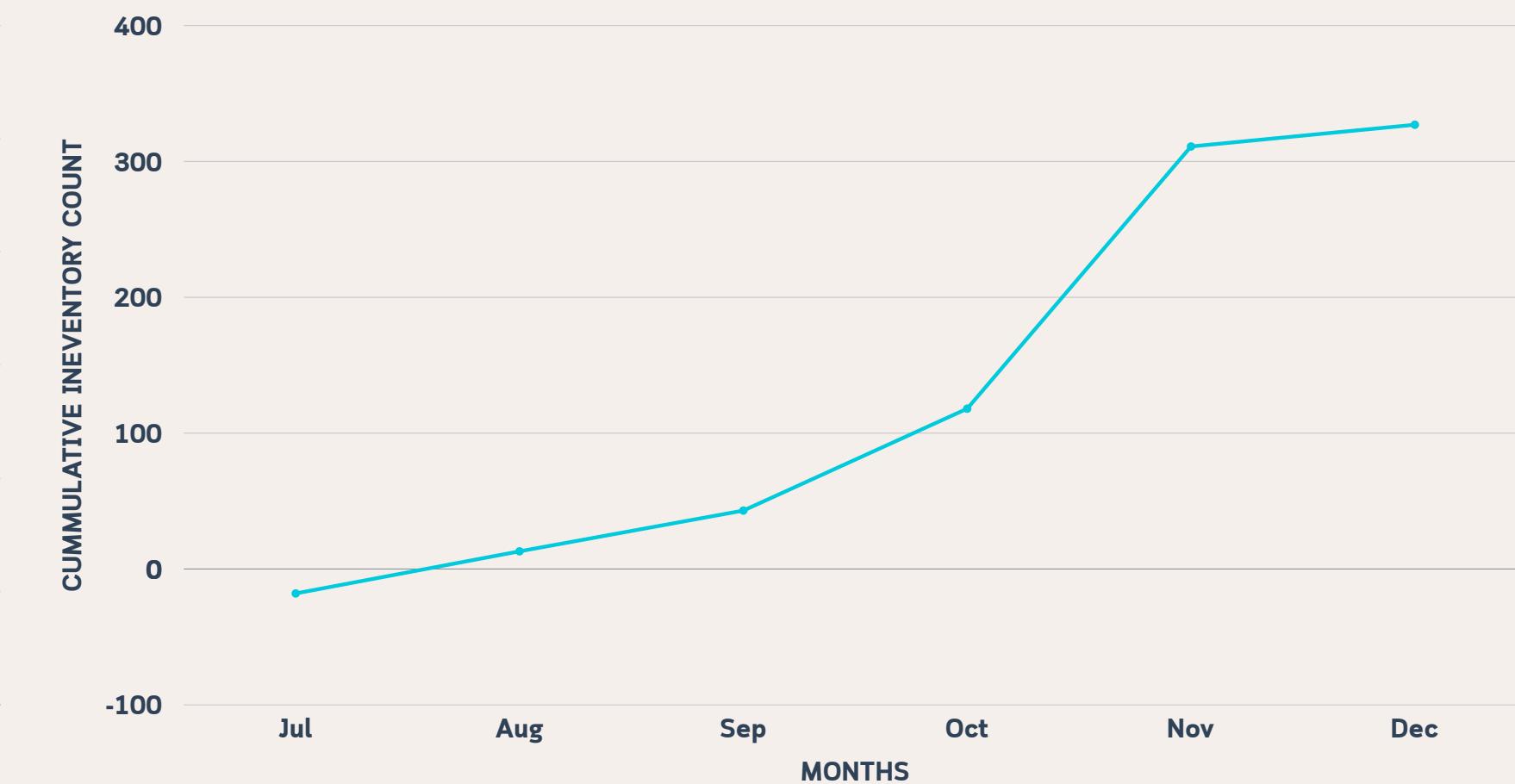


FIGURE 4: INVENTORY GROWTH OVER TIME

Purchases consistently exceeded sales, especially post-festival

- November saw a 200-unit surplus as procurement didn't adjust to the post-festive sales drop.

