



# **Inventory Management Strategy**

**June 2023**

*“Prioritizing user satisfaction with honesty”  
The “PUSH”*

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## 1. Background

Farm Machinery Corporation Limited was established in 2016 with mandates such as hiring machinery, sales of machinery, spare parts & equipment, and repair & maintenance. Farm mechanization is promoted to address labour shortage issues, encourage youths in farming and to enhance crop production. Therefore, the sales mandate was targeted to bring about changes in agriculture through mechanization. It is crucial to maintain adequate stock of spare parts & equipment supported by efficient repair and maintenance services for efficient hiring services and in providing after-sales services to the clients. Under the sales mandate, a huge inventory was transferred to FMCL from the erstwhile AMC, purchased, and also received through grants. Inventories are purchased from India, Japan, Thailand, and China.

In today's rapidly evolving business landscape, effective inventory management stands as a critical determinant of success for companies. Efficiently managing inventory levels, balancing costs, and meeting customer demand pose formidable challenges, particularly in an era marked by heightened competition and increasingly complex supply chains. Therefore, companies must develop robust inventory management strategies to navigate these complexities and drive operational efficiency. This strategy aims to explore the inventory system, classify current inventories and present in-depth strategies the company should implement to optimize inventory control, minimize costs, and maximize customer satisfaction.

FMCL's inventory for sales as of the end of 2022, excluding raw materials, is valued at Nu. 146.676 million (Table 1). Over the past 5 years, there has been a significant increase in stock levels by approximately 23%. This increase has negatively impacted the company's cash flow.

**Table 1. Current stock inventories (2018-2022)**

<b>Overall</b>	<b>Amount</b>	<b>Percentage (%)</b>
Machines	37,972,564.16	26%
Accessories	3,133,229.59	2%
Implements	2,310,965.40	2%
Others	171,973.90	0%
Spare parts	92,586,289.56	63%
Tools	10,500,700.07	7%
<b>Total</b>	<b>146,675,722.68</b>	

Based on the stock mentioned in the above table, the study utilized a quantitative method to analyze the inventory data from the years 2018 to 2022. The data includes all the purchases and sales during that period, with the stock balance as of 31/12/2022. Using the available data, Fast-moving, Slow-moving, and Non-moving (FSN) analysis was conducted using the turnover ratio.

## 2. Objectives:

- 2.1. Optimize inventory levels to meet customer demand while minimizing excess stock.
- 2.2. Reduce inventory holding costs, including storage, insurance, and obsolescence.
- 2.3. Develop strategies for managing specific inventory categories, such as fast-moving, slow-moving, or non-moving items.
- 2.4. Improve inventory turnover rate to maximize cash flow and working capital efficiency.
- 2.5. Enhance supply chain visibility and coordination to improve inventory accuracy and reduce lead times.
- 2.6. Implement effective demand forecasting techniques to anticipate future inventory needs accurately.
- 2.7. Streamline procurement processes and develop strong supplier relationships to ensure timely and cost-effective replenishment.
- 2.8. Leverage technology and automation tools to improve inventory tracking, data analysis, and decision-making.

### 3. FSN Analysis

FSN analysis is a powerful inventory management tool that categorizes items based on their consumption patterns. By conducting FSN analysis, businesses can make informed decisions regarding stock replenishment, sales strategies, and inventory optimization. FSN analysis is a technique used to classify inventory items into three categories: Fast-moving (F), Slow-moving (S), and Non-moving (N). This classification helps companies identify items with different consumption patterns, allowing for better inventory planning and decision-making.

- 3.1. Methodology of FSN Analysis:** FSN analysis involves collecting data on item consumption, calculating consumption frequency, and categorizing items based on their movement patterns. The analysis helps determine the rate of inventory turnover, identify slow-moving and non-moving items, and assess their impact on inventory management.
- 3.2. Limitation:** FSN analysis considers item consumption, calculating consumption frequency, and categorizing items based on their movement patterns in a year. However, in our case, we need to consider data spanning over 5 years without any specific number of days for each item especially for the current inventories. This technique is a calculation that is based on formulas and available information, so the issue is the information or even a single human error can flaw the calculations.
- 3.3. Further classification:** Considering the nature of our inventory and the limitations of the analysis, we have introduced two additional categories (Table 2). The first is Deadstock, which encompasses items that have been purchased but not sold within the past 5 years or so. The second category is Must Retain, which consists of items that are rarely sold but need to be retained for future use during hiring services. These new categories aim to provide a more comprehensive classification of our inventory and it will be only applicable to manage the current inventory.

**Table 2. Classification of inventory stock**

Categories	Stock turnover ratio
Fast-Moving	>3
Slow-Moving	1-3
Non-Moving	<1
Dead	0
Must	Done manually

### 4. Conditions & Assumptions

To classify and strategies the current inventory worth of Nu.146.676M, the following conditions and assumptions were considered and these conditions and assumptions provide a framework for the analysis:

- 4.1.** The study considered a period of five years, specifically analyzing the purchases and sales of a particular item. This analysis included the opening balance at the beginning of the period and the closing balance at the end of 2022.
- 4.2.** The annual demand was determined by dividing the total sum of sales over the five-year period by 5, resulting in an average annual demand. This assumption assumes a relatively stable demand pattern throughout the years.
- 4.3.** The average inventory was calculated using the formula  $[(\text{Opening balance} + \text{closing balance}) / 2]$ , which provides an estimate of the average inventory level. This calculation assumes that the opening and closing balances accurately represent the inventory levels at the respective time points.
- 4.4.** The stock turnover rate was calculated by dividing the average annual demand by the average inventory. This ratio indicates how many times the inventory is sold and replenished within a year, assuming a consistent demand and supply pattern.
- 4.5.** In addition to the quantitative ratios used in the analysis, the expert judgment was taken into account when classifying stocks. Specifically, stocks related to hiring machines that are expected

to be used in the future were sorted separately from the dead and non-moving classifications, as they have different statuses. This assumption acknowledges the importance of expert judgment and domain knowledge in inventory classification.

