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Wrapping up Holiday Inventory with Smarter Forecasting

A RETAIL USE CASE

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Introduction

As the festive season approached, a retail company found itself at a crossroads. Past holiday seasons had been a whirlwind of unmet expectations—stockouts of bestsellers left customers disappointed, while overstocked items ate away at storage space and tied up valuable capital.

Seasonal demand for gifts and decorations proved notoriously difficult to predict, with variables like promotions, holidays, and shifting consumer habits adding extra layers of complexity. To avoid a repeat of these holiday woes and ensure their shelves were brimming with holiday cheer, the company turned to Log-hub's advanced tools: the Demand Forecasting App, Inventory Optimization App, and the Area Mapper App—now enhanced with population data.

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SOLUTION: PREPARATION FOR THE HOLIDAY RUSH

The company implemented a step-by-step strategy, combining cutting-edge technology with business insights to ensure every SKU found its rightful place during the holiday season.

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STEP 1

Setting the Stage with Data

The company began by using the **Supply Chain Map - Locations**, to plot their customer locations across Germany, France, and Italy. This provided a clear view of demand hotspots. Furthermore, they used **Area Mapper Map** to visualize their customer distribution. To begin, they generated mid-detailed levels of geographic areas for target countries, with population data provided directly by the Area Mapper App.

Next, they populated the Customers table in the Area Mapper App with their store locations, using average revenue per store from October to January as the key metric. By layering population density over customer areas, they identified high-potential regions where additional demand might arise. This step uncovered hidden opportunities, such as densely populated areas that could fuel last-minute holiday sales.

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STEP 1

Setting the Stage with Data

By combining population data with store revenue, they identified average revenue per capita for each area, highlighting regions with the highest sales potential. These high-potential areas became a priority for SKU optimization and improved demand forecasting. The company outlined three scenarios to cover:

- **SCENARIO A:** Focused on high-demand regions with large populations, ensuring no stockouts in key areas.
- **SCENARIO B**: Balanced lower-demand areas with optimized reorder points to avoid overstocking.
- Analyze separate scenarios for each SKU to analyze AS-IS and Optimal inventory policies.

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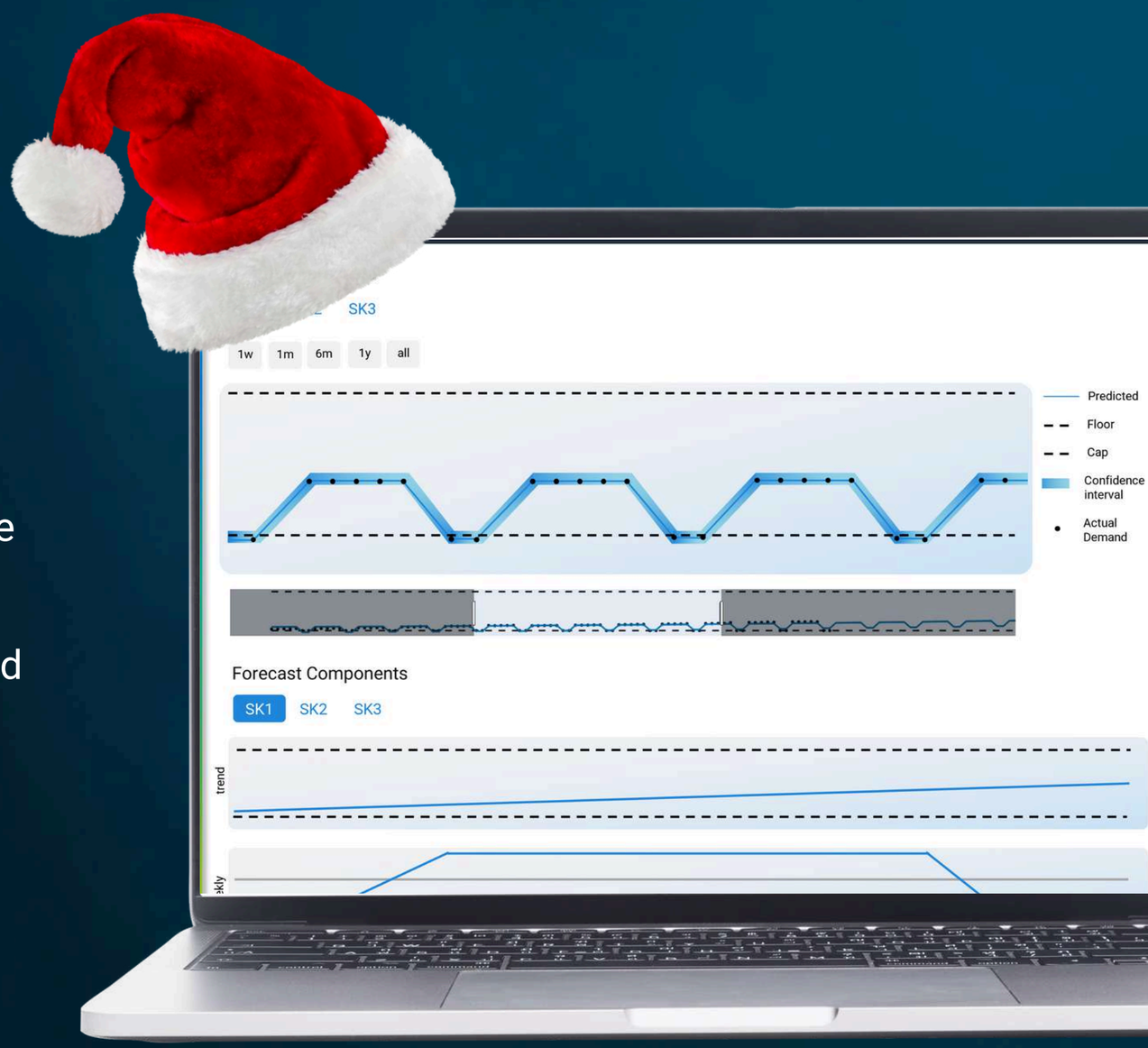
DEMAND FORECASTING

