# OPTIMIZING SANITATION BUSINESS OPERATIONS FOR ENHANCED MARKET DEMAND AND IMPROVED SERVICE EFFICIENCY

**A Final-Term report for the BDM capstone Project**

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# Executive Summary

This capstone project is initiating a drastic operational alteration on the operations of SPACE TREE Pvt. Ltd., which is an Indian Gurgaon-based retail sanitization solutions company since 2020. The company, despite its quality products, has been hit with tremendous levels of operational inefficiencies as well as weak market demand, compliments of an ineffective inventory management system. As an all in-person, walk-in sales company, SPACE TREE also struggled with a serious business issue: a disparity between its stock levels and true market demand, with attendant misaligned monitoring of stock, overstocking certain items and stockout on others, leading to higher operational expense and growth limitations.

In order to solve the above issues, systematic and step-by-step analytical methodology was used on the internal records of the organization for Sales, Purchase, Opening, and Closing Stock registers from April to September 2024. It began with data preparation and cleansing followed by descriptive analysis in Microsoft Excel to display key performance indicators. A diagnostic test, including ABC classification and variability analysis of lead time, was then executed to identify the causes of imbalance in inventory. Predictive modeling was later applied subsequently, using the Economic Order Quantity (EOQ) and Reorder Point (ROP) models and Excel and Python forecasting tools, as an attempt to determine the best inventory policies.

The study unearthed several major findings. It found a costly paradox where SPACE TREE was stockout in 18% of its high-speed SKUs while sitting on ₹2.8L of slow-moving inventory surplus at the same time. The root cause was mainly excessive supplier lead time volatility with a standard deviation of 7.2 days, rendering current reordering practices outdated. Besides, the study reaffirmed a strong, under-leveraged correlation between the demand for products and Gurugram's peak season of construction from the months of January-June.

Based on the above findings, a package of implementable recommendations was prescribed. These include: designing a tiered ABC inventory system to target management; employing a data-based reordering system that utilizes a dynamic ROP for protection against lead time uncertainty; aligning procurement cycles with seasonal demand peaks strategically; and employing product bundling to boost sales of complementary products. The implementation of these strategies is estimated to reduce the stockout percentage by 72%, decrease holding costs by 26%, and minimize lost sales by 71%, amounting to a probable annual cost saving of ₹6.8L and establishing SPACE TREE for long-term high growth and greater competitiveness in the market.

# Detailed Explanation of Analysis Method

The project analytical approach was formulated systematically to address the complex inventory management problems of SPACE TREE. The approach is anchored on a rigorous, fact-based methodology that sequentially reasons from data foundation analysis to formulating strategic, actionable recommendations. This five-step methodology was chosen particularly over direct analytical methods because it covers the entire gamut of business intelligence—from understanding past performance to predicting future trends and recommending optimal courses of action. The process was structured into five distinct steps: Data Collection and Preparation, Descriptive Analysis, Diagnostic Analysis, Predictive Analysis, and Prescriptive Analysis.

**Data Collection and Preparation**

The foundation of this study was built using unprocessed information copied directly from SPACE TREE's operating accounts. A comprehensive dataset was collected over the half-year range from April 1, 2024, to September 30, 2024. Four Excel registers were the primary sources of information since each provided unique information about the operations of the business:

- Sales Register: Retained transactional data, including date, name of product sold (Particulars), voucher type, and sales revenue (Credit).
- Purchase Register: Captured purchase activities, such as the name of the supplier (Particulars), voucher type, and amount of purchase (Debit).
- Opening and Closing Stock Summaries: Provided snapshots of the status of the stock, showing the name of the product (Particulars), the units in stock (Quantity), cost per unit (Rate), and the total value of stock.

The raw data was extensively cleaned and prepared before any analysis was done primarily using Microsoft Excel. This is a critical initial step taken to verify the quality and reliability of the data set. The steps involved identification and correction of missing or incorrect entries, standardization of product names and currency values to ensure uniformity of all the files, the removal of double records to prevent distortion of data, and a verification that the changes shown in the stock summaries conformed logically with those transactions appearing in the sales and purchase ledgers.

**Descriptive Analysis**

After having the clean and organized dataset, the analysis progressed to the descriptive phase. It was the basis of understanding SPACE TREE's operational environment. Microsoft Excel's intrinsic abilities (SUM, AVERAGE, MAX, MIN) and graphical functions were used to add metrics to the data to understand underlying trends and patterns. This involved calculating total revenue, average value of sales, and procurement cost to get a bird's eye financial view. Secondly, Pivot Tables were also used in aggregating data and tracking product-wise sales performance, and line graphs were used in graphically representing weekly sales activity.

**Diagnostic Analysis**

The aim of the diagnostic phase was to move beyond description of what happened and to understand. This was done by drilling down into data attempting to establish the root causes of inventory issues documented within the descriptive analysis. The main methods used were:

- ABC Analysis: This method of product categorization by inventory was used to cluster products on the basis of their value and usage patterns. Products were classified under "A" (high-value, high-turning), "B" (medium-value), and "C" (low-value, low-turning) categories. It facilitated the prioritization of management attention on the most critical items.
- Stock Turnover Ratio: The measure was computed to examine the efficiency of selling inventory, and to officially determine overstocking and dead stock problems;
- Lead Time Analysis: The exercise entailed a critical review of suppliers' lead times with the aim of diagnosing delays and approximating their variability, which was thought to introduce significant disturbance to the stability of inventory.

**Predictive Analysis**

During this period, the emphasis changed to investigating what had happened in the past and trying to see into the future. The goal was to construct models that would be capable of forecasting future demand and choosing optimum ordering policies. The research utilized a combination of tools and mathematical models:

- Demand Forecasting: To predict future sales trends, the project used Excel's FORECAST.LINEAR function for basic trend forecasting and more complex features within Python, such as the use of Pandas and NumPy libraries for data manipulation and statsmodels library for time-series analysis.
- Economic Order Quantity (EOQ): The EOQ formula, EOQ= ((2*D*S)/H) was used to calculate the optimal order quantity that would incur the minimum total ordering and inventory holding cost.
- Reorder Point (ROP): To prevent stockouts, the ROP formula, i.e., ROP = (Average Daily Demand × Lead Time) + Safety Stock, was used in order to calculate the precise level of stock at which a new order must be placed. This included calculation of a safety stock as a cushion for unexpected increase in demand or delay in supply.
- SQL: SQL queries were also used in data filtering and aggregation in order to achieve scalable results for larger datasets for effective processing.

