DATA & ANALYTICS

CASE STUDIES

DHL Data & Analytics

DSC EU CASE STUDY

Inventory analytics & demand forecasting for a Medical device manufacturer

Situation

- **Operations:** Warehouse serving both B2B (Business-to-Business) and B2C (Business-to-Consumer) customers in Spain.
- **Visibility Challenges:** Poor visibility into demand patterns and inventory levels, particularly in the aftermath of multiple waves of the COVID-19 pandemic.
- **Objectives:** Identify, Quantify, and Prioritize
  - Potential cost-saving opportunities.
  - Inventory optimization possibilities.

Solution approach

- **Data Pipeline:** Created a data pipeline to connect to Blue Yonder WMS Database.
- **Algorithmic Inventory Optimization:**
  - Utilized Python-based algorithms tailored for inventory optimization.
  - Identified non-moving stock in the warehouse.
  - Detected understocked and overstocked SKUs.
  - Recognized demand patterns and categorized SKUs into fast and slow-moving.
  - Analyzed inter-depot transfers and conducted Pareto analysis of SKUs.
- **Advanced Forecasting:** Developed ML-based time series analysis for Class A SKUs.
- **User-Friendly Deployment:** Deployed the solution with monthly data refresh for the end-customer's continuous use, ensuring ongoing benefits.

Business impact

- **Improved Visibility:** Enhanced insight into evolving customer operation trends.
- **Optimized Space:** Uncovered dead stock and excess safety stock, potentially reducing warehouse space by 28%.
- **Avoided Stockouts:** Identified 45 understocked SKUs, mitigating the risk of stockouts.
- **Enhanced Demand Planning:** Achieved over 90% forecast accuracy for Class A SKUs, optimizing demand planning.

DSC APAC CASE STUDY

Technology customer – Network and inventory analysis

Situation

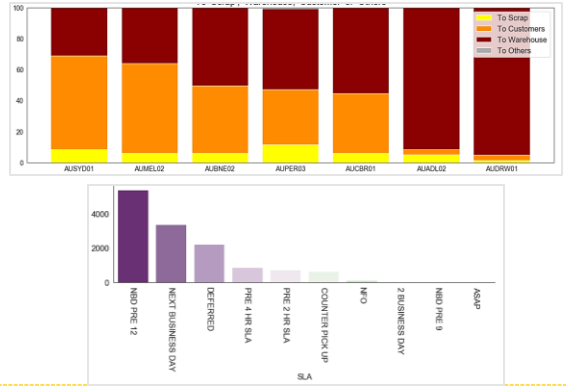
- **Operations:** Multiple warehouses across Singapore and Australia, catering to respective regions
- **Challenges:** High trans-shipment cost due to suboptimal SKU placement in the network
- **Objectives:**
  - Country-level distribution network analysis to identify optimality of existing SKU placement
  - Obsolescence analysis to evaluate if current disposal process is optimal
  - POC scope: Singapore & Australia
  - Framework to be scalable across AP

Solution

- **Data Extraction:** Extracted data from the call management system and other offline data sources for multiple countries
- **Analysis Using Python:**
  - Diagnostic analysis to yield insights & identify enhancement opportunities
  - Simulate and analyze how changes to delivery SLA could impact the supply chain
  - Next Steps: Development of data-driven control tower approach
- **User-Friendly Deployment:** Deployed the solution with periodic data refresh for the operations' continuous use, ensuring ongoing benefits.

Business impact

- **Reduced Inter-depot Transfer:** Identified opportunities to reduce transfers between warehouses and transshipment cost
- **Optimized Inventory Levels:** Recommended optimal SKU placement of goods across the network, improving the inventory levels, saving storage space and working capital



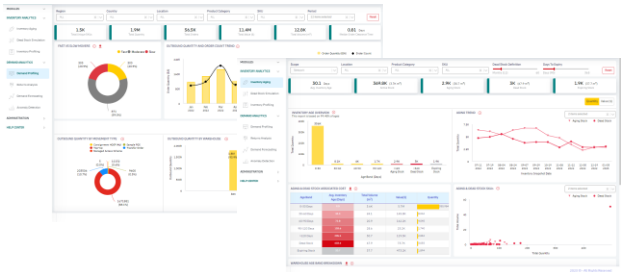
SOAR Case Study - Inventory analytics & demand forecasting for a Medical device manufacturer in AU

Situation

- Sydney warehouse for medical device manufacturer handles more than **1500 SKUs** and serves the AU market.
- Poor visibility on the **inventory levels** after a few waves of COVID-19 pandemic
- **Poor** demand forecasting **accuracy**
- Need to identify, quantify and prioritize potential **cost saving and inventory optimization opportunities** that can either be directly implemented or suggested as an action for the customer

Solution approach

- Implemented SOAR - inventory and demand analytics modules. Tool helps to
  - Identify the top SKUs contributing to the expiry and non-moving stock and aids decision making by simulating the impact
  - Analyze the stock levels at different warehouses and provide recommendations to rebalance the inventory across the network
  - Provide visibility on the demand and return patterns and Machine learning based demand forecasting for Top SKUs



