

GLOBAL CIRCUS

CHALLENGE C

PEAK SEASON READINESS: A BI SOLUTION FOR VSCC

VIETNAM SUPPLY CHAIN CHALLENGE 2025



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SITUATION



COMPLICATION



QUESTION



ANSWER

Vietnam's e-commerce market is booming, with platforms like Shopee and TikTok that are driving rapid growth. VSCC, a key e-commerce enabler, excels in logistics and order fulfillment but faces growing challenges in managing high order volumes efficiently.

Lack of Real-time Decision Support

Manual Process Limitations

Forecasting & Planning Gaps

Operational Inefficiencies

How can VSCC company build Business Intelligence (BI) to optimize supply chain operations, enhance order processing during peak seasons, and minimize inventory issues, delivery delays, and logistics costs?

SHORT-TERM

- Real-time Inventory Monitoring
- Leverage Demand Forecasting using BI tools and historical data
- Warehousing Optimization by applying WMS system

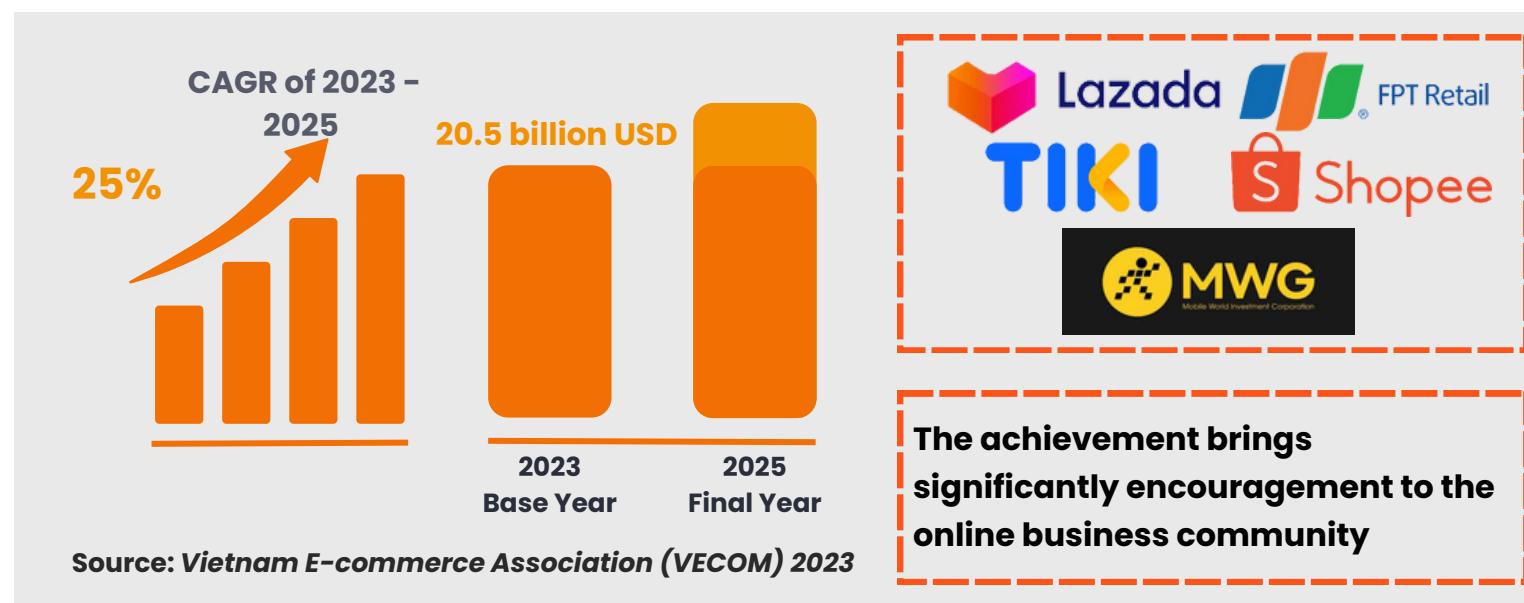
LONG-TERM

- ABCN inventory categorization
- AI & Predictive Analytics for Demand Forecasting
- Automated Order Processing integrate RPA

Vietnam E-commerce and area for development of VSCC as one of the leading enabler