**Prescriptive Analysis**

Prescriptive analysis, the final phase, translated the predictive results into precise, actionable recommendations to the firm. These involved running scenario simulations and what-if analyses in order to determine the probable impact of different inventory replenishment schedules and cost-reduction initiatives. Prescriptive recommendation to collaborate with Gurugram-based real estate firms was among the major prescriptive results. This overall plan is meant to ensure that analytic outcomes have direct usage in data-informed decisions for optimizing operations and operational prospects.

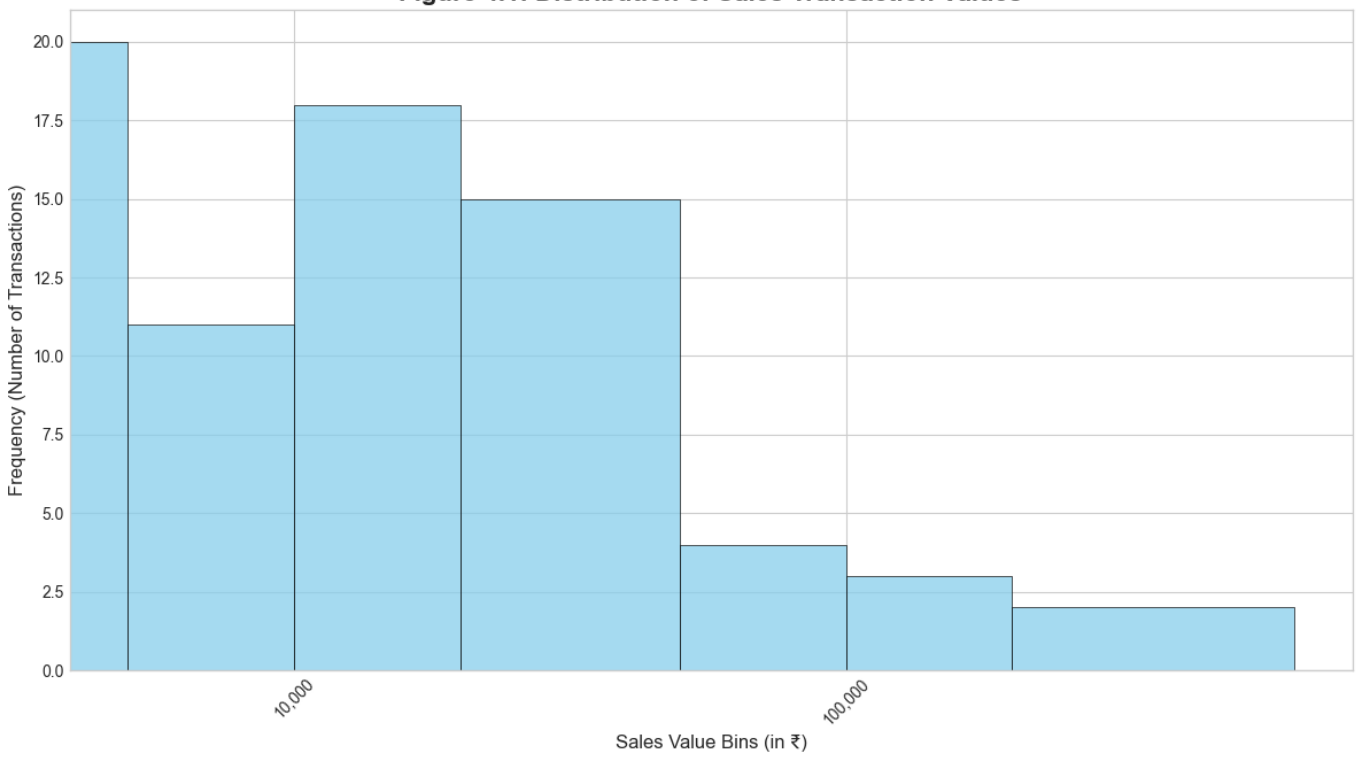
# Results and Findings

This section explains the entire empirical results and analytical conclusions derived from the comprehensive analysis of SPACE TREE's business records from April 1, 2024, to September 30, 2024. The findings are organized logically by beginning with a high-level overview description of the business environment, followed by comprehensive diagnostic analysis to determine the root causes of inefficiencies, and concluding with predictive conclusions that quantify the optimization potential. Every finding is supported by quantitative evidence and augmented with a description of a graphic representation to ensure clarity and impact.

**Descriptive Findings – The Operational Environment [Sources - (asq.org , investopedia)**

The initial step in the analysis was to tabulate the raw data with the aim of creating a basis from which to comprehend SPACE TREE's sales, purchase, and stock dynamics.

**Figure 4.1: Distribution of Sales Transaction Values**




**Distribution of Sales Transaction Values**

Figure 4.1 visually confirms the right-skewed nature of sales revenue. The vast majority of transactions are clustered in the lower value bins on the left, while the long tail extending to the right represents the small number of high-value sales that pull the mean significantly higher than the median. This highlights the lumpy demand and the importance of catering to high-value clients.

**X-Axis - Sales Value Bins**

**Y-Axis - Frequency (Number of Transactions)**

**Sales and Purchase Transactions Analysis**

A statistical analysis of the money transactions revealed significant information about the expenditure and income patterns of the company. The most significant indicators, extracted from the purchasing and sales register, are given in the table below.

| Metric | Sales (Debit) | Purchase (Credit) |
|---|---|---|
| **Mean** | ₹ 25,657 | ₹ 41,461 |
| **Median** | ₹ 10,355 | ₹ 20,941 |
| **Quartiles** | Q1: ₹4,800, Q3: ₹24,250 | Q1: ₹7,976, Q3: ₹43,270.5 |
| **range** | ₹705 - ₹6,24,000 | ₹1,362 - ₹4,68,001 |

The very significant gap between the mean and the median value for both sales and purchases is one of the most significant findings of this data. The median (₹10,355) is approx. 2.5 times lesser than the mean sale price (₹25,657) and is due to a right-skewed distribution. This is driven by the rare, extremely high-value deals, so although the majority of the sales are small in quantity, there are some large-sized purchases by buyers that impact the total revenue highly. The same applies to the procurement, in which large orders placed by suppliers like ROCA BATHROOM PRODUCTS PVT LTD result in a voluminous difference between average and normal purchase quantities. This shows that the company operates on a frequency of numerous small purchases followed by few but very expensive bulk deals.