The next step included using Demand Forecasting app. The company uploaded three years of historical demand data for their key SKUs—popular decorations, gifts, and other holiday essentials. Focusing on October to January ensured that all seasonal trends were captured, creating a solid baseline for forecasting.



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STEP 2

Capturing the Magic of the Holidays

The next step was enriching the companies' demand forecasts with key holiday-specific factors. Events like Black Friday, local celebrations, and holiday promotions were added as inputs in the Demand Forecasting App. This ensured that the model understood the festive season's unique dynamics, from weekend shopping surges to special sale days.

The app processed these variables alongside historical data, generating SKU-specific forecasts that pinpointed demand peaks during critical sales periods. For example, the app predicted a surge in demand for specific Christmas ornaments in regions with both high population density and strong revenue.

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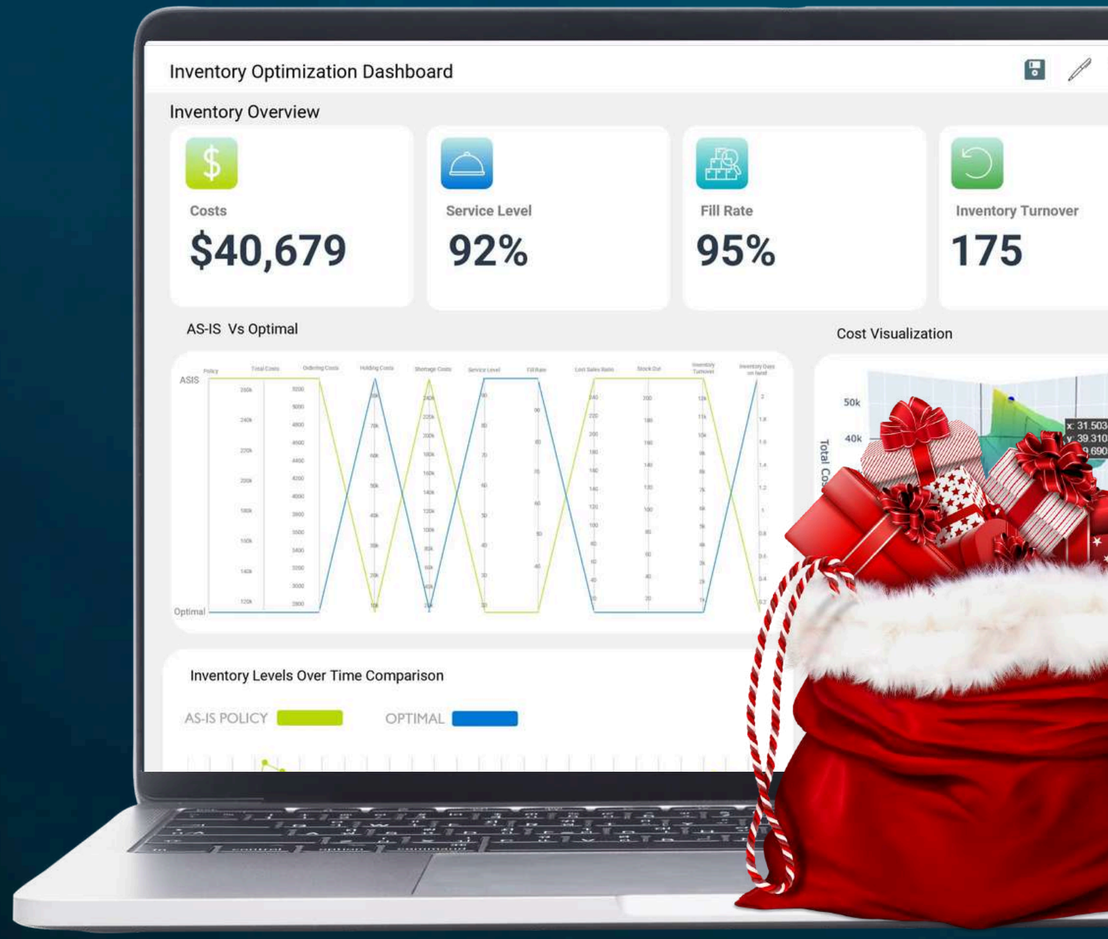
STEP 3