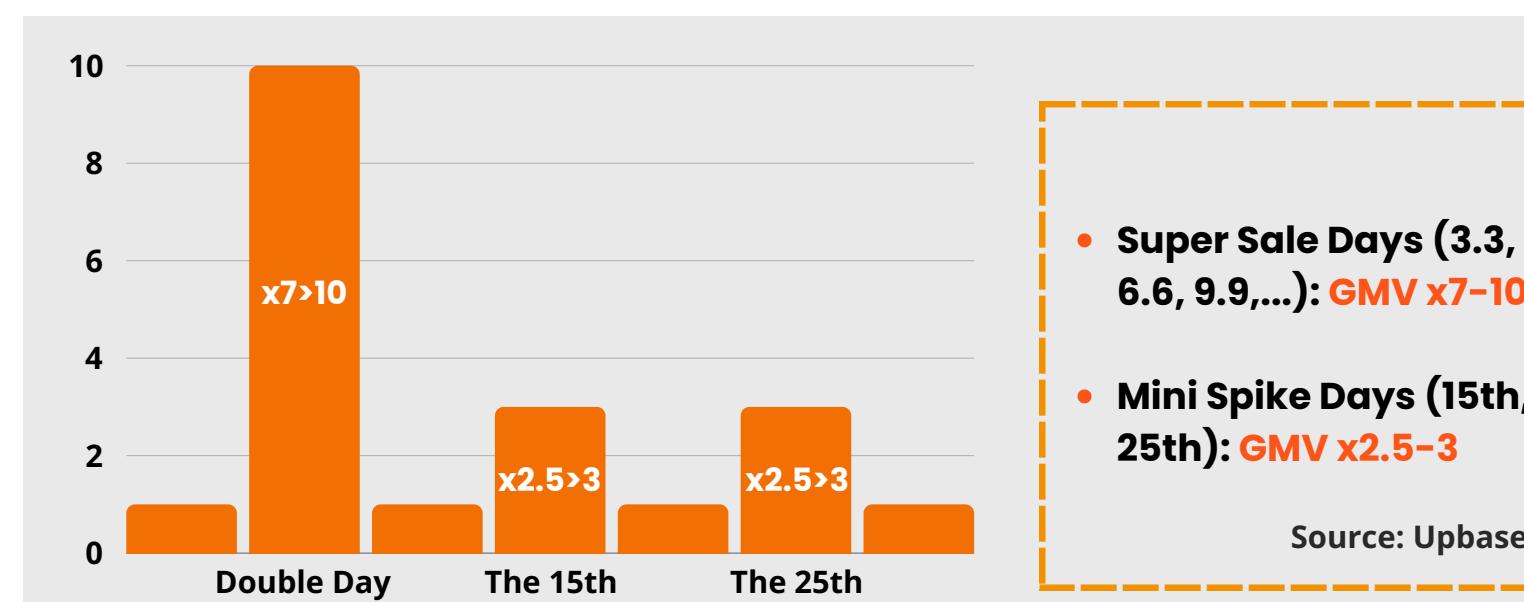
1

VIETNAM E-COMMERCE IS STRONGLY GROWING AT A HIGH LEVEL



2

MEGA CAMPAIGN DAYS ARE CONSIDERED KEY SALES OPPORTUNITIES FOR BUSINESSES AND BRANDS ON THE PLATFORM



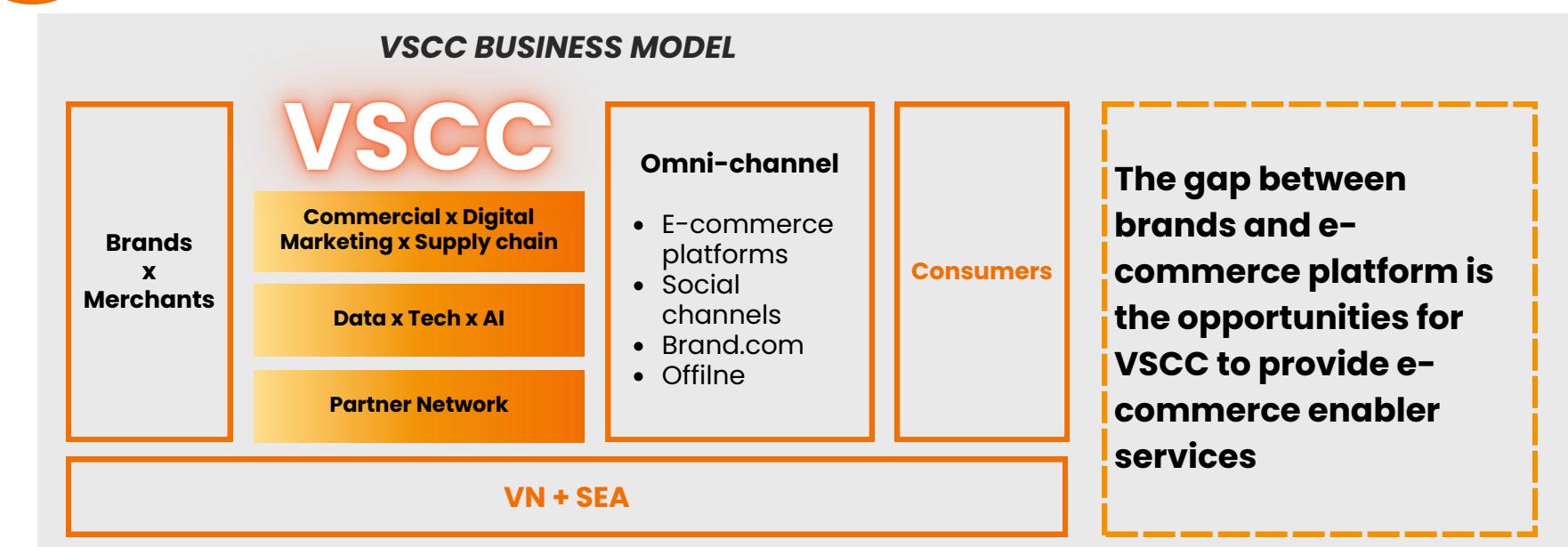
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BUSINESSES WANT TO DEVELOP IN E-COMMERCE NEED THE SUPPORT OF ECOMMERCE ENABLER COMPANIES AND RELATED ELEMENTS

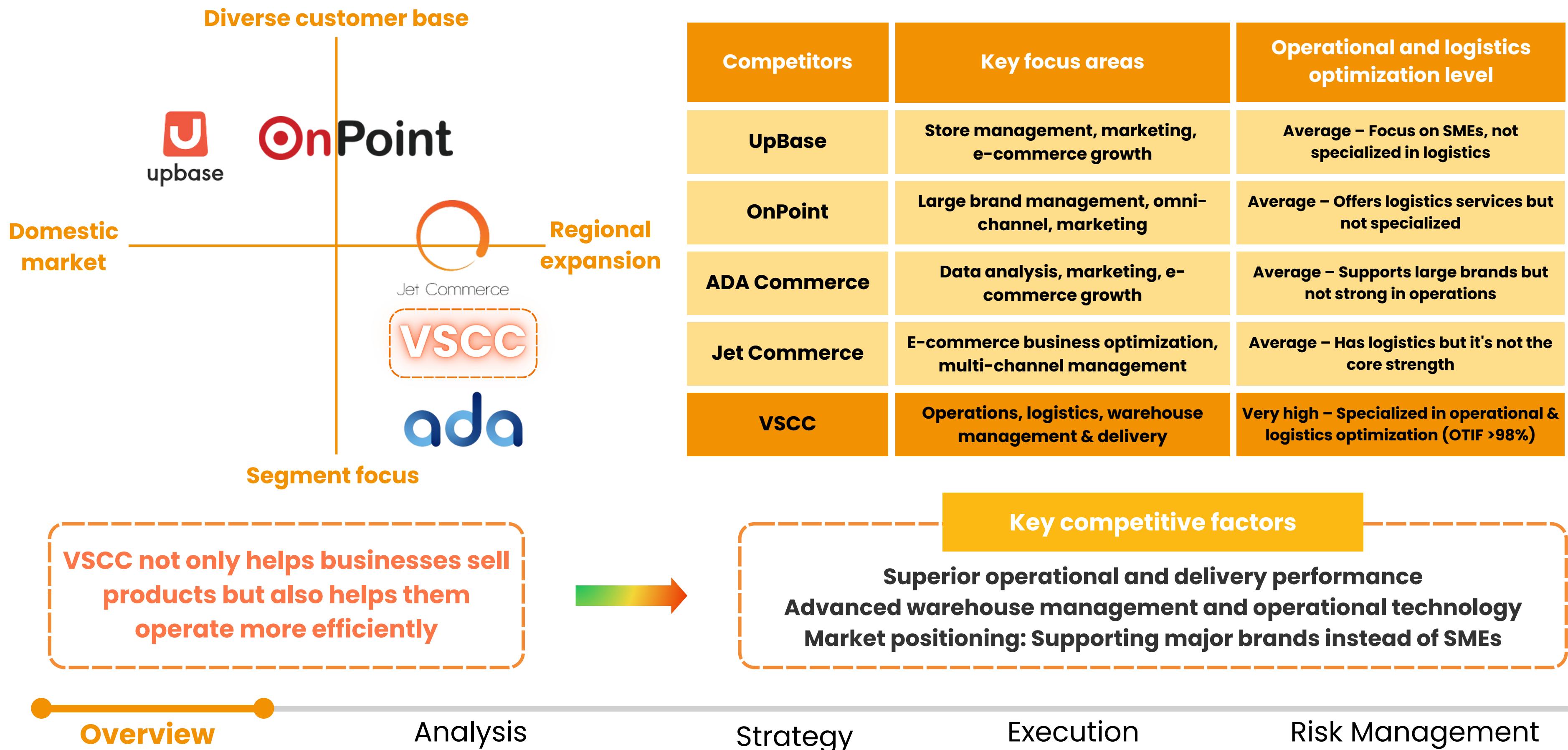


4

VSCC IS ONE OF THE LARGEST E-COMMERCE ENABLER IN VIETNAM



Comparing eCommerce Enablers: Evaluating operational and logistics capabilities between VSCC and its competitors