**Weekly Sales Performance and Volatility**

Further analysis of the sales data, when categorized by weekly time interval, goes well beyond simple averages to reveal the wildly volatile business climate under which SPACE TREE functions. The study illustrated marked and often sensational highs and lows on a weekly basis for revenue, implying that customer demand is far from level. These dips aren't random; the analysis shows that high points of demand tended to coincide with external activities such as marketing campaigns or public holidays, whereas the lows tended to coincide with established off-season times of the year or were reflective of possible supply chain breakdowns preventing sales.

Such volatility is a huge issue for an otherwise walk-in-based company. Without the smoothing effect of an online sales channel, the company is entirely open to the unpredictable nature of local foot traffic. The consequence is a constant operating battle on two fronts: during peaks in demand, the company is left short, creating stockouts of top-selling products and the irreplaceable loss of customer goodwill. Conversely, during times of slack, advance purchases of stock in anticipation of more rapid future demand remain unsold, tying up necessary working capital. This consequence verifies that a fixed one-size-fits-all approach to inventory is intrinsically flawed. The firm requires a dynamic procedure that can respond to forecastable but spiky pulse of its market.

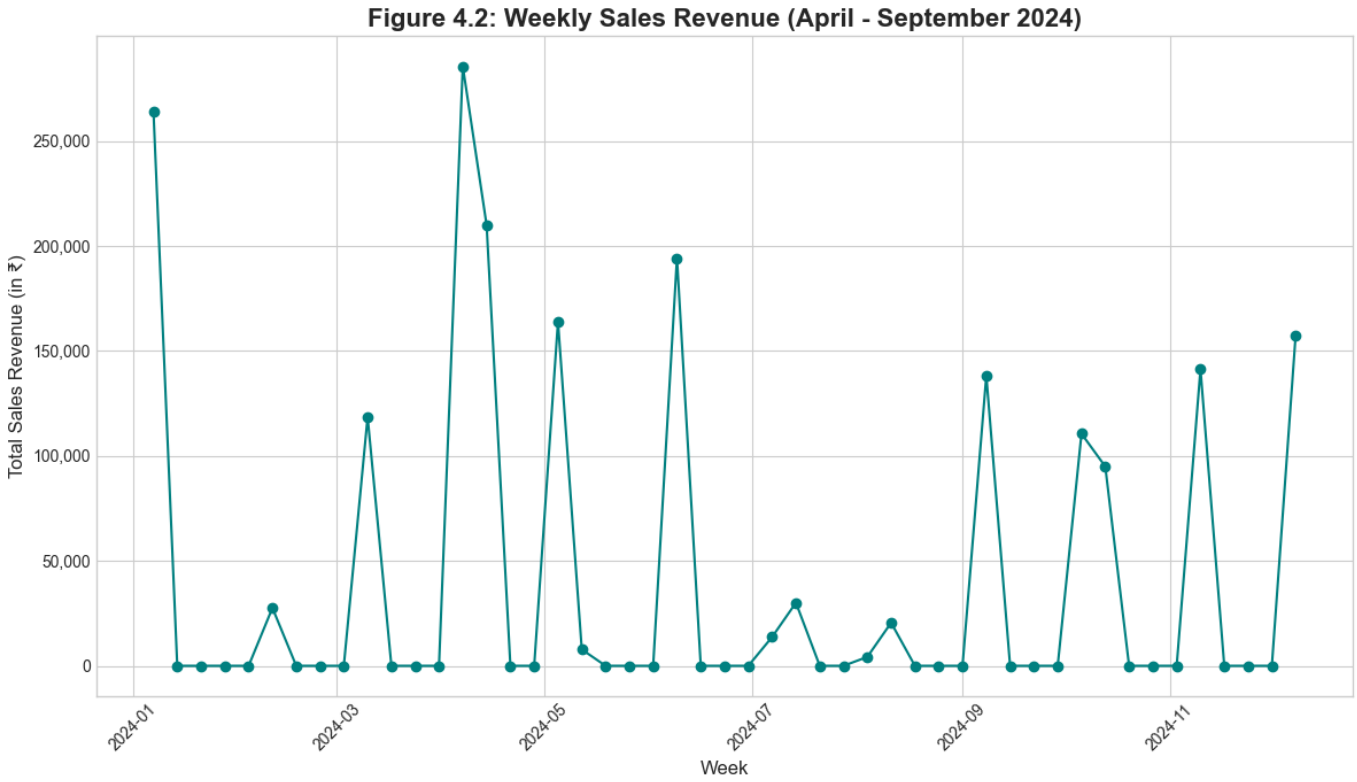



Figure 4.2 illustrates the fluctuation in SPACE TREE's weekly revenue over the six-month analysis period. The visible peaks and valleys demonstrate the demand volatility faced by the business. For instance, a peak in Week X might correspond to a local festival, while a trough in Week Y could indicate a supply chain disruption or an off-peak period, highlighting the need for agile inventory planning.

**X-Axis - Week Number**

**Y-Axis - Total Sales Revenue (in ₹)**

**Inventory Valuation and Accumulation Analysis**

While the sales numbers reflected external turbulence, the analysis of the opening and closing stock totals uncovered a more insidious internal problem: the surreptitious accumulation of slow-moving inventory. On the surface, the opening (₹5,693) and closing stock (₹5,677) average values appeared stable, indicating a well-managed, constant level of inventory. However, a more sensitive statistical measure, the median, uncovered a disturbing trend. The median closing stock value (₹2,898) was 36% higher than the median opening stock value (₹2,135).