Business impact

- Identified stocks about to **expire 90 days** in advance with a potential to save **$473K**
- Identified **non-moving stock**(>365 days) saving **$73K in working capital** and freed up **167 storage locations**
- Identified **excess safety stock** in the AU warehouse with a potential to free-up **~$900K working capital** and **1600+ storage locations**
- Identified **148 SKUs** with **out-of-stock risk**
- Identified **inter-depot transfers** with a potential to reduce **~10% of the transport cost**

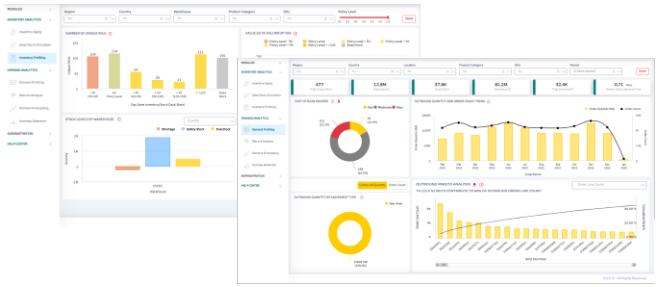
SOAR Case Study - Inventory analytics & demand forecasting for a Medical device manufacturer in EU

Situation

- Iberia warehouse for medical device manufacturer handles more than **477 SKUs** and serves the EU market.
- Poor visibility on the **inventory levels** after a few waves of COVID-19 pandemic
- Need to identify, quantify and prioritize potential **cost saving and inventory optimization opportunities** that can either be directly implemented or suggested as an action for the customer

Solution approach

- Implemented SOAR - inventory and demand analytics modules. Tool helps to
  - Identify the top SKUs contributing to the expiry and non-moving stock and aids decision making by simulating the impact
  - Analyze the stock levels at the warehouse and identify the SKUs contributing to excess stock and understock
  - Provide visibility on the demand and return patterns and Machine learning based demand forecasting for Top SKUs



Business impact

- Improved visibility of operations
- Identified **non-moving stock**(>365 days) and **stocks about to expire** with a potential to **save $62K in working capital** and **free up 30 storage locations**
- Identified **excess safety stock** in the EU warehouse with a potential to free-up **28% of the storage locations**
- Identified **45 SKUs** with **out-of-stock risk**
- Improved **forecasting** accuracy to more than **90%** for top 10 SKUs

DSC APAC CASE STUDY

Technology customer – Rapid scenario analysis

Situation

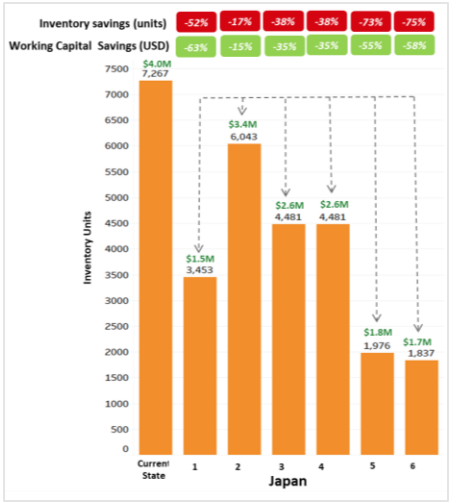
- **Operations:** DCs and RDC across APAC catering to the spare parts needs of the customers
- **Challenges:**
  - High volumes of non-moving stock in the local DCs and RDC
  - This leads to cost and storage space inefficiencies
- **Objectives:** Develop a simulation approach to enable operations team to test and analyze different safety stock policy strategies

Solution

- **Data Extraction:** Extracted data from Select Upgrade and other offline sources as local files
- **Algorithmic Inventory Optimization:**
  - Utilized Python-based algorithms tailored for inventory optimization.
  - Identified non-moving stock in the warehouse.
  - Detected understocked and overstocked SKUs.
  - Recognized demand patterns and categorized SKUs into fast and slow-moving.
- **Scenario Simulation:** Simulate multiple scenarios, quantify the cost and space savings and recommend the actions

Business impact

- **Cost Savings:** Identified potential Savings of 35% of the working capital
- **Decision Making Aid:** Scenario simulation aids in decision making comparing the impact in terms of cost and space savings



DSC APAC CASE STUDY

Medical device manufacturer – Cost savings opportunities

Situation

- **Operations:** Warehouse serving as DC for local customers and as RDC supplying medical goods to other DCs in the APAC region.
- **Challenges:**
  - Poor visibility into demand patterns and inventory levels
  - Rising cost of operations
- **Objectives:** Identify, Quantify, and Prioritize
  - Potential cost-saving opportunities
  - Inventory optimization possibilities

Solution

- **Data Extraction:** Extracted data from the WMS and other offline data sources
- **Algorithmic Inventory Optimization:**
  - Utilized Python-based algorithms tailored for inventory optimization.
  - Identified non-moving stock in the warehouse. Detected understocked and overstocked SKUs.
  - Recognized demand patterns and categorized SKUs into fast and slow-moving.
  - Analyzed order drop schedule and order size trends
- **User-Friendly Deployment:** Deployed the solution with monthly data refresh for the end-customer's continuous use, ensuring ongoing benefits.

Business impact

- **Storage Space Reduction:** Identified opportunities to reduce 10% of the warehouse storage space
- **Improved Order Drop Compliance:** Identified issues with order drop compliance with a potential improvement of 25%