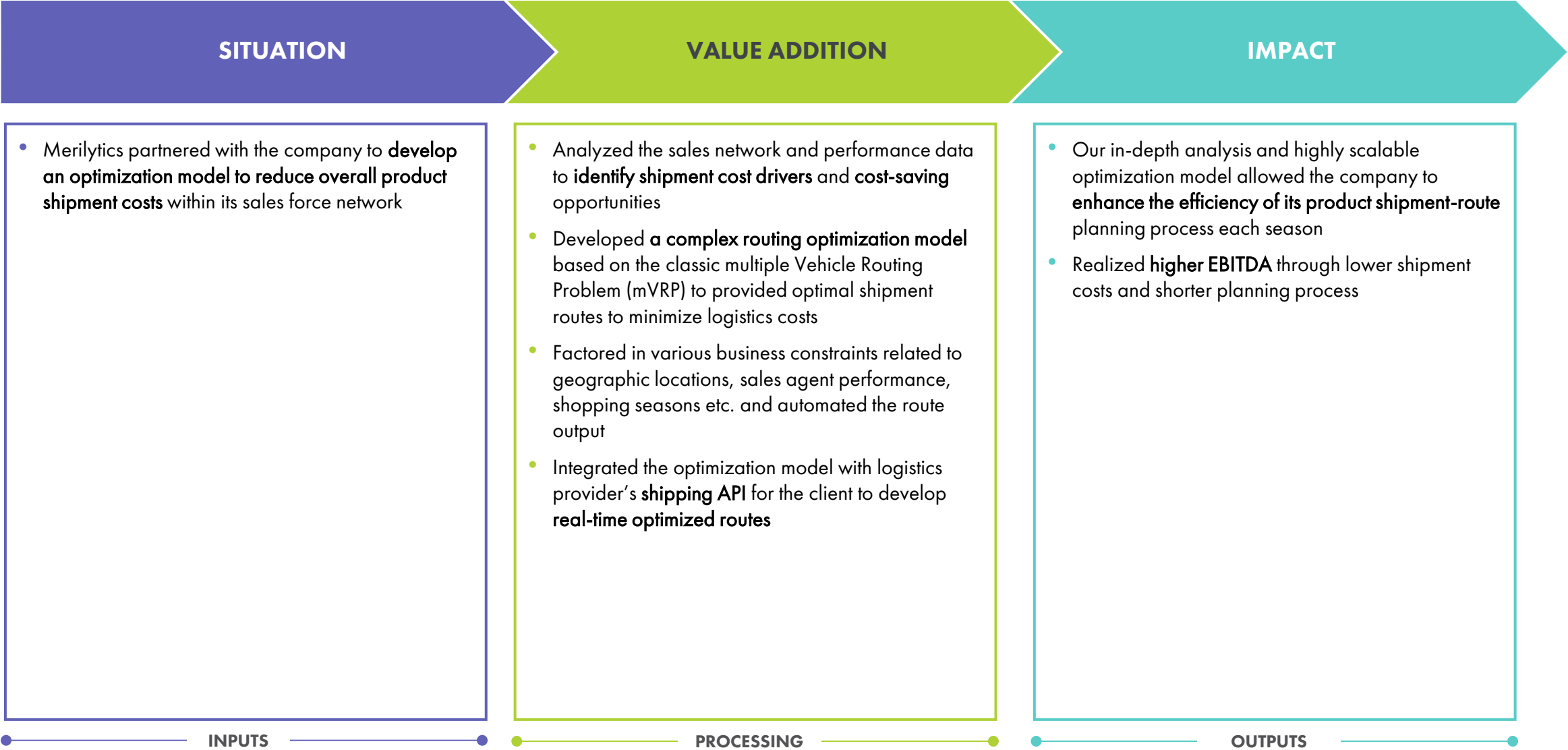## Routing Optimization

(Apparel Retailer)