How to Build a BI Tool from the Dataset (1/2): Clean and Establish Relationships Among Data Tables

01

Handle Vendor Data

Create "Vendor" Table From "VendorMasterData"

VendorMasterData

Gather Sensible Columns
Clear Duplicate "Vendor"

VendorMasterData
+ VENDOR (distinct)
+ Primary Vendor
+ Payment term (week)

02

Determine Category

Base on Brand and SKU Name to Find out Category

Brand (Distinct)
SKU Name

Identify Category for each Brand

Brand_Category
+ Brand
+ Category

03

Add Seasonality Into Data

Create "Peak In Seasonality" For Demand Forecast

Peak In Seasonality			
1	6	11	16
2	7	12	17
3	8	13	18
4	9	14	19
5	10	15	20

When Click whatever Number in "Peak In Seasonality", All Demand will:

X NUMBER_TIMES

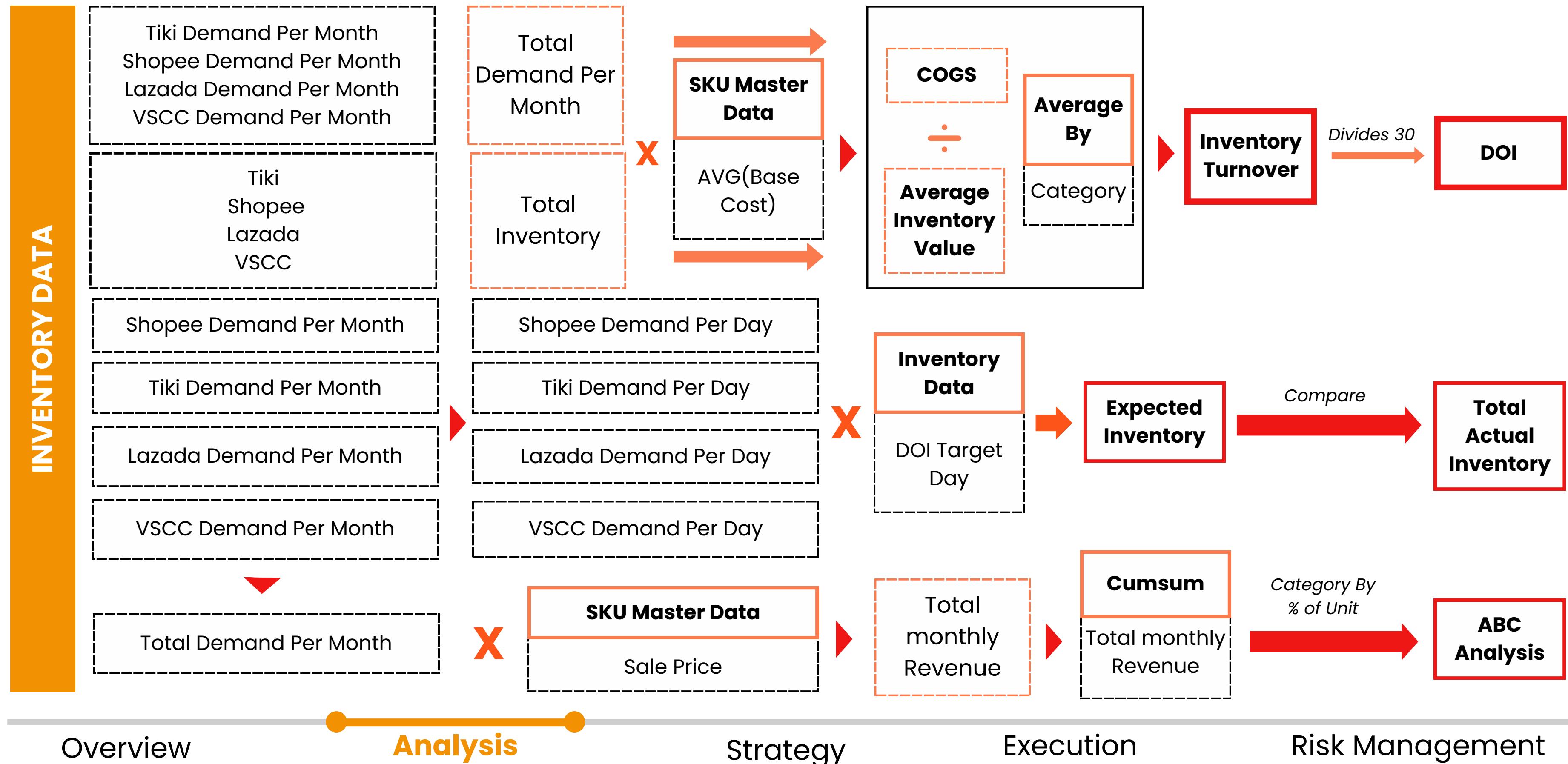
04

Draw up Data Relationship

1. Determine: **Primary Key** And **Foreign Key** in each table
2. **Connect Them** using relationship model (Appendix 1)

DATA PREPARED FOR DASHBOARD

How to Build a BI Tool from the Dataset (2/2): Apply KPIs and Draw up Dashboard By Power BI



Applying KPIs for Enhanced Business Efficiency and Supply Chain Optimization (1/3): Inventory Turnover Rate

Why is this KPI important?

Assess Operational Efficiency

Helps businesses determine if inventory levels are balanced, minimizing the risks of overstocking or stock shortages.

Cash Flow Management

Maintaining an optimal average inventory helps businesses prevent excessive capital from being tied up in stock.

Risk Reduction

Prevents inventory obsolescence, spoilage (for perishable goods), and depreciation, ensuring products retain their value.

How to Calculate this KPI?

$$\text{Inventory Turnover Rate (ITR)} = \frac{\text{Cost of Good Sold (COGS)}}{\text{Average Inventory Value}}$$

Where:

- COGS:** is the total cost of goods sold during a specific period.
- Average Inventory Value:** the typical amount of inventory a business holds over a specific period.

Note: In this BI Tool, we will calculate the Inventory Turnover Rate (ITR) using the weighted average method for each predefined category and with a period of month.

How to evaluate this KPI?

Group Category	ITR (Month)
FMCG	0.5 - 1.5
Technology	1 - 3

ITR too high (> ITR settings) → There may be stock shortages or missed sales opportunities.

ITR too low (< ITR settings) → Inventory may be stagnant for too long, requiring a review of purchasing policies and sales strategies.

Source: Sunil Chopra (2018)

The dataset used: Sheet "Inventory data", "SKU data"

Applying KPIs for Enhanced Business Efficiency and Supply Chain Optimization (2/3): Days of Inventory.

Why is this KPI important?

Sales Efficiency

DOI high mean that the business is selling slowly, meaning that inventory is sitting in the warehouse for long.

Operations Optimization

Helps businesses adjust production and purchasing plans to match actual demand, and optimizing resources.

Risk Management

Sign of excess inventory or unsold products, which can lead to increased storage costs and the risk of obsolescence.