Inventory imbalances: Surplus in some models, shortages or negatives in others

- Models like Glamour were overstocked while others like Destini Prime showed negative inventory due to poor reconciliation.



Sales Distribution & ABC Analysis

FIGURE 5: ABC INVENTORY CLASSIFICATION

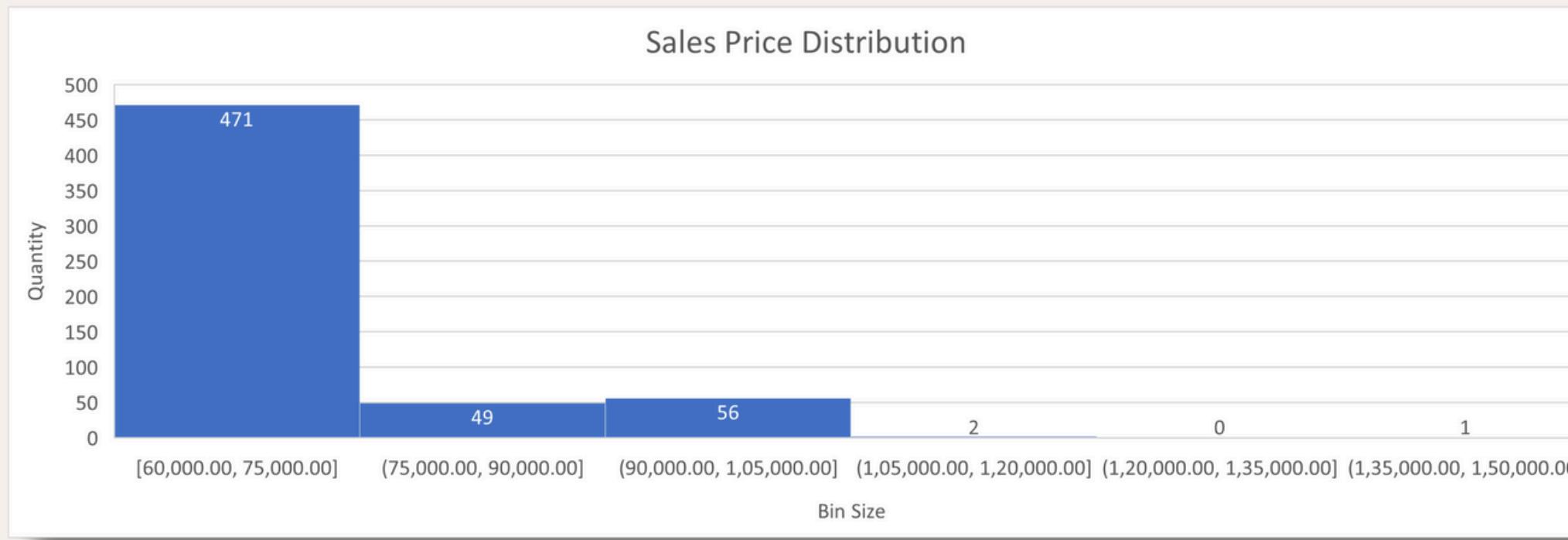


FIGURE 6: SALES PRICE DISTRIBUTION



Sales Distribution & ABC Analysis

Majority of sales in ₹60,000–₹75,000 segment:

- 81% of sales came from affordable bikes, while premium models above ₹90,000 saw very low demand.

“A” category models:

- These top performers accounted for over 70% of total sales value, making them crucial for profitability.

ABC analysis helps prioritize stocking and marketing

- By focusing on high-impact models, resources can be allocated efficiently to maximize returns and reduce waste.