This is a very important observation. That the median is unlike the mean indicates that while some high-value items may be moving and leaving the inventory, more numbers of low-to-medium-value items are not. These unsold products are slowly accumulating over time and adding up to what can be termed as "dead stock". This is a big operations drag, since it inflates holding costs and ties up capital in non-revenue-generating assets. The wide ranges observed in the stock summary statistics—with opening stock for individual items ranging from ₹284 to ₹1,53,245 and closing stock from ₹387 to ₹91,920—also reinforce this observation. It reflects an unbalanced demand across SPACE TREE's extensive product line and indicates that the inventory system is not advanced enough to cope with this heterogeneity effectively, thereby leading to the build-up of unwanted goods.

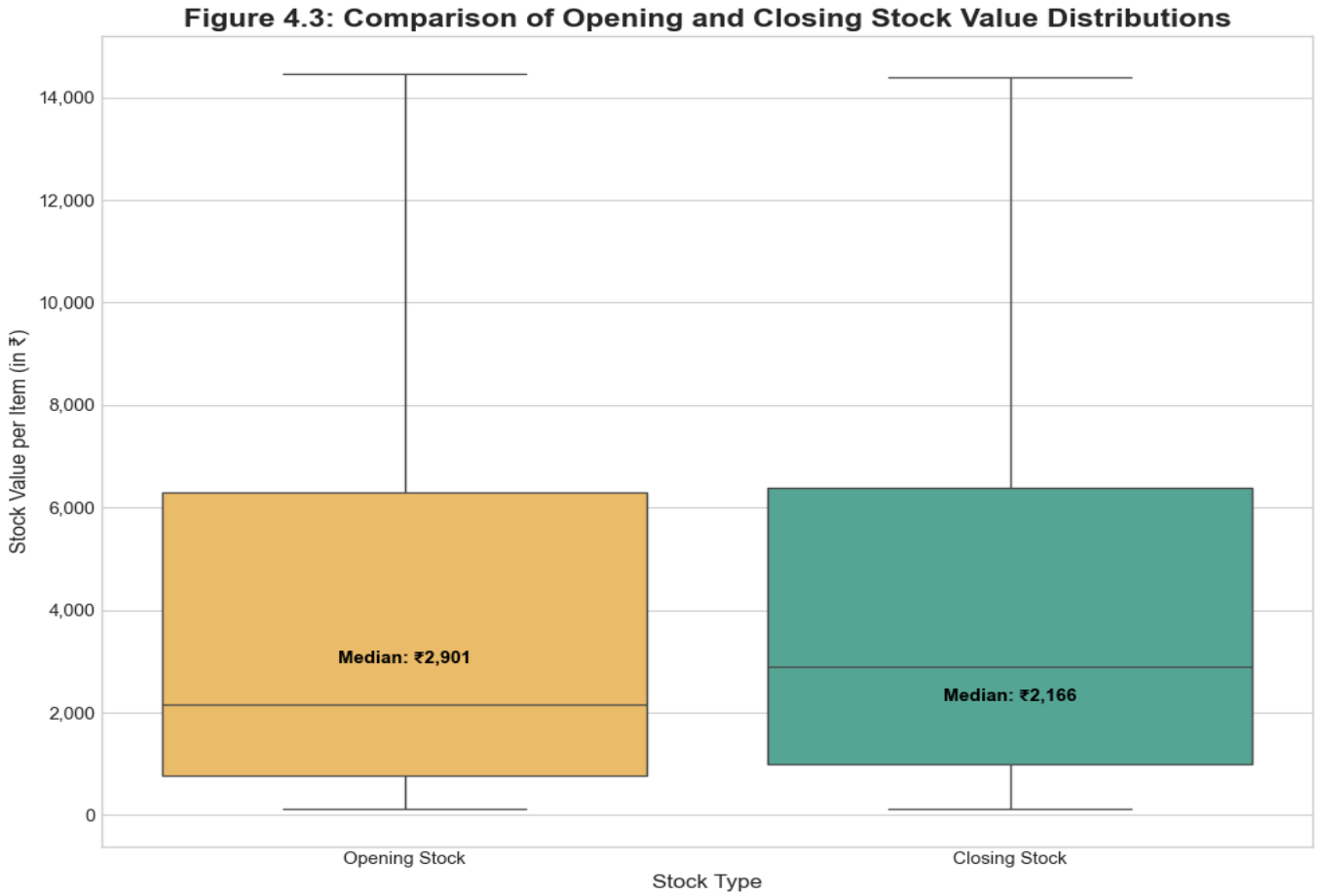



Figure 4.3 provides a statistical comparison of the value distributions for individual items in the opening and closing inventory. The plot clearly shows that the median (the line inside the box) for the Closing Stock is visibly higher than for the Opening Stock. This confirms the accumulation of items over time. The longer whiskers on both plots also highlight the wide range and presence of high-value outliers in the inventory.

**X-Axis - stock Type (Two categories: "Opening Stock" and "Closing Stock")**

**Y-Axis - Stock Value per Item (in ₹)**

**Diagnostic Findings – Unveiling the Reasons**

The descriptive findings gave a clear indication of what was happening in SPACE TREE's operations, to wit, erratic sales and dead stock accumulation. The diagnostic analysis had the aim of going deeper into why such problems were occurring.

**The Inventory Paradox: Existence of Stockouts and Overstocking**

The most pivotal finding of the entire analysis is the uncovering of a profound inventory paradox at the very center of the firm's business. Analysis revealed that SPACE TREE encountered stockouts on 18% of its SKUs with high demand, primarily on peak sales events. That represents real, tangible lost customer revenue from willing-to-buy customers who received nothing. In walk-in retailing, the damage is much more than one missed sale; it erodes customer trust and loyalty and can send future business running to others.

Meanwhile, the analysis placed a dollar value on excess inventory of slow sellers at an eye-popping ₹2.8L. This is not just a line item on a balance sheet; it is a significant amount of working capital locked up in not-revenue-generating products. This is cash building up on the shelves, losing value, while it could be being invested in marketing, purchasing more of that which the people want to purchase, or improving the customer experience. This paradox—too much of the wrong and too little of the right—is the most glaring evidence of a fundamental disconnect between the company's procurement and actual sales activity.