Turning Insights into Action

Armed with detailed forecasts, the company uploaded SKU master data into the Inventory Optimization App. This step integrated essential information:

- COST DETAILS (E.G., ORDERING, STORAGE, AND SHORTAGE COSTS)
- SERVICE LEVEL TARGETS (E.G., 95% AVAILABILITY FOR HIGH-DEMAND ITEMS).
- CONSTRAINTS LIKE MINIMUM ORDER QUANTITIES (MOQS) AND SUPPLIER LEAD TIMES.

The app evaluated different inventory policies, such as (s,Q) and (R,S) approaches, assessing their cost implications and service outcomes.



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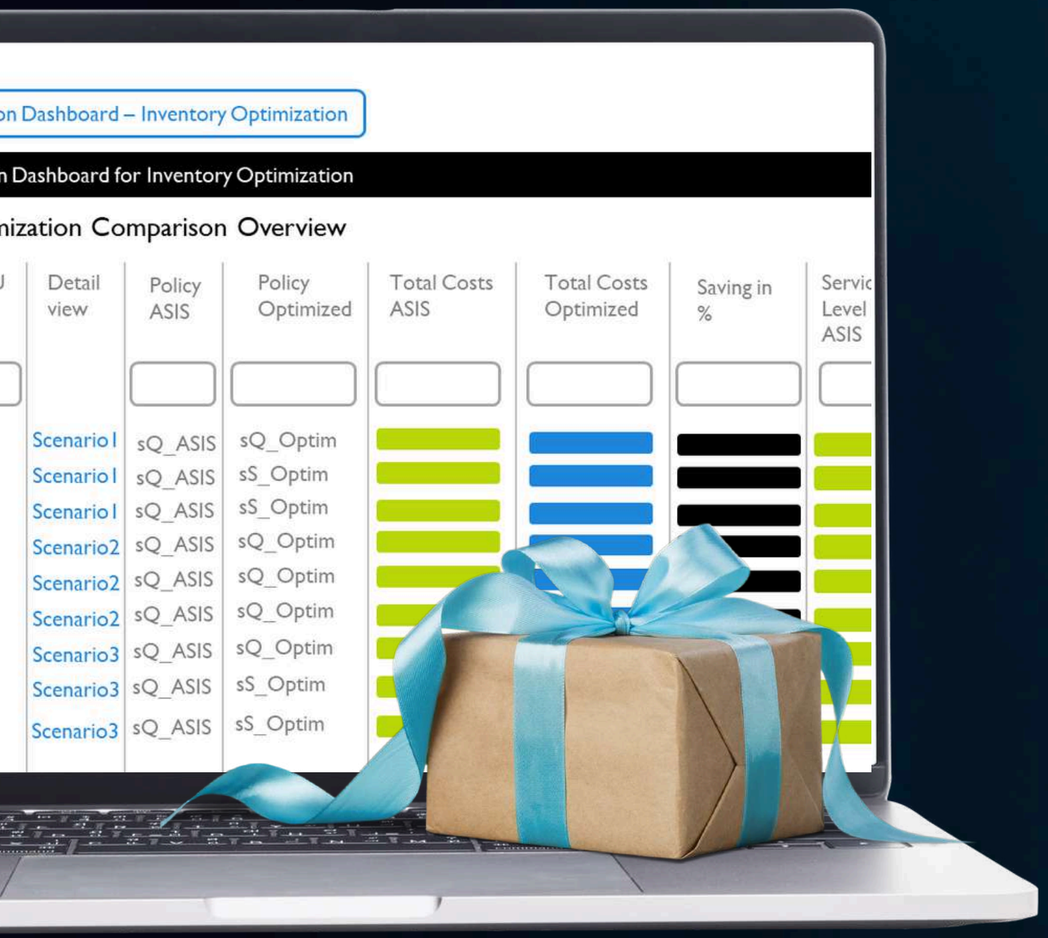