How to Calculate this KPI?

$$\text{Day of Inventory (DOI)} = \frac{\text{Average Inventory Value}}{\text{Cost of Good Sold (COGS)}} \times \text{Number of Days}$$

Where:

- **COGS:** is the total cost of goods sold during a specific period.
- **Average Inventory Value:** the typical amount of inventory a business holds over a specific period.
- **Number of Days:** The period for which DOI is being calculated

Note: In this BI Tool, we will calculate the Day of Inventory (DOI) using the weighted average method for each predefined category and with a period of month.

How to evaluate this KPI?

Compare Actual DOI vs. Target DOI:

- If Actual DOI > Target DOI: → Overstocking, high holding costs.
- If Actual DOI < Target DOI: → Stock shortages, risk of lost sales.

The dataset used: Sheet "Inventory data", "SKU data"

Applying KPIs for Enhanced Business Efficiency and Supply Chain Optimization (3/3): ABC Analysis

Why is this KPI important?

Optimize Stock Control

ABC Analysis prioritizes inventory by value and volume has relaxed oversight, ensuring optimal stock levels.

Efficient Resource Allocation

Helps businesses can optimize storage, budgets, and workforce, minimizing waste on low-value items while ensuring key products stay available.

Cost Control & Profitability

Helps businesses minimizes holding costs, prevents overstocking, improves cash flow.

How to Calculate this KPI?

Cumsum of Revenue

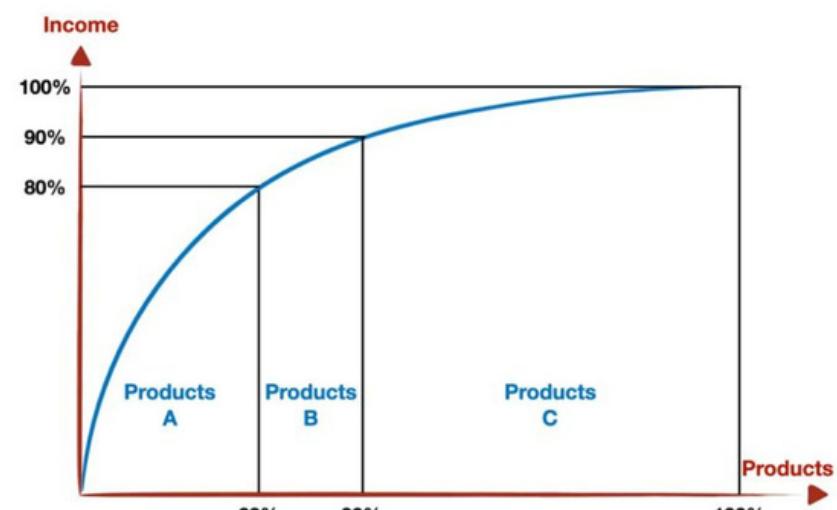
$$= \sum_{t=1}^n (\text{Revenue}_t) \quad \& \quad \sum_{t=1}^n (n) / \text{Total SKU} \times 100\% =$$

A,	if $\leq 15\%$
B,	if $\leq 45\%$
C,	if $> 45\%$

Where:

- **Revenue:** is total of money that earned from sales
- **Total SKU:** Number of product of inventory
- **A,B,C:** Classification in ABC Analysis

How to evaluate this KPI?



Class A

5-20% SKUs
70-80% Sales

Class B

30% SKUs
15% Sales

Class C

50-60% SKUs
5-10% Sales

The dataset used: Sheet "Inventory data", "SKU data", "vendor data"

Scenario planning (1/2): In the ordinary scenario, some categories face overstock risks, while others have low inventory turnover.

Category	ITR (Months)	Evaluation	DOI Actual	DOI Targeted	Evaluation
Baby Care	1.86	●	16,5	11,66	●
Beauty	4.60	●	6,52	11,6	●
Electronics	2.57	○	11,65	12,85	●
Food & Beverage	2.05	●	14,62	14,10	○
Household & Goods	3.05	●	9,84	10,94	●
Personal Care	0.46	○	65,07	12,12	●
Tool & Hardware	16.76	●	1,79	11,78	●
Wellness	0.06	●	473,07	9,99	●

● Below Target ○ Within Target ● Above Target

(Appendix 2)

INSIGHT

Overstock Issues (DOI Actual > Target)

- Category: Electronics, Household Goods, Wellness, Personal Care
- Risk: High holding costs, slow-moving stock.



Low Inventory Turnover (ITR Too High)

- Category: Beauty, Tool & Hardware
- Risk: Excess inventory ties up capital.



Balanced Categories (DOI Actual ≈ Target)

- Category: Baby Care, Food & Beverage, Tool & Hardware



SOLUTION

Reduce reorder volume, run promotions, expand sales channels, renegotiate supplier terms.

Adjust stock levels, targeted marketing, demand-driven restocking.

Maintain forecasting accuracy, optimize supply chain, leverage seasonal trends.

Scenario planning (2/2): In peak season, high demand causes stock depletion, while some categories face overstock, requiring strategic inventory management

Category	ITR (Months)	Evaluation	DOI Actual	DOI Targeted	Evaluation
Baby Care	9,29	●	3,23	11,66	●
Beauty	23,01	●	1,30	11,6	●
Electronics	12,87	●	2,33	12,85	●
Food & Beverage	10,26	●	2,92	14,10	●
Household & Goods	15,25	●	1,97	10,94	●
Personal Care	2,31	●	13,01	12,12	●
Tool & Hardware	83,82	●	0,36	11,78	●
Wellness	0,32	●	94,61	9,99	●

● Below Target

● Within Target

● Above Target

(Appendix 2)

INSIGHT

Low DOI (Stock Depletion Risk)

- Category: Baby Care, Beauty, Electronics, Food & Beverage, Household & Goods, Tool & Hardware.
- Insight: Demand surge is depleting inventory too fast, increasing the risk of stockouts.



High DOI (Overstock Risk)

- Category: Personal care & Wellness.
- Insight: Inventory turnover is slower, leading to potential excess stock after peak season.



Extremely High ITR (Stock Moving Too Fast)

- Category: Tool & Hardware (ITR 83.82).
- Insight: Extreme demand spike may lead to supply chain disruptions.



