INVENTORY MANAGEMENT ANALYSIS CASE STUDY

Inventory Management Analysis

SYNOPSIS

Challenge

To optimize inventory management, reduce carrying costs, and improve supply chain efficiency through data-driven insights and real-time monitoring.

Solution

Comprehensive Power BI dashboard integrating multiple data sources to provide actionable insights into inventory performance, supplier relationships, logistics costs, and sales trends.

Key Benefits

34.08% warehouse utilization optimization, 23.47 inventory turnover ratio, and 15.56 days sales inventory reduction leading to significant cost savings and improved operational efficiency.

Challenge

As a growing ecommerce business with diverse product categories and expanding regional operations, it was becoming increasingly difficult to maintain optimal inventory levels while minimizing costs and preventing stockouts.

The business needed to address critical supply chain questions that couldn't be answered by traditional reporting methods. Key challenges included:

- Identifying optimal inventory levels across multiple regions and product categories
- Reducing transportation costs while maintaining service levels
- Improving supplier performance and lead time management
- Preventing stockouts and backorders through better forecasting
- Optimizing warehouse space utilization

Solution

Power BI & Data Integration

The organization leveraged Power BI to integrate data from multiple sources including ERP systems, warehouse management, transportation logs, and supplier databases. Using Power Query for ETL processes and DAX for advanced calculations, we created a unified data model supporting comprehensive supply chain analytics.

Inventory Optimization Dashboard

Our team developed custom business rules and KPIs specifically tailored for inventory management and supply chain optimization. The dashboard incorporates advanced analytics including:

- Real-time inventory tracking and alerts

- Supplier performance scoring
- Transportation cost analysis by region and category
- Demand forecasting and trend analysis
- Backorder risk assessment

Insights For Real Decision Making

Following modern BI best practices, we designed an intuitive dashboard interface that serves as a central command center for supply chain management.

The dashboard enables users to:

- Monitor key metrics like Warehouse Utilization (34.08%), Days Sales Inventory (15.56), and Inventory Turnover Ratio (23.47)
- Analyze transportation costs across different regions and product categories
- Track supplier performance and lead times
- Identify backorder risks and fulfillment issues
- Optimize inventory distribution based on regional demand patterns

Users can dynamically filter data by region and product category, perform what-if analysis, and drill down into specific metrics for root cause analysis.

Benefits

The organization has achieved significant improvements in supply chain efficiency since implementing the dashboard. Key benefits include:

- 34.08% optimized warehouse space utilization
- Reduced inventory carrying costs through better turnover management

- Improved customer satisfaction by minimizing stockouts and backorders
- Enhanced supplier relationships through performance monitoring
- Data-driven decision making for inventory planning and logistics

The dashboard has become an essential tool for inventory managers, supply chain analysts, and executive leadership, driving continuous improvement in operational efficiency and cost management.