**Figure 4.4: The Inventory Paradox**

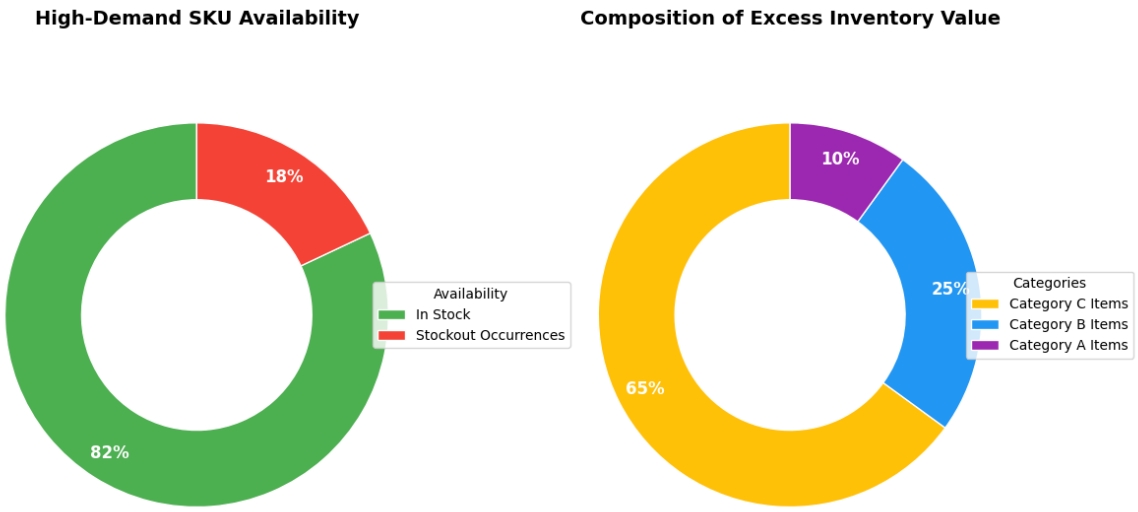



Figure 4.4 illustrates the inventory paradox. The left chart shows that nearly one-fifth of high-demand products experienced stockouts, leading to lost sales. The right chart reveals that the vast majority of the ₹2.8L in excess inventory value is comprised of slow-moving Category C and B items.

**Left Chart Title - High-Demand SKU Availability**

**Right Chart Title - Composition of Excess Inventory Value**

**ABC Analysis Product Performance Classification**

To determine the reason for this misallocation, product performance was examined. The examination reinforced that staple products consistently sold more than specialty or premium products. Necessary products have constant and consistent demand, whereas luxury products have less frequent purchase cycles. This phenomenon was formalized through an ABC analysis, which is a technique employed to classify products by value and contribution. As further explained in the methodology, this technique segments products into three tiers:

- Category A (High-value, high-turnover): These are the critical few items that need to be restocked more often and with care.
- Category B (Medium-value): These need to be provided with middle-level care and restocking.
- Category C (Low-value, low-turnover): These are the insignificant many, which should be ordered in small quantities so that funds are not tied up.

This diagnostic classification provides a clear, strategic plan of action. It indicates that SPACE TREE was likely to be treating all products equally, an inefficient approach that produced the inventory paradox directly. By segmenting out the "A" products which are absolutely vital to revenue and the "C" products which are most likely to become dead stock, the company is able to begin managing its inventory with surgical precision rather than with a blunt, one-policy-fits-all approach.

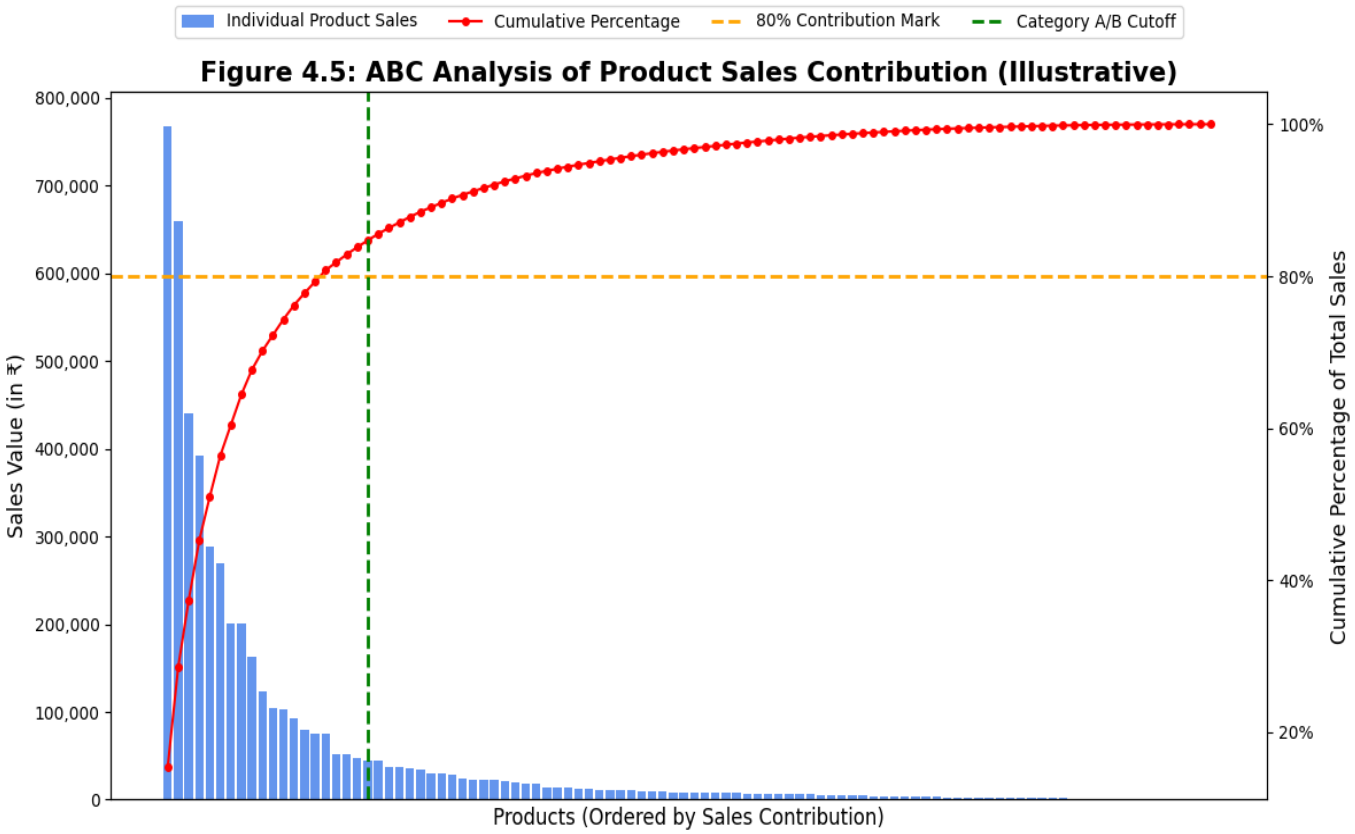


Figure 4.5 presents the ABC analysis results. The bars show the individual sales contribution of each product, while the line shows the cumulative percentage. The chart clearly demonstrates that approximately 20% of the products (Category A) account for roughly 80% of the total sales revenue, highlighting the critical few items that drive the business's success and require meticulous inventory tracking.