SOLUTION

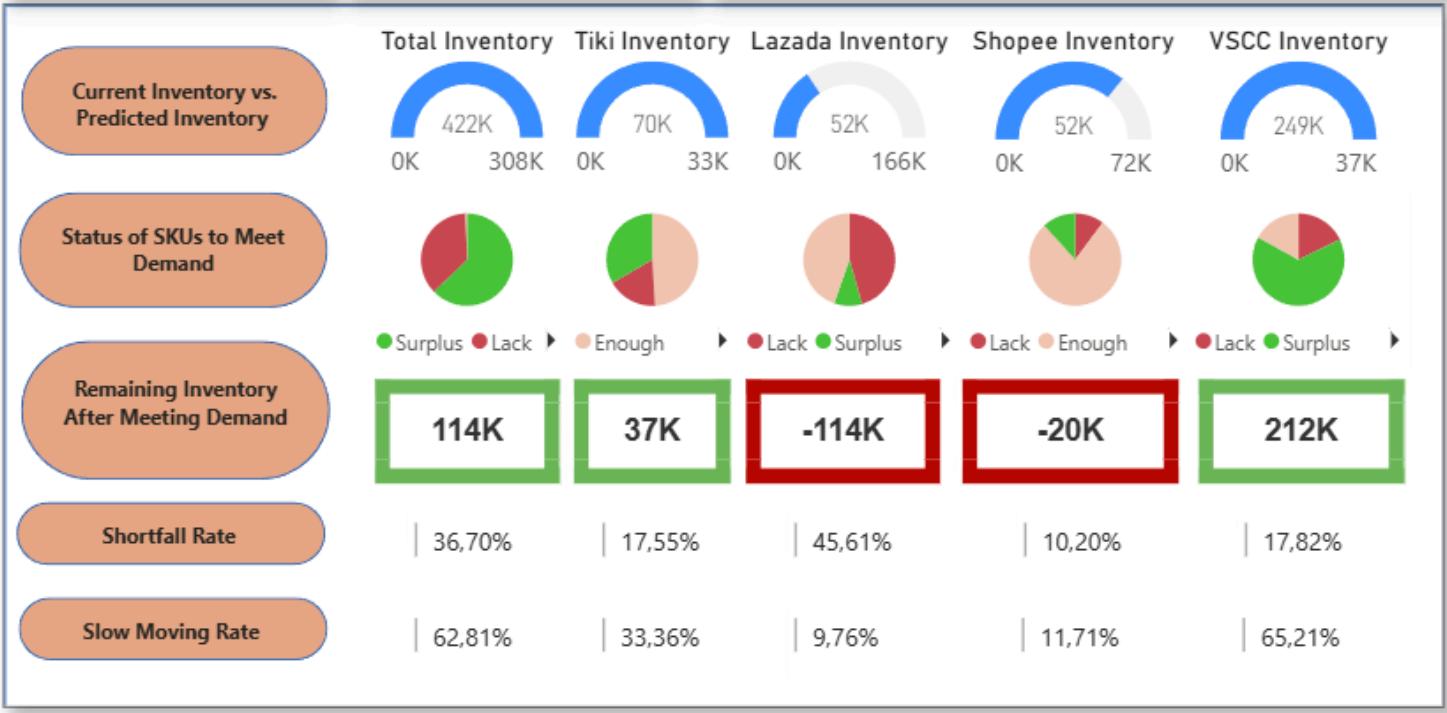
Increase safety stock, prioritize supplier replenishment, monitor real-time demand.

Adjust forecasts post-peak, use promotions/bundles, redistribute stock.

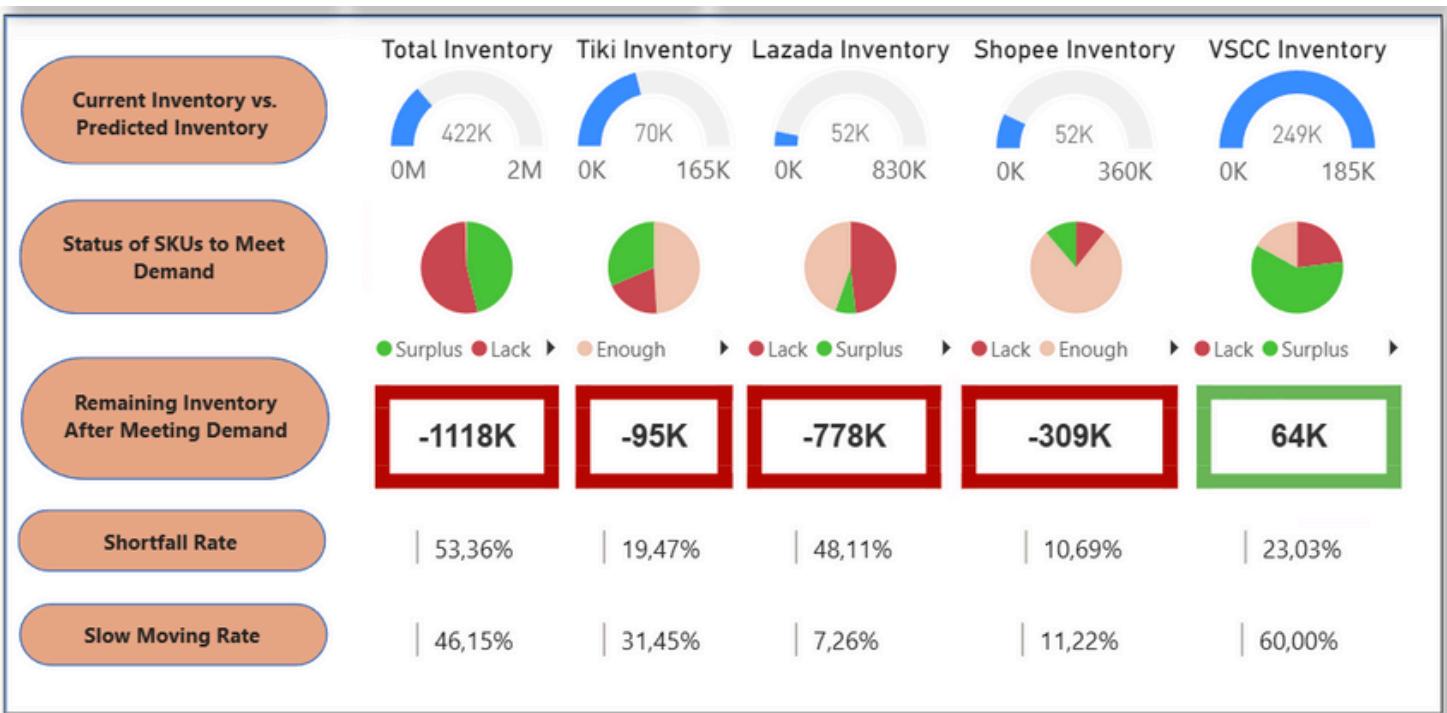
Set order limits, secure priority supplier orders, find alternative suppliers.

Discrepancies between expected and actual inventory highlight stock shortages across key platforms, requiring urgent optimization in supply allocation.

ORDINARY



PEAK



Overview

Analysis

Strategy

Execution

Risk Management

RESULTS

Evaluate Inventory

TIKI

Lazada

Shopee

VSCC

Vietnam Supply Chain Challenge 2025

INSIGHTS

Severe stock shortages during peak season, especially on Lazada and Shopee.

Evaluate Inventory

TIKI

Lazada

Shopee

VSCC

Vietnam Supply Chain Challenge 2025

Shortfall rate and slow-moving inventory remain high, impacting demand fulfillment.

VSCC maintains better surplus balance, while other platforms struggle with stock gaps.

We provide the Solution Roadmap with clear short-term and long-term strategies for VSCC to optimize supply chain operations using Business Intelligence (BI) tools

PHASE 1: OPTIMIZING

Real-time Inventory Monitoring:
Utilize BI tools to track real-time inventory levels.

Leverage Demand Forecasting: Use historical data and BI tools to predict demand during peak seasons.

Warehousing Optimization: Applying Warehouse Management System (WMS) in order to enhances visibility in inventory and order status tracking.