STEP 4

Exploring Multiple Scenarios

With the scenario comparison tool in the Inventory Optimization App, planners simulated a variety of strategies. By creating SKU-specific scenarios, they compared cost savings, service levels, and inventory requirements for each approach.

After generating the scenarios, the company could compare different scenarios, identifying highest potential SKUs, and best strategies for both regions with high and low demand. Besides, they could delve into each separate scenario, leveraging data driven insights for optimal decisions. Dynamic dashboards allowed the planners to evaluate trade-offs at a glance, selecting strategies that would maximize holiday performance.

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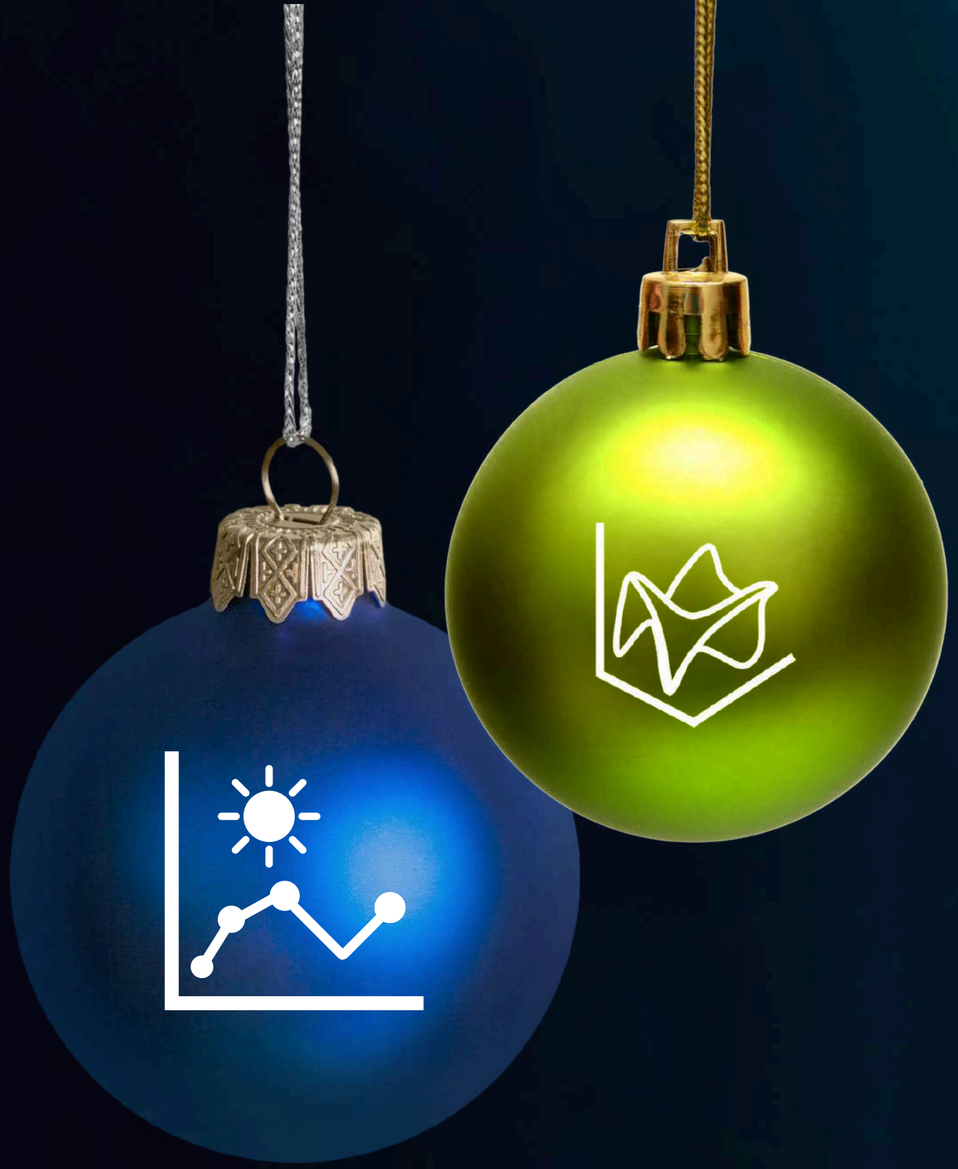
STEP 5