**The formula for the turnover ratio: Annual demand/ Average Inventory**

## 5. Result & Findings

As per the condition and assumption, the following table shows the detail of the in-stock goods for further strategies (Table 3).

**Table 3. Categories of inventories, sales, and frequency of sales.**

Category	%	Amount (Nu.)	Total sales qty. (Nos.)	Qty. (Nos.)?	Frequency of sales (Nos.)/year
Fast	4%	6,229,231.3	41960	184.00	228.05 228
Slow	17%	25,012,385.7	34832	386.00	90.24 90
Non	53%	78,462,865.3	31536	2134.00	14.78 15
Dead	19%	27,503,163.1	9.00	2300.00	0.00
Must	6%	9,468,077.3	Should be in stock		
<b>Total</b>		<b>146,675,722.81</b>			

Based on the applied analysis, the following are the findings:

- 5.1. Fast-moving stock currently represents only 4% of the inventory, and the average sales per item in a year is around 228.
- 5.2. Slow-moving stock accounts for 17% of the inventory, and the average sales per item in a year is around 90.
- 5.3. Non-moving stock constitutes 54% of the inventory, and the average sales per item in a year is 15 times.
- 5.4. Dead stock makes up 19% of the inventory, with a value of Nu. 27.503M. The frequency of items sold in the last 5 years is 0.00.
- 5.5. The must-required items, identified from the non-moving and dead stock, represent around 6% of the inventory and are worth Nu. 9.468M.

## 6. Strategies

Based on the classification of the inventories, the following strategies will be implemented:

### 6.1. Fast-Moving

Fast-moving inventory refers to items that have a high turnover rate and are in constant demand. These are products that are frequently sold and replenished within a short period with the stock turnover ratio of >3. Fast-moving inventory typically has a high sales volume and shorter holding periods. As of the end of the year 2022, we have 4% (worth: Nu.6.229M) classified as fast-moving. The following strategies will be carried out under this classification:

- 6.1.1. Marketing Division will analyze historical sales data, market trends, and customer behavior to forecast demand patterns. As per the findings, the Procurement Division will plan inventory level-to maintain sufficient stock to meet customer demand and minimize excess inventory.
- 6.1.2. Implement the Just in Time (JIT) system, which focuses on receiving inventory from suppliers just in time for production or customer demand. The Procurement Division must establish strong

relationships with reliable suppliers and implement efficient logistics and delivery processes to ensure timely replenishment.

## **6.2. Slow-Moving**

Slow-moving inventory refers to items that have a low turnover rate (1-3) and take a longer time to sell. These items have lower sales volume and may stay in the warehouse or on store shelves for extended periods. Slow-moving inventory can be influenced by factors such as changing customer preferences, seasonality, or market trends. As of the end of the year 2022, we have 17% (worth: Nu.25.012M) classified as slow-moving. The following strategies will be implemented under this classification:

- 6.2.1. The Marketing Division will study the items and analyze the factors contributing to the slow movement of inventory. This analysis will provide insights into changing customer preferences, market saturation, or seasonal demand fluctuations. The Regional Store In-charges will provide support in gathering this information. These insights will help in adjusting inventory levels and procurement strategies accordingly.
- 6.2.2. To stimulate demand for slow-moving inventory, the marketing section will plan and implement promotions and marketing campaigns. This may involve offering discounts and bundling slow-moving items with popular products, subject to approval from the Pricing Committee. Additionally, leveraging social media and online marketing channels will be utilized to raise awareness and generate interest in these items.
- 6.2.3. The Procurement Division will consistently monitor the slow-moving stock and proactively identify non-moving items at an early stage. This will enable the company to make informed decisions regarding these items, such as evaluating the need for alternative sales channels, renegotiating with suppliers, or considering appropriate disposal methods.

## **6.3. Non-Moving**

Non-moving inventory refers to items that have not been sold over an extended period and show no signs of future demand. These items have become stagnant and are not generating revenue. Non-moving inventory may include obsolete products, discontinued items, or those that have lost relevance in the market with a stock turnover rate of <1. As of the end of the year 2022, we have 53% (worth: Nu.78.463M) classified as non-moving, and we have a dead classification worth Nu.27.503M (19%). The following strategies will be implemented under this classification:

- 6.3.1. Identify Dead Stock: The first step in managing non-moving inventory is to identify items that are obsolete, damaged, or non-sellable. The procurement division will conduct a thorough inventory audit to determine which items fall into this category. After verifying the dead stock, it will be dealt with according to the dead stock management guidelines.
- 6.3.2. Review Pricing and Promotions: The Marketing Division will analyze pricing strategies for non-moving inventory. Adjusting prices or offering promotions and discounts can stimulate demand and attract customers who may have been hesitant to purchase the items at their original price. Monitor customer response and adjust the pricing accordingly to find the optimal balance between maximizing sales and minimizing losses.
- 6.3.3. Continuous Improvement and Monitoring: The Procurement Division, with the help of the ICT Division, will regularly review and assess non-moving inventory to identify trends and patterns. Utilize data analytics and inventory management software to track inventory performance, identify slow-moving items early on, and make informed decisions based on the available data.

The Procurement Division needs to regularly evaluate and refine inventory management strategies to minimize the occurrence of non-moving inventory in the future.



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