

## Overview of Retail store shrinkage

**Retail store shrinkage** refers to the **loss of inventory** that occurs due to reasons other than legitimate sales. It includes:

- **Theft** (both internal and external)
- **Administrative errors** (wrong shipments, miscounts)
- **Damage and spoilage**
- **Fraudulent returns or mispricing**

Why Does Shrinkage Matter?

Shrinkage directly impacts a company's **bottom line**:

- Reduces **available stock** for sale
- Distorts **inventory records** and replenishment planning
- Leads to **lost revenue** and **higher operational costs**
- Can mask **internal process failures or fraud**

Even a **2–3% shrinkage rate** can translate into **millions in annual losses**, especially for large retail chains.

## 🎯 Problem Statement

To identify and analyze **inventory shrinkage trends**—including theft, operational errors, and losses—across stores, brands, and product categories during the period from **January 1, 2024 to June 30, 2024**. The objective is to **quantify shrinkage**, uncover actionable patterns, and recommend **preventive strategies** that reduce financial loss and strengthen inventory control across the **RetailHigh (Imaginary Company)** network

## 📦 1. Store-Level Analysis

- **Total Shrinkage Units:** 39,609
- **Total Shrinkage Value:** \$21 million
- **Average Shrinkage Rate:** 2.14%
- **Top States by Shrinkage Quantity:**
  - **Delhi** (~11.9K units)
  - **Maharashtra** (~9.8K units)
  - **Gujarat** (~4.1K units)
- **Top Stores by Shrinkage Value:**
  - **Store 11** (\$1.18M)
  - **Store 12** (\$1.10M)
  - **Store 6** (\$1.07M)
- **Efficiency Score (Total Revenue ÷ Total Shrinkage Value):** Used to rank store performance and operational control

## 📦 2. Product-Level Analysis

- **Top Brands by Shrinkage Value:**
  - **EcoHome** (\$6.8M)
  - **DailyUse** (\$6.0M)
- **Highest Shrinkage Rate by Category:**
  - **Home Decor (2.19%)**
  - **Electronics (2.14%)**
  - **Footwear (2.13%)**
- **High-Risk Products:**
  - **Product 67** and **Product 15** recorded the highest shrinkage in both quantity and value
- **Total Sales Revenue:** \$131.4 million
- **Total Units Sold:** 252,251
- **Total Available Stock:** ~1.85 million units
- **Average Product Price:** \$521

## ⚙️ 3. Operational Efficiency Insights

- **Inventory Discrepancy:** A variance of ~39.6K units observed between expected and actual stock, indicating significant shrinkage
- **Monthly Shrinkage Trends:**
  - **January (2.18%)** and **March (2.17%)** recorded the highest shrinkage rates
  - A downward trend was noted by **June (2.07%)**, suggesting recent operational improvements
- **Shrinkage vs Sales Correlation:**
  - Visual analysis (scatter plot) shows shrinkage rates remain high during high-sales periods, pointing to increased operational strain or theft risk

## 🔍 Key Insights & Patterns

- **Regional Concentration:** Delhi, Maharashtra, and Gujarat collectively account for over **65%** of total shrinkage volume
- **Persistent Store-Level Issues:** Specific stores consistently reported higher-than-average shrinkage, indicating possible systemic or process-related challenges
- **Disproportionate Product Loss:** Certain low-sales SKUs still generated significant shrinkage value—highlighting inefficiencies in product handling and control

## Strategic Recommendations

1. **Initiate Targeted Audits:** Begin internal reviews at **Store 11, Store 12, and Store 6**, where shrinkage values are highest
2. **Strengthen Physical Controls:** Focus efforts on **Electronics** and **Home Decor**, which exhibit higher loss rates
3. **Improve Forecasting & Replenishment:** Adjust inventory policies to prevent overstocking of loss-prone items
4. **Monitor Seasonal Variability:** Shrinkage rates are elevated in **Q1 (Jan–Mar)**—introduce special procedures during these months
5. **Establish Key Performance Indicators (KPIs):** Regularly track **Shrinkage Rate (%)** and **Efficiency Score** to support continuous monitoring and accountability

## Conclusion

This six-month analysis provides **clear visibility** into RetailHeight's inventory shrinkage landscape, uncovering both **macro-level trends** and **store-specific anomalies**. With a total shrinkage value of **\$21 million**, the insights enable the organization to implement focused mitigation strategies, improve operational efficiency, and significantly reduce preventable losses in the second half of 2024.