

Peak Demand Planning for Reverse Logistics

BACKGROUND

A reverse logistics company which provides Reusable Transportation Items (RTI) to large manufacturing companies and retailers has seen 5 consecutive year-on-year volume growth.

To address this growing demand, this project was initiated to facilitate long-term planning across fiscal years to prepare the supply chain (SC) to manage peak demand during critical months (May to September).

Two main sources of Reusable Transportation Items:
1. Collect used RTIs for repair & reuse (95%)
2. Inject new RTIs into supply chain (5%)

PROBLEM STATEMENT

Inventory levels and days of supply are dangerously low. Service levels are at risk.

Higher costs incurred to mitigate insufficient inventory

Lack of Product Visibility in SC | Stochastic Cycle Times

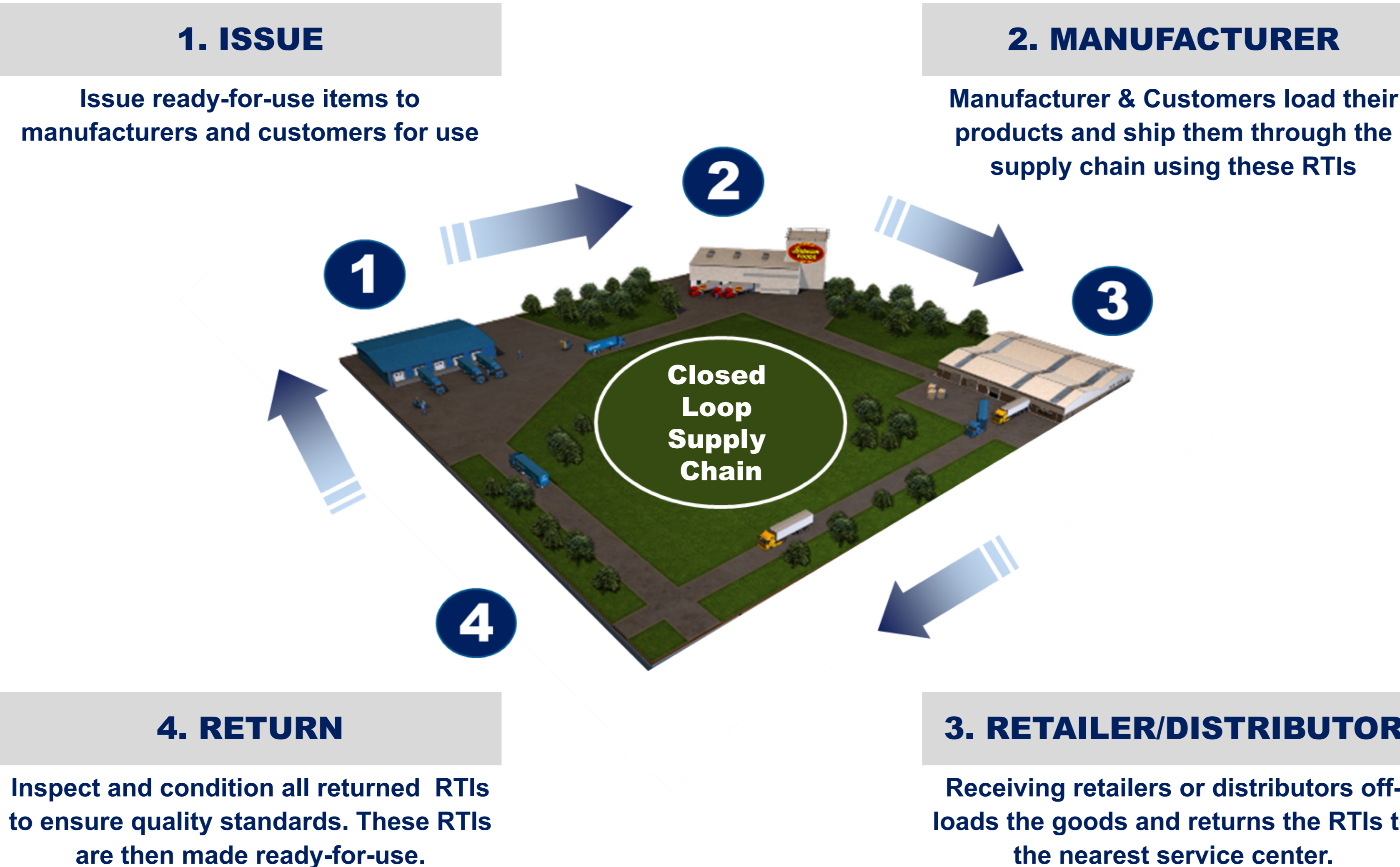
- Constraints:
1. Long lead time to inject new RTIs into SC
 2. High ramp up duration for repair rates beyond 2%

