Using Big Data for Inventory Management

MIT Supply Chain
MANAGEMENT

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MIT GLOBAL SCALE NETWORK

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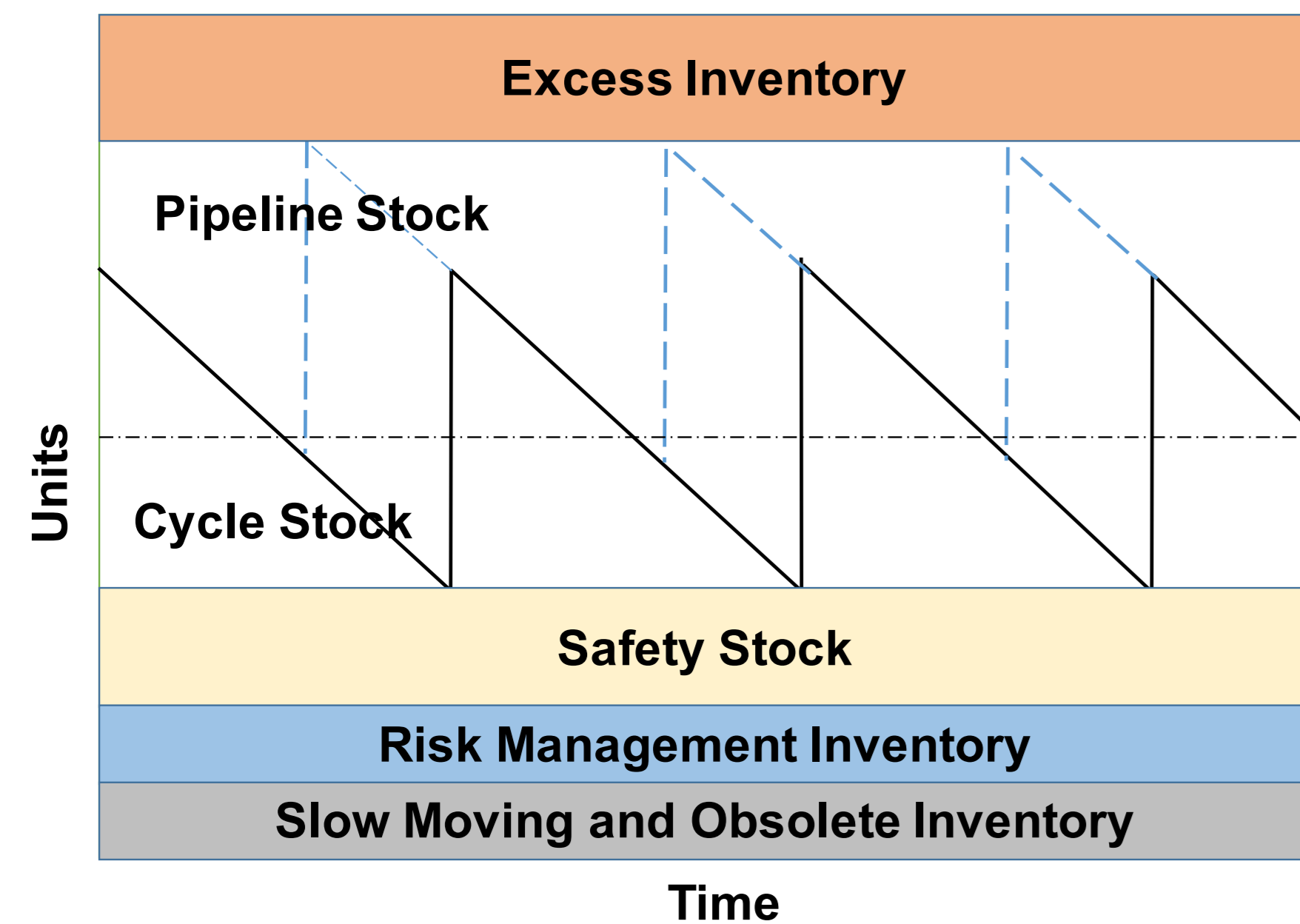
Motivation / Background