TOP 10 SELLING MODELS

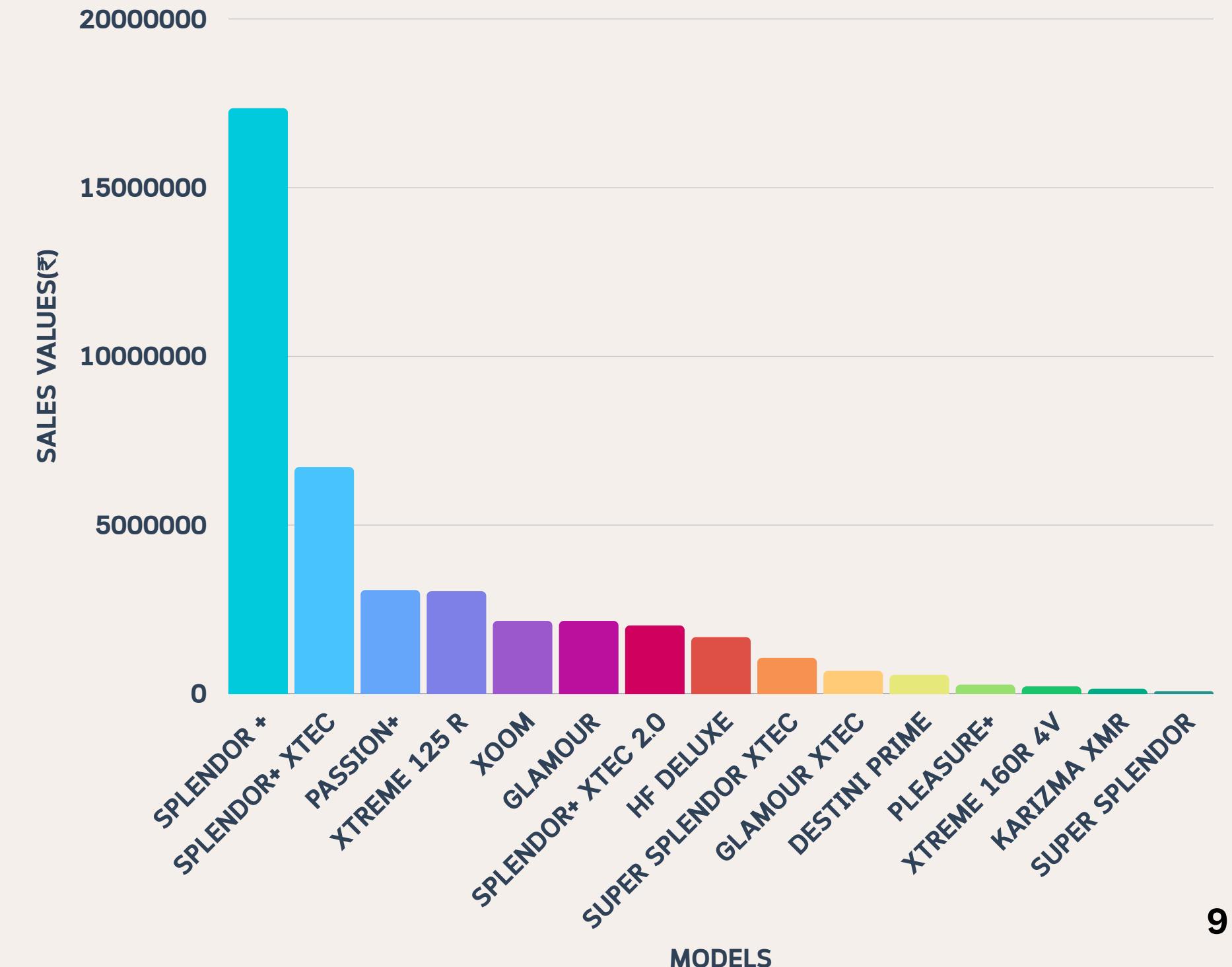


FIGURE 7: TOP 10 SELLING MODELS



Recommendations & Conclusion

- Adopt dynamic, real-time inventory management and forecasting.
- Focus on August: Launch targeted promotions; analyze past marketing/stock allocations since festivals here are not yielding expected sales.
- Prioritize Fast-Movers: High stock for “A” models; minimize slow-mover investment.
- Align Procurement with Forecasts: To avoid November-type overstocking.
- Regularly Review Metrics: Monitor turnover, stockouts, carrying costs.
- Summary: Implementing data-driven, dynamic systems will improve efficiency, reduce costs, and position KD Hero for sustainable growth.
- Conclusion: Focus on high-performing models, modernize inventory practices, and leverage analytics for continuous improvement.



THANK YOU!