PROJECT OBJECTIVES

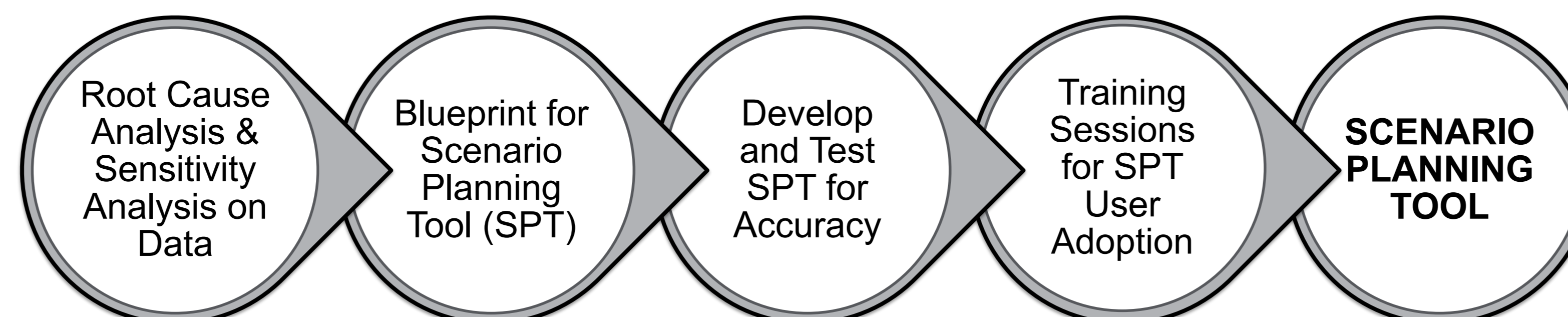
Increase Days of Supply (From 1.1 to 2.7) | **Reduce Logistics Cost** (Inventory, Transport, Labor)

100% Service Level at Optimal Cost & Inventory Levels

SUPPLY CHAIN OVERVIEW



METHODOLOGY



EXPECTED CONTRIBUTION

A scenario planning tool which allows users to adjust level repair rates and measure impact on cost (transport, inventory, labor), inventory levels and service levels.