PHASE 2: ENHANCING

Advanced Inventory Management:
Use ANBC inventory categorization to prioritize inventory

AI & Predictive Analytics for Demand Forecasting: Implement AI-driven demand forecasting to predict peak season demand .

Automated Order Processing:
Integrate RPA to automate bulk order processing and minimize annual errors and accelerate order fulfillment.

EXPECTED RESULTS

Increase ≈ 30%

Inventory efficiency, while lowers storage costs and increases working capital

Aim to cut ≈ 15%

Inventory Holding Cost every year due to better forecast accuracy.

Reduce ≈ 40%

in order processing time during peak seasons.

In short-term, we suggest applying Real-time Monitoring, Forecasting, and WMS Optimization to enhance supply chain efficiency.

1 Real-time Inventory Monitoring: Utilize BI tools to track real-time inventory levels

Enables real-time inventory tracking, identifies stock movement patterns, and recommends optimal reorder points

Reference No.	Vendor Name	Order Subtotal	Other Charges Total	Order Total
P00019S	Mike	1500	10	1510
P00020S	John	200	20	220
P00015S	Emma	1000	20	1020
P00016S	Noel	2500	10	2510
P00017S	Ruby	100	10	110

2 Leverage Demand Forecasting: Use historical data and BI tools to predict demand during peak seasons.

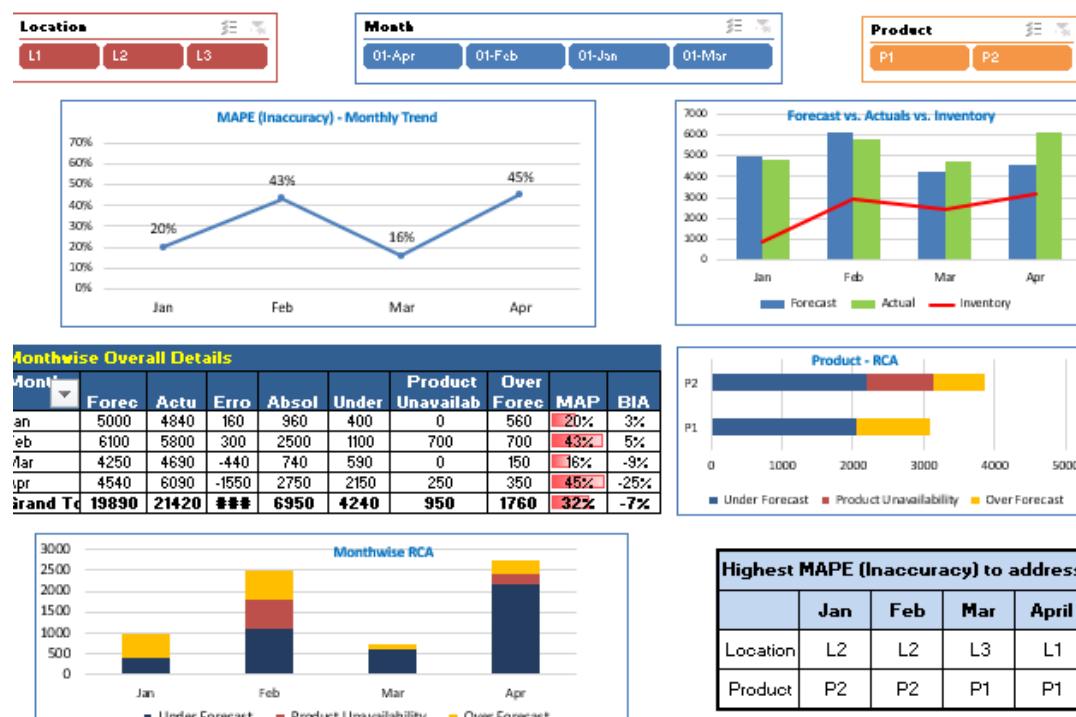
Integrated planning with sales and marketing to anticipate trends

Monitoring forecast error using dashboards

Increase responsibility with forecasts of departments

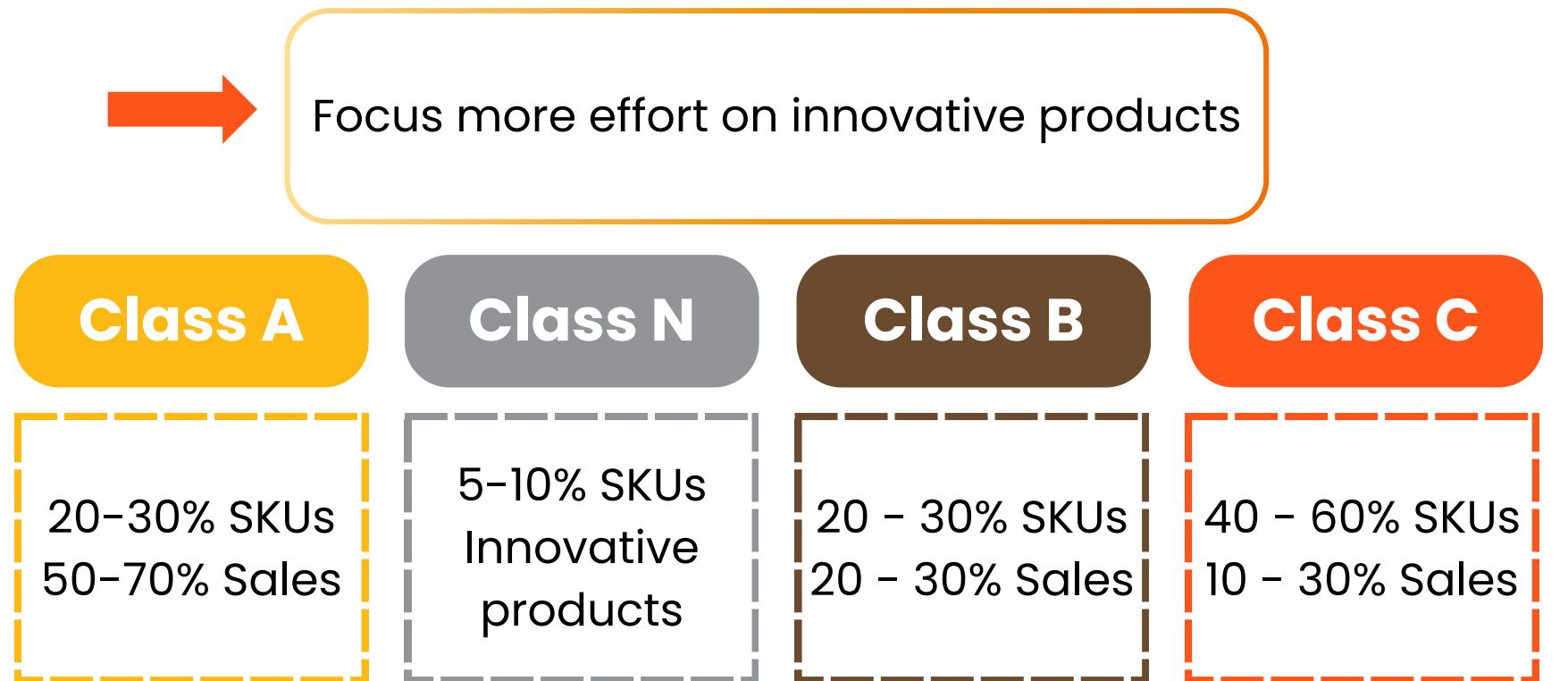
3 Warehousing Optimization: Applying Warehouse Management System (WMS)

- Deploy WMS for digital inventory tracking.
- Sync WMS with BI for real-time visibility.
- Apply slotting and order picking.



