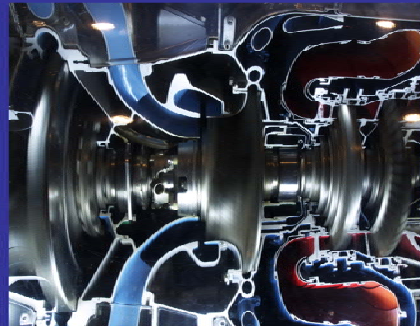


RFID: Mining Mega-Data for Enhanced Forecast Accuracy

Boston, MA
10/27/06



Demand Planning & Forecasting Best Practices Conference

www.bostonstrategies.com
(1) 781-250-8150



This report has been prepared by Boston Strategies International at the request of CLIENT for the purpose of establishing its operating strategies. It may not be appropriate for other purposes or audiences. This report contains forward-looking statements and projections with respect to anticipated future performance of CLIENT, suppliers, customers, and/or general or specific economic conditions and factors that are based on Boston Strategies International's analysis of market trends and external data. Forward-looking statements and projections are not guarantees of future performance and involve significant business, economic and competitive risks, contingencies and uncertainties, which are difficult to predict. Accordingly, these projections and forward-looking statements may not be realized and actual results may vary up or down. This report may not be reproduced or distributed without express written approval from Boston Strategies International.

Benefits of RFID for Forecasting

- **Richer basis for forecasts**
 - Event history
 - Item level tagging
- **Possibility for less forecast error**
 - More reliable execution → fewer stockouts → smoother demand → less forecast error
 - More timely replenishment
 - More accurate promotion execution
- **Lower cost of a wrong forecast**
 - Dynamic allocation of resources → less safety stock
 - Less transportation equipment, containers etc.



Richer Basis for Forecasts

- **Volumes more data**
 - Association of product, supplier, customer data
 - Tactile condition (movement, light, etc.)
 - Event history
- **Far more precise event history**
 - Pallet level
 - Case level
 - Item level
- **Potential for post-sale tracking**

Less Forecast Error: Replenishment

- **Company: Retailer**
- **Problem: Out-of-stocks**
- **Solution and Cost: \$190M**
 - Benefit: \$78M
 - Based on fewer out-of-stocks
- **ROI: 14% (3 years)**

- Rapid stock redeployment reduces stock-outs
- Smoother consumption patterns can reduce forecast error
- Less forecast error can reduce safety stock requirements

Lower Forecast Error: Promotions

- **Company: Consumer goods manufacturer**
- **Problem: Stock-outs of promotional items**
- **Solution: Event management using RFID**
- **Benefits**
 - More accurate and timely deployment
 - Fewer stock-outs of promotion items

- Fewer stock-outs of displays and merchandise
 - More accurate promo sales forecasts
 - Less obsolete inventory

Lower Cost of a Wrong Forecast

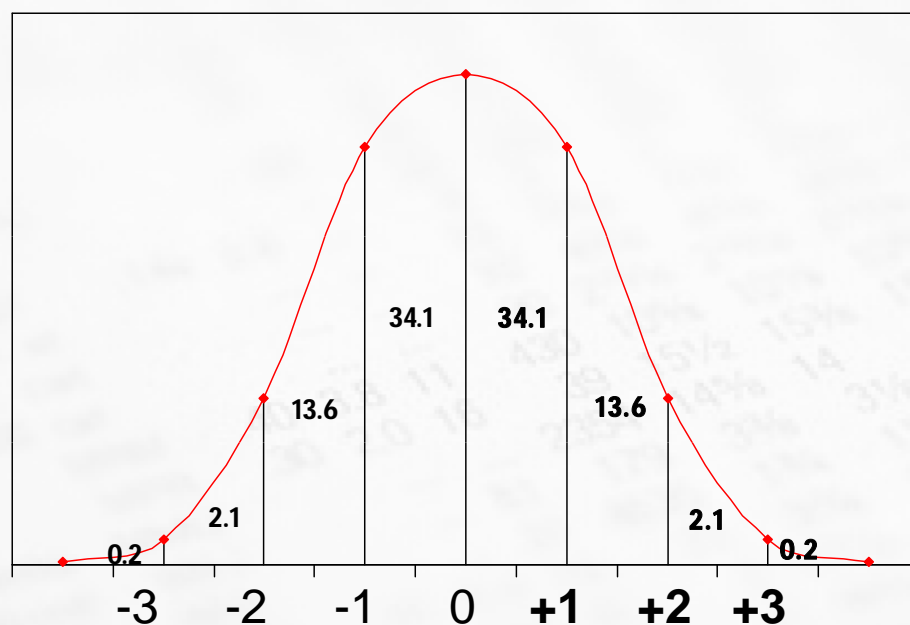
- **Problem:**
 - Misplaced medical equipment inflates rental costs
- **Solution and Cost: \$560,000**
- **Benefit: \$1.1 million**
 - 5% reduction in 30-day leases @ \$4,500 each
- **ROI: 101% (3 years)**

- Less equipment needed
- More consistent equipment rental patterns
- Higher-level forecasts

Re-Calibrate the Variability of Demand

- Adjust the standard deviation of demand based on pilot results

Normal Distribution



Source: Arnold & Chapman, Introduction to Materials Management

Safety Factors

Service Level %	Safety Factor
50%	0.00
90%	1.28
94%	1.56
95%	1.65
99%	2.33
99.86%	3.00
99.99%	4.00



Re-Evaluate the Level of the Forecast

- **Scope may change**
 - Time horizon
 - Level of detail
 - Type of SKUs
- **Items may change, based on changes in:**
 - Mean standard error
 - Cost of unavailability



Consider Data Mining Possibilities

- Item-level analysis
- Event history
- Customer-specific data



Boston Strategies International

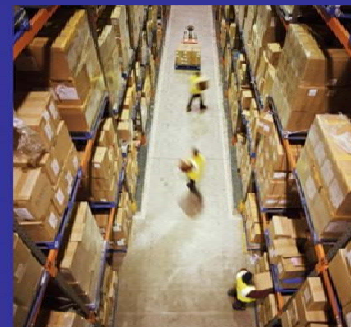
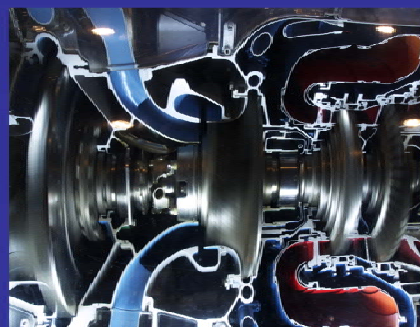
David Jacoby: djacoby@bostonstrategies.com

Erik Halbert: ehalbert@bostonstrategies.com

Tel: +1 (781) 250-8150

Boston Strategies International is a global management consulting firm that helps market leaders achieve competitive advantage through supply chain management through:

- **Supply Market Analysis** that helps identify emerging issues that affect their supply chains
- **Supplier Enablement** that facilitates global growth and local content requirements
- **Supply Chain Optimization** that reduces project and life cycle costs



Al Khobar • Boston • Doha • Dubai • Manama