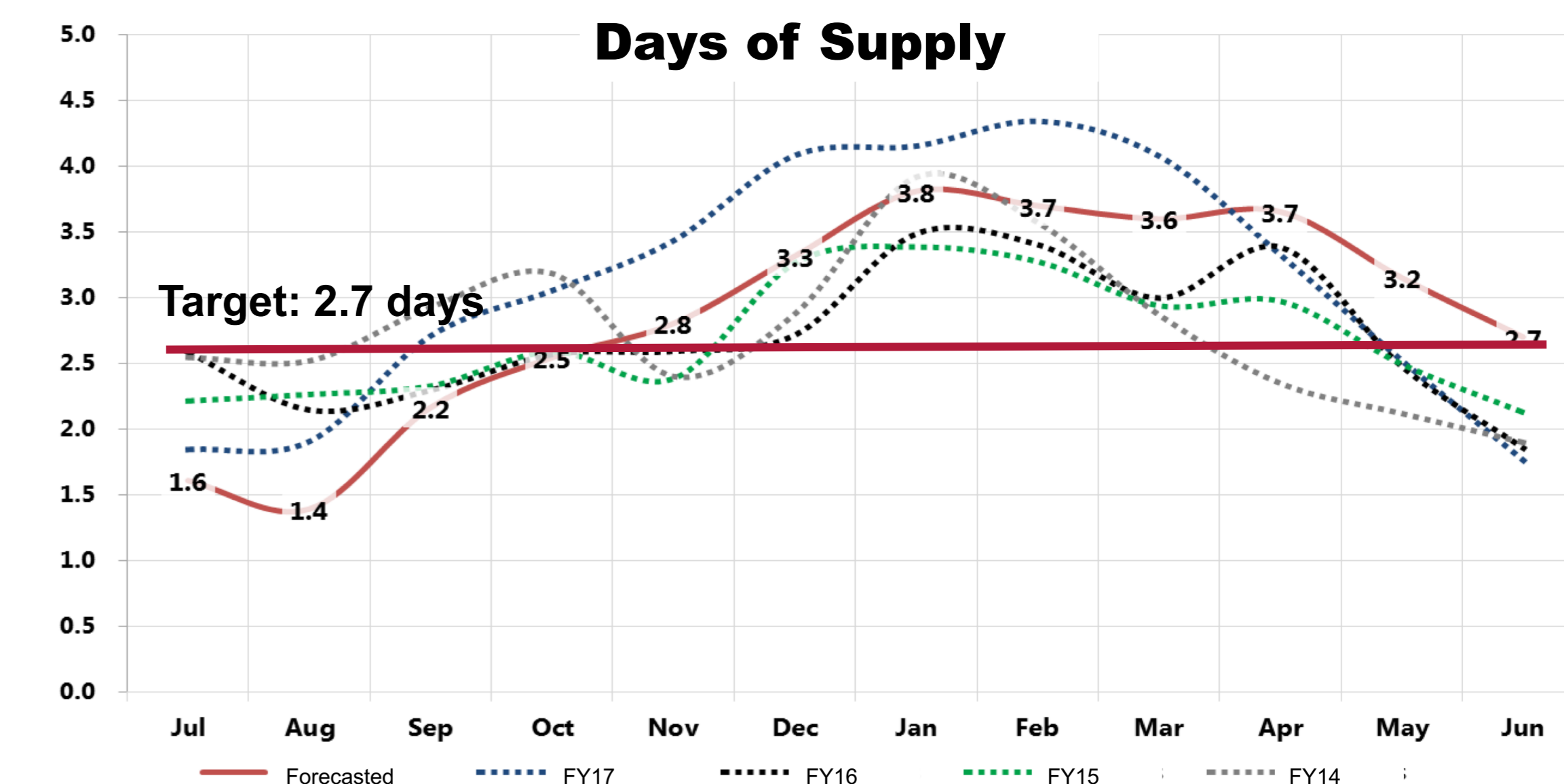
SCENARIO PLANNING TOOL

Decision Variables		
Repair Rates (Per Hour)	Min Rate	5
	Average Rate	10
	Max Rate	15
New RTIs	Low Inject	500
	High Inject	2000

Run simulation

RESULTS

	Issue Cost	Inventory Carry Cost	Operations Cost	Days of Supply	Item Fill Rate	Cycle Service Level	Revenue
Average	\$ 5,250	\$ 53,000	\$ 76,500	2.7	99.45%	98.07%	\$ 1,163,475
Minimum	\$ 3,500	\$ 36,000	\$ 63,000	1.9	98.90%	96.15%	\$ 1,131,300
Maximum	\$ 7,000	\$ 70,000	\$ 90,000	3.5	99.99%	99.99%	\$ 1,195,650



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