Perfecting the Plan

Based on scenario results and the expertise of planners, the company made their final decisions, and adjusted their inventory strategies:

- HIGH-POPULATION AREAS RECEIVED PRIORITY STOCKING TO CAPTURE UNTAPPED DEMAND.
- REORDER POINTS AND QUANTITIES WERE TAILORED TO PEAK PERIODS, REDUCING RISKS OF STOCKOUTS DURING FESTIVE SHOPPING FRENZIES.
- CONSTRAINTS LIKE SUPPLIER LEAD TIMES WERE FACTORED INTO THE FINAL PLAN, ENSURING SMOOTH OPERATIONS WITHOUT OVERBURDENING WAREHOUSES.



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STEP 6

Reviewing the Christmas Miracle

After the season, the company analyzed its performance and saw remarkable results. Accurate forecasts ensured shelves were well-stocked, customers were satisfied, and storage costs were significantly reduced. Comparing forecasts with actual sales data provided insights into trends and opportunities for further refinement, helping the team plan even better for the next season.

Population data emerged as a game-changer in the process. It allowed the company to predict demand not only in established markets but also in areas with untapped potential. Even in regions with few existing customers, the forecasts proved reliable, enabling the company to meet demand effectively and explore new growth opportunities.

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BUSINESS IMPACT & KEY BENEFITS

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Business Impact:
The Gift of Success

- **ACCURATE DEMAND FORECASTING**: HOLIDAY-SPECIFIC FACTORS AND POPULATION INSIGHTS IMPROVED FORECAST ACCURACY, REDUCING STOCKOUTS AND OVERSTOCKING.
- **COST SAVINGS:** INVENTORY OPTIMIZATION SAVED 12% ON CARRYING COSTS, FREEING CAPITAL FOR FUTURE GROWTH.
- **IMPROVED SERVICE LEVELS:** CUSTOMERS FOUND THEIR FAVORITE PRODUCTS IN STOCK, AND THE SERVICE LEVEL WAS INCREASED TO 98%.
- **DATA-DRIVEN DECISIONS:** THE SCENARIO COMPARISON TOOL ENABLED CONFIDENT PLANNING, ENSURING TOP-NOTCH EXECUTION.

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Key benefits at a glance

- **SEASONAL PRECISION:** AI-POWERED FORECASTS TAILORED TO HOLIDAYS AND POPULATION DATA INSIGHTS.
- **DYNAMIC SCENARIOS:** COMPARING MULTIPLE STRATEGIES ENSURED COST-EFFICIENT AND EFFECTIVE PLANNING.
- **OPTIMIZED POLICIES:** REDUCED EXCESS STOCK WHILE MEETING SERVICE TARGETS.
- **GRANULAR DASHBOARDS:** ACTIONABLE DATA ENABLED PRECISE DECISION-MAKING.
- **ENHANCED FLEXIBILITY:** REAL-TIME ADJUSTMENTS ENSURED RESILIENCE IN A DYNAMIC MARKET.

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