- Goal: improve inventory performance while maintaining high service levels.
- Big data: inventory on hand, demand, forecasting and product segmentation, inventory performance.
- Benefit: Insights will reduce costs related to inventory holding and free capital tied up in inventory.
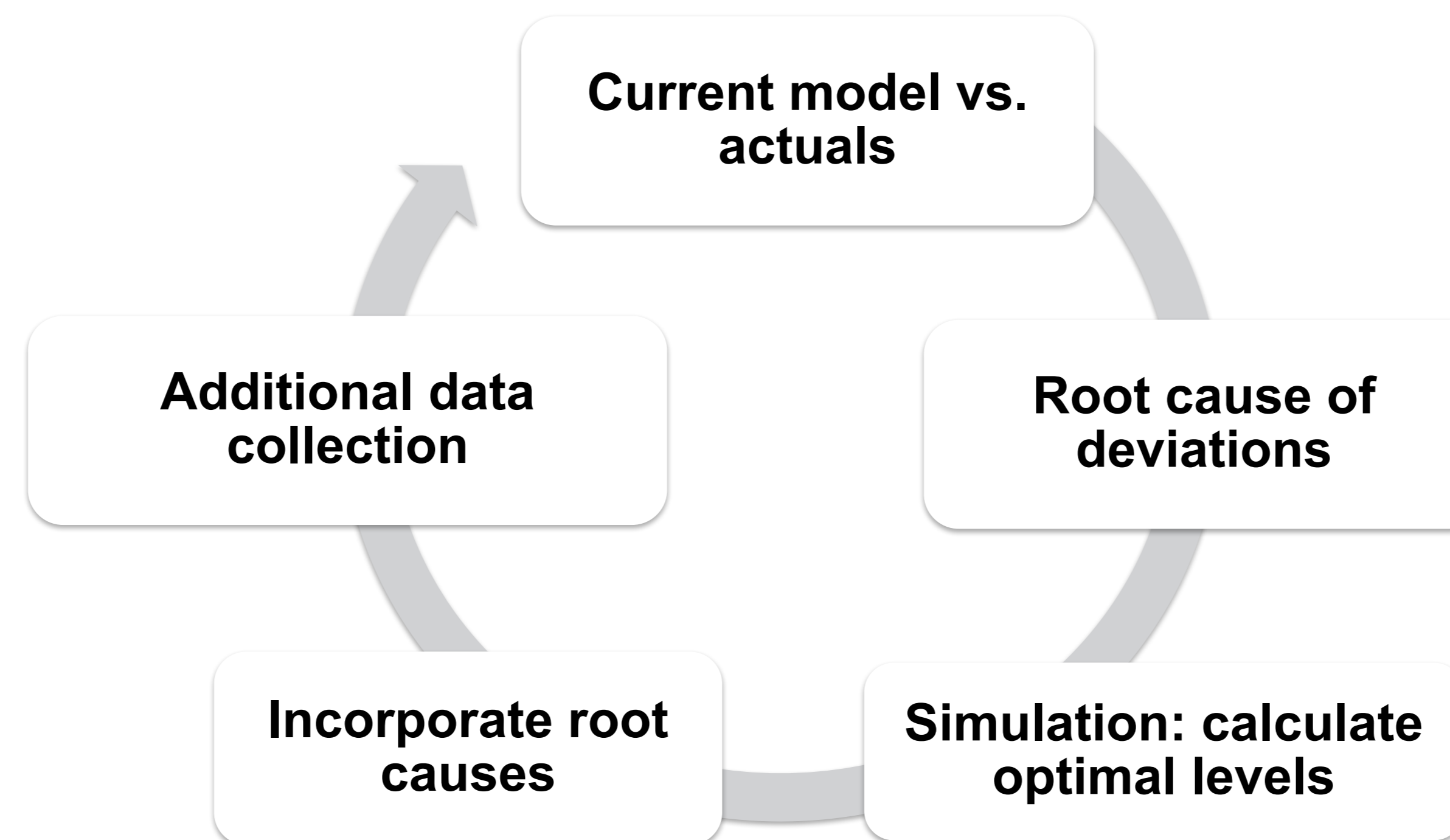
Current model used to set inventory level per SKU:

Key Question

How can the recently collected big data provide insights to refine the inventory model balancing excess inventory and service risk?