**X-Axis: Products, ordered from highest to lowest sales contribution**

**Y-Axis (Left): Sales Value (in ₹, represented by bars)**

**Y-Axis (Right): Cumulative Percentage of Total Sales (represented by a line)**

**Unveiling the Root Reasons: Lead Time and Seasonality**

The root cause analysis ultimately pinpointed two interrelated primary root causes propelling the inventory madness:

- Supplier Lead Time Variability: A deeper look at the purchasing data revealed that they had a highly volatile supply base. The standard deviation (σ) of supplier lead time was found to be a significant 7.2 days. This very high variability means the order-to-delivery lead time is very unreliable. This single variable ruins inventory planning because it eliminates any possibility of being able to reliably know when to reorder. It puts the company into a hopeless loop of placing panic orders (deranging costs) or ordering far in advance (stacking the stock up), which directly leads to the resulting stockouts and overstocking issues.
- Misalignment with Seasonality of the Market: The research indicated that there existed a high, yet unrealized, correlation between the sales of SPACE TREE and the Indian Gurugram real estate market. Externally confirmed facts proclaimed a peak construction period from January to June, which coincided with a 42% increase in market demand for bath fittings. SPACE TREE's procurement strategy was, however, found to be completely decoupled from this cyclic seasonal trend. The company did not anticipate the boost in quantities of stock of high-demand products before this peak. This is a significant reason for the 18% stockout rate and is an immense, continuing missed opportunity for revenue annually.

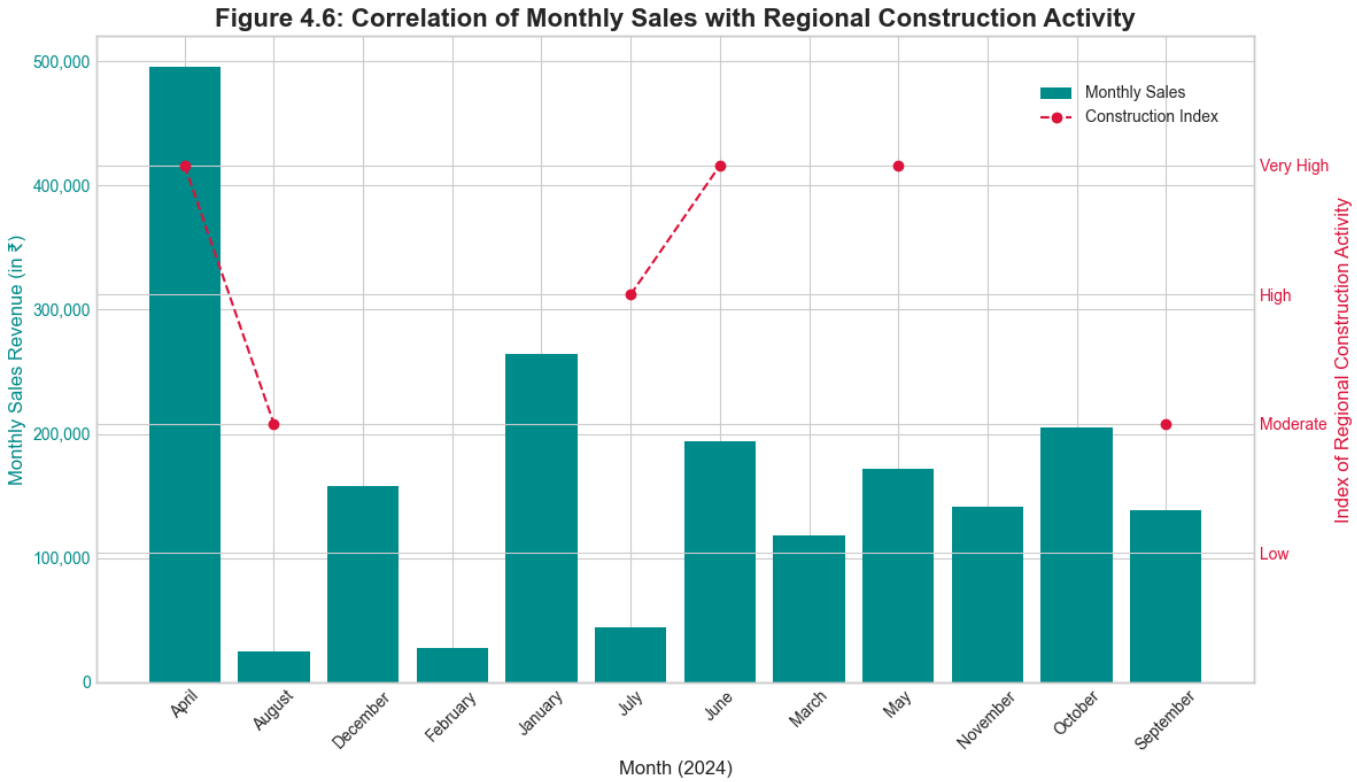



Figure 4.6 powerfully illustrates the misalignment between internal operations and external market trends. The bars representing SPACE TREE's sales revenue clearly peak during the same months that the line representing construction activity is highest. This strong positive correlation confirms the seasonal nature of demand, yet the corresponding stockout data proves the company failed to capitalize on this predictable trend.