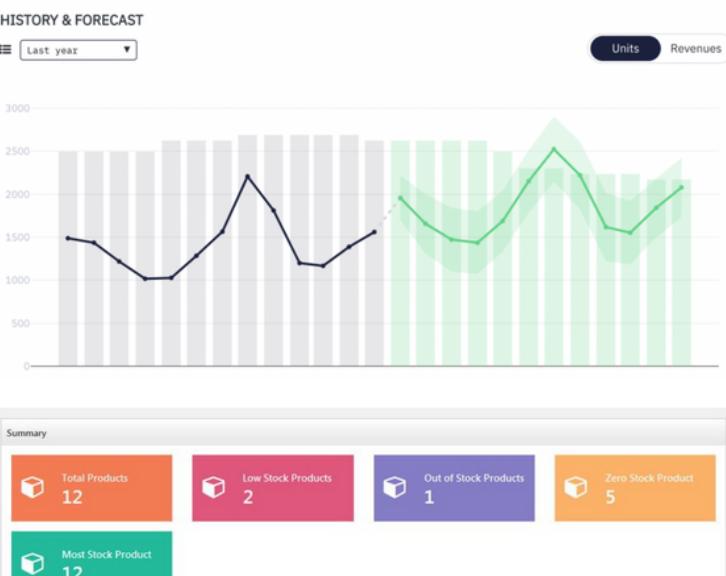
In the long run, VSCC should optimize inventory management with the ABCN classification approach and enhance operational efficiency through AI-driven forecasting and RPA automation.

1 ABCN approach is an upgraded, more innovated version from the traditional ABC approach

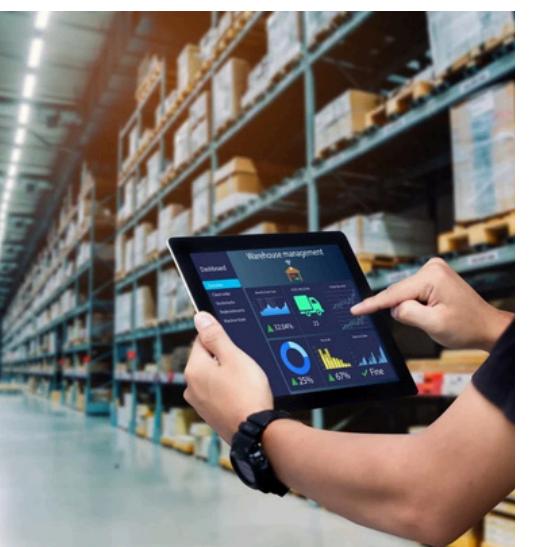


2 Implement AI-driven demand forecasting to predict peak season demand .

Use AI models to analyze historical data, identify trends, and generate accurate demand forecasts for peak seasons.

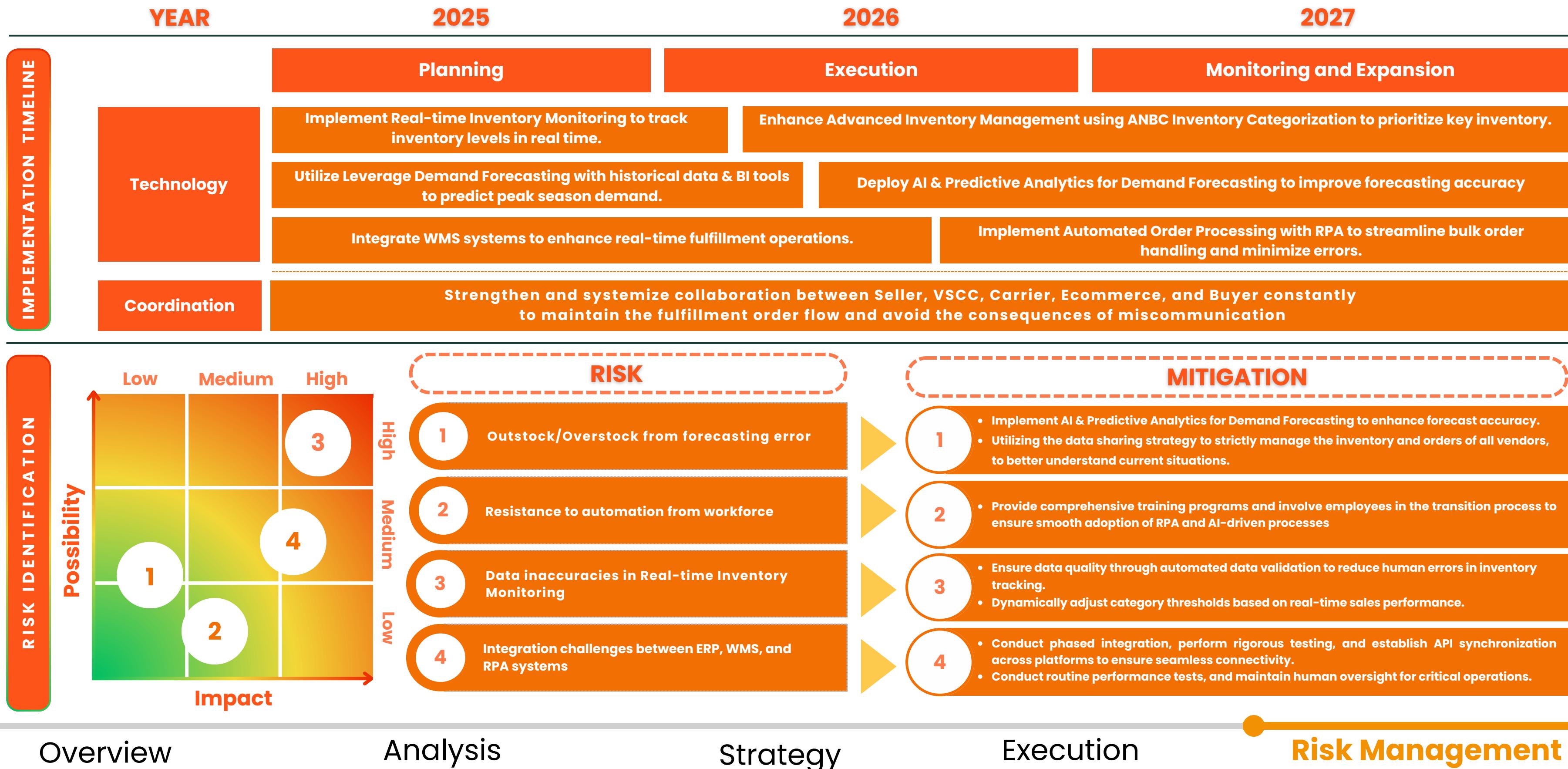


3 Integrate RPA to automate bulk order processing and minimize annual errors and accelerate order fulfillment.



- Deploy RPA Bots: Automate order entry, validation, and processing.
- Integrate with ERP/WMS: Sync orders with inventory and shipping systems for real-time execution.