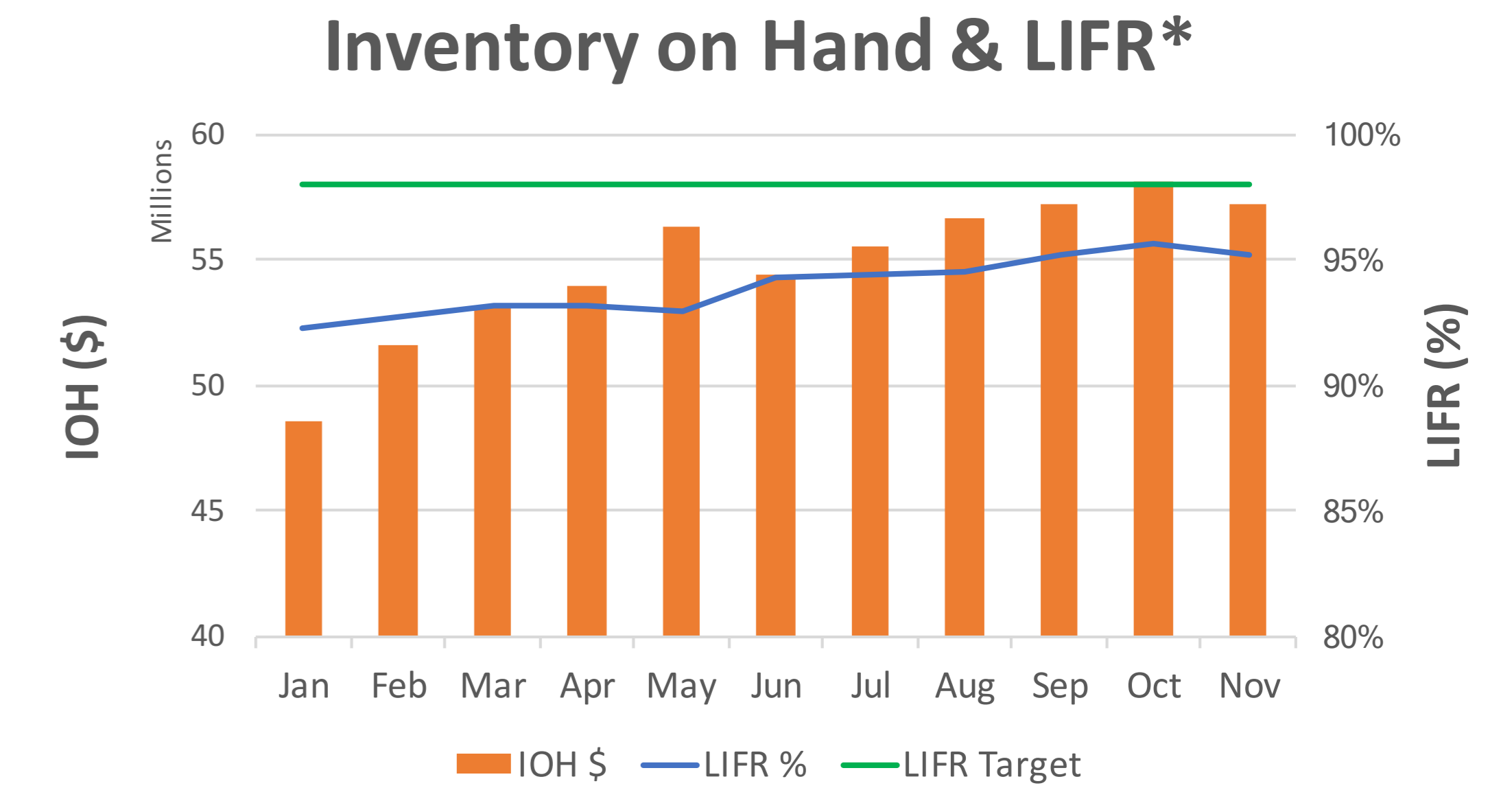## Methodology

- Current model vs. actuals
- Root cause of deviations
- Simulation: calculate optimal levels
- Incorporate root causes
- Additional data collection

OUT OF STOCK

Initial Results

- Service level growth lags inventory build-up.
- Initial results show a 15% of inventory overage in European DC.

Inventory on Hand & LIFR*

IOH $ — LIFR % — LIFR Target

* LIFR: Line Item Fill Rate

Expected Contribution

- Provide insights about current inventory management policies using the collected data.
- Management framework that collaboratively creates, modifies and evaluates inventory strategy that optimizes performances.

Maria Rey   **Albert Xu**