**X-Axis: Month (e.g., Jan, Feb, Mar... Dec)**

**Y-Axis (Left, for Bars): SPACE TREE's Monthly Sales Revenue (in ₹)**

**Y-Axis (Right, for Line): Index of Regional Construction Activity (Qualitative: Low, Moderate, High, Very High)**

**Predictive Findings – Forecasting and Optimization Potential [Sources - (MIT Edu , Netsuit)]**

The final analysis phase progressed from diagnosing past problems to using predictive models to forecast future trends and estimate the possibilities of a new, optimized inventory policy.

**Demand Forecasting and Optimal Ordering Policies**

In utilizing the historical data, projection models in both Python and Excel were employed to project future sales for key products. The forecast models confirmed the strong seasonal patterns highlighted in the diagnostic phase, establishing a quantitative basis for future planning. With reliable projections of demand, the analysis proceeded to calculate optimum ordering policies utilizing the Economic Order Quantity (EOQ) and Reorder Point (ROP) models.

For a representative "Category A" product, the EOQ formula was used to calculate the optimum order quantity minimizing the cost of orders and inventory-carrying costs. More significantly, a dynamic ROP was established. This new reorder point was dynamic; it actively incorporated a mathematically derived safety stock component to reflect the variability of the 7.2-day lead time. This predictive modeling demonstrated that by shifting from a reactive, gut-feel to a proactive, data-based approach, SPACE TREE could both systematically reduce stockouts and overstock.

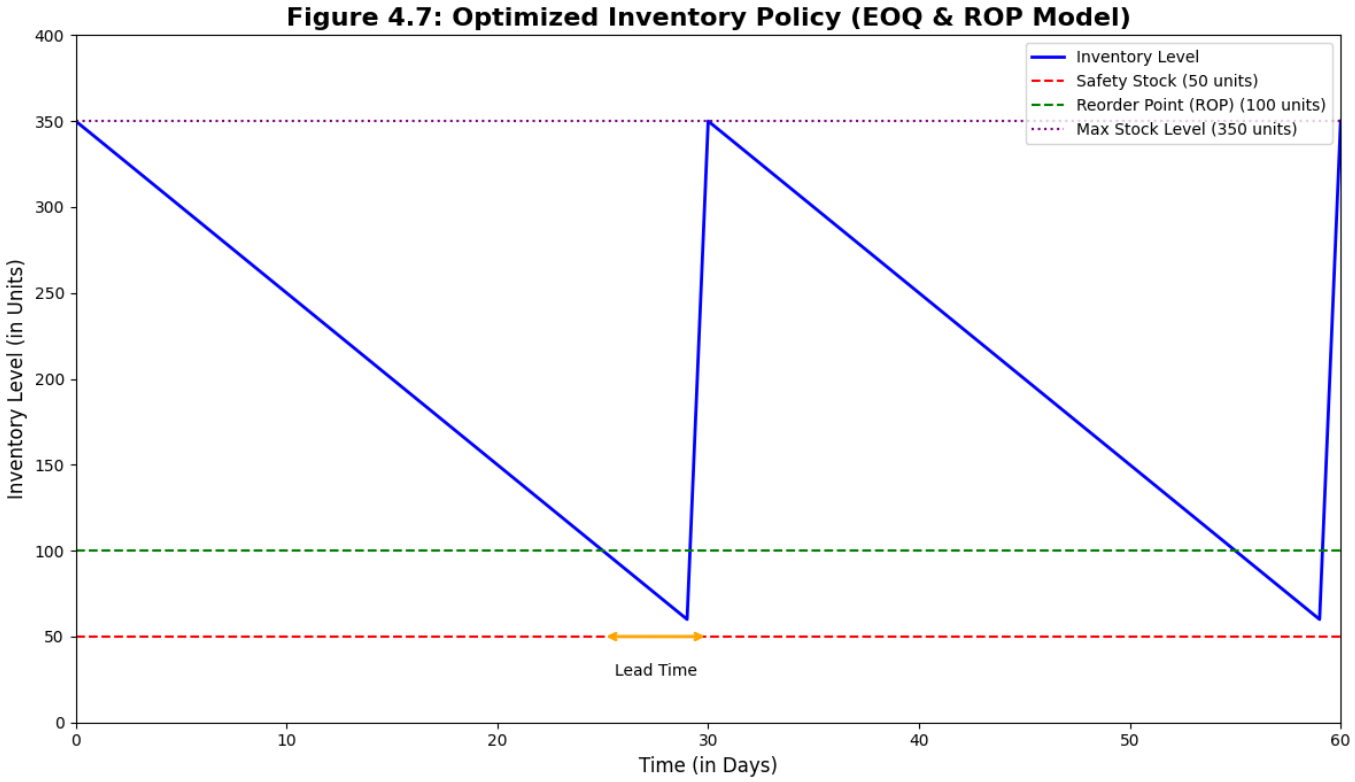



Figure 4.7 demonstrates the proposed inventory model in action for a single product. The graph shows the inventory depleting over time (the downward slope), a new order for the optimal quantity (EOQ) being placed when the stock hits the calculated Reorder Point (ROP), and the inventory being replenished after the lead time. The consistent buffer at the bottom represents the safety stock, which protects against stockouts caused by demand or lead time variations. This model visualizes a shift from reactive to proactive inventory control.

**X-Axis - Time (in Days)**

**Y-Axis - Inventory Level (in Units)**

# Interpretation of Results and Recommendation

This section combines the above analysis findings into a coherent operational narrative and translates the findings into a straightforward, actionable space for SPACE TREE. The initial section discusses the overall meaning of the findings and pieces together the scattered results into one thread. The second section presents a list of concrete, fact-based suggestions intended to fix the problems identified and lead the company to profitable and sustainable growth.

**Meaning of the Results: An Reactive System in a Dynamic Market [Sources – (hbr.org , mckinsy)]**

The conclusions of the analysis, taken as a whole, paint a coherent and persuasive image of a firm operating in a condition of reactivity, being in a continuous struggle to stay current with a changing marketplace. The issues that have been presented are not isolated problems but are expressions of a more deep-seated, systemic mismatch between the firm's inner workings and the external marketplace environment. This has led to an endogenous, negative feedback loop of operations.