Implementation Timeline & Risk Management: A Strategic Approach for VSCC to Business Efficiency and Supply Chain Optimization



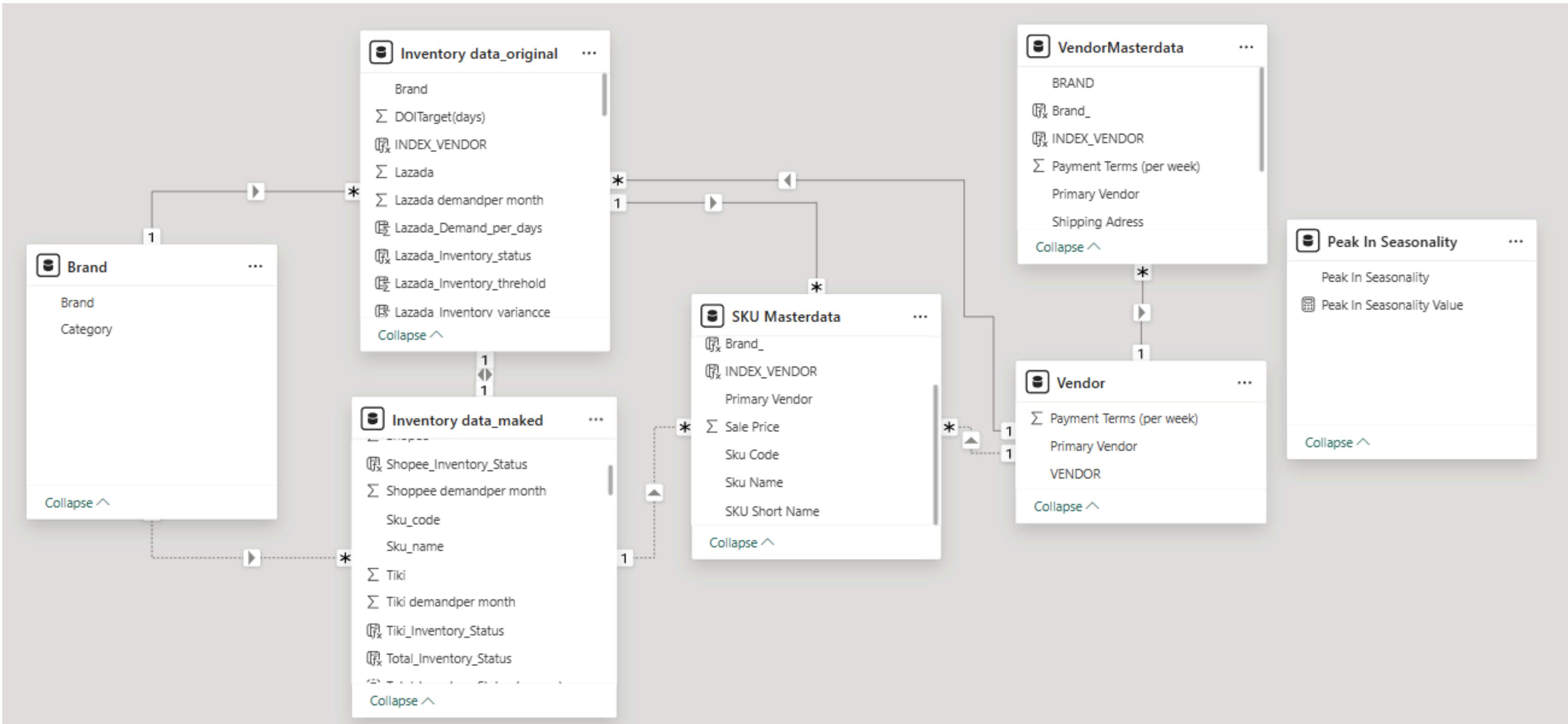
PROPOSAL KPI AND PLAN FOR VSCC COMPANY

THANK YOU!

Prepared By Global Circus



APPENDIX 1: RELATIONSHIP MODEL



APPENDIX 2: DOI AND ITR DATA

Ordinary

Category	Total_Invetory	Total_Demand_Per_Month	Average of Base Cost	Average_Inventory_Value	COGS	DOI_Actual	Average of DOI Target(days)	Inventory_Turn_Over	Count of Sku_code
			857.620,81						
Baby Care	26435	28.481,91	356.221,47	117.430,69	218.177,55	16,15	11,66	1,86	220
Beauty	53381	125.242,59	669.141,18	25.197,87	115.948,22	6,52	11,60	4,60	868
Electronics	970	2.149,54	11.445.760,00	50.060.701,54	128.897.299,45	11,65	12,85	2,57	13
Food & Beverage	2507	7.314,09	246.140,87	8.742.152,42	17.935.334,76	14,62	14,10	2,05	10
Household Goods	29318	85.450,71	211.548,46	70.982,79	216.437,45	9,84	10,94	3,05	282
Personal Care	268078	103.340,84	322.023,07	171.433,88	79.041,20	65,07	12,12	0,46	625
Tool & Hareware	1584	20.647,14	1.096.813,79	243.690,84	4.085.086,94	1,79	11,78	16,76	81
Wellness	40134	7.540,02	74.828,20	618.403,76	39.216,69	473,07	9,99	0,06	146
Total	422407	380.166,84	813.087,01	23.896,31	39.032,11	18,37	11,59	1,63	2245

Peak demand
(x5 demand)

Category	Total_Invetory	Total_Demand_Per_Month	Average of Base Cost	Average_Inventory_Value	COGS	DOI_Actual	Average of DOI Target(days)	Inventory_Turn_Over	Count of Sku_code
			857.620,81						
Baby Care	26435	142.409,56	356.221,47	117.430,69	1.090.887,74	3,23	11,66	9,29	220
Beauty	53381	626.212,96	669.141,18	25.197,87	579.741,08	1,30	11,60	23,01	868
Electronics	970	10.747,68	11.445.760,00	50.060.701,54	644.486.497,26	2,33	12,85	12,87	13
Food & Beverage	2507	36.570,43	246.140,87	8.742.152,42	89.676.673,80	2,92	14,10	10,26	10
Household Goods	29318	427.253,55	211.548,46	70.982,79	1.082.187,25	1,97	10,94	15,25	282
Personal Care	268078	516.704,20	322.023,07	171.433,88	395.206,00	13,01	12,12	2,31	625
Tool & Hareware	1584	103.235,70	1.096.813,79	243.690,84	20.425.434,71	0,36	11,78	83,82	81
Wellness	40134	37.700,11	74.828,20	618.403,76	196.083,45	94,61	9,99	0,32	146
Total	422407	1.900.834,18	813.087,01	23.896,31	195.160,54	3,67	11,59	8,17	2245

APPENDIX 3: DASHBOARD IN POWER BI



Compare Actual Inventory and Expected Inventory

Compare DOI Actual and DOI Target and Evaluate Inventory Turn over with KPI

Determine Revenue of each product by ABC Analyst