Created a **Frontline Solver based model to systematically optimize the routing of several product sets to sales associates** across the U.S. to minimize the total shipping cost incurred by the company
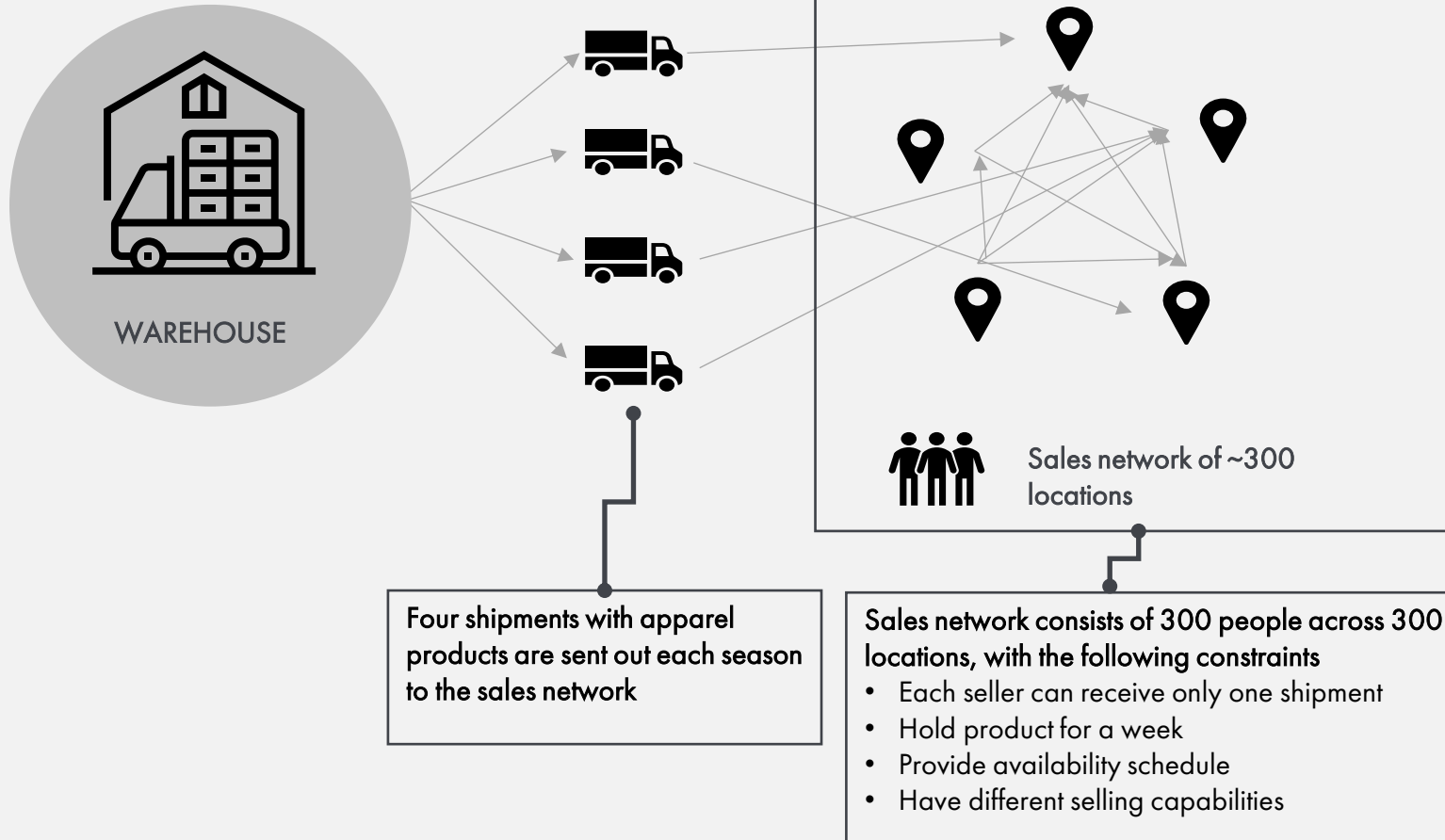
Routing Optimization For Pe-owned Apparel Retailer

ABOUT THE CLIENT: Company is a PE-owned multi-million-dollar **apparel brand** with strong **track record** of providing multiple **lines of custom-designed products** over multiple decades

SITUATION	VALUE ADDITION	IMPACT

SITUATION

- Merilytics partnered with the company to **develop an optimization model to reduce overall product shipment costs** within its sales force network

VALUE ADDITION

- Analyzed the sales network and performance data to **identify shipment cost drivers** and **cost-saving** opportunities

- Developed **a complex routing optimization model** based on the classic multiple Vehicle Routing Problem (mVRP) to provided optimal shipment routes to minimize logistics costs

- Factored in various business constraints related to geographic locations, sales agent performance, shopping seasons etc. and automated the route output

- Integrated the optimization model with logistics provider's **shipping API** for the client to develop **real-time optimized routes**

IMPACT

- Our in-depth analysis and highly scalable optimization model allowed the company to **enhance the efficiency of its product shipment-route** planning process each season

- Realized **higher EBITDA** through lower shipment costs and shorter planning process

INPUTS   PROCESSING   OUTPUTS

Routing Optimization For PE-owned Apparel Retailer

Objective: Identifying the optimal route that leads to minimal shipping costs and maximum sales in the season

WAREHOUSE

Sales network of ~300 locations

Four shipments with apparel products are sent out each season to the sales network

Sales network consists of 300 people across 300 locations, with the following constraints
- Each seller can receive only one shipment
- Hold product for a week
- Provide availability schedule
- Have different selling capabilities

- Developed a **complex routing optimization model** based on the classic **multiple Vehicle Routing Problem (mVRP)** to provided optimal shipment routes to minimize logistics costs

- **Factored** in various **business constraints** related to geographic locations, sales agent performance rank, availability schedules, and automated the route output

- Integrated the optimization model with logistics provider's **shipping API** for the client by writing a **Java code**, which allowed the model to develop **real-time optimized routes**

- Model typically conducted **~10 million iterations**