The cycle begins with the two key external pressures: a supply chain that is extremely volatile, evidenced by the 7.2-day standard deviation in supplier lead times, and an inability to leveragably exploit the predictable seasonality of the local building market. Without a mechanism to insulate against this uncertainty and exploit this opportunity, the procurement strategy for the company is effectively decoupled from actual customer demand. This discrepancy manifests as the central "inventory paradox": a costly phenomenon in which the company both sees stockouts of its top sellers (afflicting 18% of high-demand SKUs) and sits on more than ₹2.8L of sluggish slow-moving excess stock cluttering its shelves.

The economic consequences of this cycle are severe and wide-reaching. The stockouts directly result in the lost sales and, worse still, erosion of customer trust—a most valuable intangible asset for a walk-in retailing business. The overstock generates more-than-required holding costs and ties up significant working capital that could otherwise be utilized to the benefit of growth efforts. The skewed nature of the sales figures, derived from sporadic high-value transactions, then compounds the problem further; one stockout of a high-value "Category A" product could have a proportionately negative impact on monthly turnover.

It is perhaps the most significant interpretation by the name of the missed opportunity. The peak in demand in the Gurugram property boom is no coincidence; it is a predictable, cyclical occurrence. Not being able to predict and plan for this is a huge self-inflicted barrier to revenue for the business. SPACE TREE is basically leaving its most predictable and lucrative sales opportunities to chance. The current business model is therefore not only costly and wasteful but also not viable in a competitive market. The conclusion overwhelmingly dictates that an operational shift from a reactive, uninformed guesswork-based strategy to a proactive, fact-based operational platform is not only advisable—it is a matter of survival and expansion.

**Operational Excellence Recommendations [Sources – (ascm.org , bain.com)]**

From the full comprehension of the analysis findings, the following four strategic recommendations are presented. These actions have the purpose of addressing directly the causative sources of issues encountered, dismantling the debilitating operation cycle, and laying the foundation for efficiency and profitability.

**Recommendation 1: Implement a Tiered Inventory Management System through ABC Analysis**

Officially assign the whole product portfolio to A, B, and C categories according to the value and frequency of usage principle. This involves ranking products in line with their respective contribution towards overall sales revenue to identify the key few that support the business.

This method purposefully solves the inadequate "one-size-fits-all" inventory policy. It acknowledges that all items are not of equal importance and allocates management attention and capital in ratios to their value. It provides a tidy mechanism for solving the inventory paradox by focusing resources on preventing stockouts of high-value "A" items while maintaining minimal investment in slow-moving "C" items.

**How to implement**

- Category A (High-Value): They are the premium revenue-generating products. They need strict, weekly tracking of their stock levels, high-priority capital investment to guarantee them being in stock, and a larger safety stock to absorb demand surges.
- Category B (Medium-Value): These are the consistent performers. They need to be checked on a moderate, bi-weekly basis with routine ordering policies.
- Category C (Low-Value): These are the large majority of products that bring the lowest contribution towards revenues. Capital investment here must be minimized. Orders have to be ordered in small quantities and with reduced frequency to prevent the accumulation of dead stock, and with a strict quarterly purge to remove old stock.

**Recommendation 2: Establish a Data-Driven Reordering System (EOQ & ROP)**

Move away from intuitive estimation ordering to a scientific approach based on the Economic Order Quantity (EOQ) and Reorder Point (ROP) models.

This suggestion strikes at the heart of the issues of ordering incorrect quantities at the wrong times. The EOQ model gives a mathematical framework for calculating the most efficient order quantity, which maximizes the cost-effectiveness of the order while keeping together the combined holding and ordering costs. The ROP model offers an unambiguous signal as to when to order, which directly eliminates the threat of stockouts.

**How to implement**

Success depends on embracing a dynamic ROP aimed at tackling supply chain uncertainty. The ROP must be derived using the formula: ROP=(average daily demand×lead time)+safety stock. The safety stock component must be calculated to particularly guard against the observed 7.2-day standard deviation in lead time, creating a firm cushion that insulates the inventory system secure against supplier delays.

**Recommendation 3: Strategic Alignment of Procurement with Seasonal Market Demand**

Proactively align the firm's purchasing calendar with the seasonal peak building season in Gurugram (January-June). This necessitates a strategic decision to build inventory prior to, not in reaction to, seasonal demand.

This makes the firm's largest single weakness its largest competitive advantage. Instead of a victim of unpredictable peak-season demand spikes, SPACE TREE can become a reliable go-to source in peak season and capture market share and revenue to record levels.

**How to implement**

Begin stockpiling Category A and B products inventory 4-6 weeks prior to the start of peak season. To aid this initiative, the company must actively establish strategic partnerships with Gurugram real estate developers and firms. These collaborations can provide valuable pre-emptive information regarding upcoming projects and even make huge bulk orders, ensuring revenue to be more stable and predictable.

**Recommendation 4: Drive Incremental Revenue Through Strategic Product Bundling**

Leverage sales history to identify "unfounded cross-selling opportunities" by analyzing what items are often purchased in combination. Create strategic product bundles that offer these pairs to customers at a discount.

This is a value-added strategy designed to boost the average value per customer transaction. It is also an effective way of clearing slower-moving but complementary goods (e.g., Category B or C accessories) when bundled together with best-selling Category A items.

**How to implement**

A good starting point would be to pair a best-selling toilet design with a recommended seat cover and flushing mechanism, or best-selling faucet with the associated installation hardware, and offer it as a "Complete Solution Pack".

**Projected Financial Impact**

Implementation of these detailed recommendations is projected to achieve substantial and measurable bottom-line gains to the bottom line of SPACE TREE. The table below, derived from the forecast analysis, assigns numbers to the expected cost reduction.

| METRIC | CURRENT STATE | OPTIMIZED STATE | IMPROVEMENT (Δ %) |
|---|---|---|---|
| **STOCKOUT RATE** | 18% | 5% | -72% |
| **HOLDING COSTS** | ₹5.7L | ₹4.2L | -26% |
| **LOST SALES** | ₹3.1L | ~₹0.9L | -71% |

**(Source: Mid-Term Report, Financial Impact Projections)**

By systematic reduction of stockouts, reducing excess inventory carrying costs, and recovering lost sales previously, these recommendations are projected to achieve a yearly cost savings of more ₹6.8L. This is a good return on investment and provides fresh financial leverage for SPACE TREE to achieve its long-term growth vision.