



presents:

# INVENTORY MANAGEMENT AND OPTIMIZATION

## Two Day Workshop

Mark Chockalingam Ph. D

June 22 - 23 , 2018 | Pune, India

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# INVENTORY MANAGEMENT and OPTIMIZATION Workshop Outline

## Demand Planning & Inventory Optimization

This program has been developed to communicate industry best practices in the area of inventory management to Supply Chain professionals. This workshop aims to provide the necessary technical background to enable attendees to develop & implement best practices & procedures in materials management into their own business units.

This workshop will holistically present the best practices and explain the concepts and calculations for optimizing your inventory parameters. We preach true inventory optimization - help you to establish the right parameters your process and systems may need to run a lean machine with just optimal inventories to deliver the service and fill rates.

This is a hands-on, practical workshop with many exercises and case studies and excel based work out problems. Every planner and material manager will leave the training hall with a diverse skill set to do their day to day jobs.

## Who Should Attend?

1. Production Planners
2. Supply Chain Analysts
3. Director of Supply Chain
4. Director of Value Chain
5. Analysts in the Supply Chain
6. Inventory Planners
7. Operations Planners
8. Financial Analysts
9. Director of Logistics
9. Director of Customer Service



## Insightful information on...

- ▀ Purpose of Inventory – Introduction to Inventory Management Principles
- ▀ Toolkit for Materials Management
- ▀ Principles of Inventory Management
- ▀ Inventory Optimization
- ▀ Manage by Exception
- ▀ ABC Classification for Inventory
- ▀ Work-site Inventory Management
- ▀ Techniques Including Kanban
- ▀ Multi-echelon distribution
- ▀ Measurement and KPIs for Inventory Management
- ▀ Forecast Accuracy
- ▀ Min-Max Models

# Agenda

## DAY ONE

8:00am—8:15am Registration

8:30am — 10:30am Overview of the Demand Forecasting Process – Graphical Decomposition– Forecasting Methodology including Moving Averages and First Order Exponential Smoothing

- Why Forecast and Plan?
- The Service – Cost – Balance Model
- Introduction to Demand Planning- What, Why & How?
- Beyond Statistical Forecasting
- Key Components of a Demand Plan
- Decomposition of the Demand Profile
- Understanding the components - Trend, Seasonality, Cyclicity
- Moving Averages and Weighted Moving Averages
- First Order Exponential Smoothing
- Seasonal decomposition of a forecast.

**Exercise:** Exercise on Moving Averages and exponential Smoothing

10:30am—10:45am Coffee break

10:45am—12:30pm Measurement and KPIs Forecast Error, Customer Service and Inventories.

- Service Level measurements
  - Fill-Rate and On-time Delivery
  - Order complete
    - Service Metrics exercise
- Inventory Performance Measures
  - Inventory Accuracy
  - Inventory Turns
  - Days on Hand
- Forecast accuracy - MAPE, MAD, MPE, and RMSE
  - Calculation exercise
- Supplier Performance Measures
  - Schedule Adherence
  - Lead Time Adherence
- Relationship between Schedule Adherence, Customer Service and Inventory Availability

12:30pm —1: 30pm Lunch Break

1: 30pm—2:45pm Introduction to Inventory Management Principles – Why carry inventory?

- Inventory Categories
  - Direct materials
  - Indirect Materials
  - MRO OEM
  - MRO Industrial
- Inventory Strategies
  - Make to Order
  - Make to Stock
  - Build to Order/ Mass customization
  - Postponement
  - Engineer to Order
- Purpose of Inventory
  - Buffering
  - Hedging
  - Decoupling

2:45pm—3:00pm Coffee Break

3:00pm—4:30pm Product Segmentation and ABC analysis – SKU Segmentation for inventory strategies ABC analysis – Classification philosophy Pareto analysis of SKU's based on dollar usage Item Criticality as factor of Sales Service and Lead time Frequency of Usage Excess, Obsolete and Slow-moving Alignment with product lifecycle

- Discontinuance and end of life (EOL), as appropriate
  - Process flow for segmenting sku's using the above techniques
    - Example using a three dimensional matrix; ABC / Volume / Critical / Status: excess, obsolete
- Impact of Segmentation on Cycle Counting and Inventory accuracy



Mark Chockalingam Ph. D.  
Founder & President

Dr. Mark Chockalingam is Founder and President, Demand Planning LLC, a Business Process and Strategy Consultancy firm. He has conducted numerous training and strategy facilitation workshops in the US and abroad, and has worked with a variety of clients from Fortune 500 companies such as Wyeth, Miller SAB, FMC, Teva to small and medium size companies such as Au Bon pain, Multy Industries, Ticono- a division of Celanese AG.

Prior to establishing his consulting practice, Mark has held important supply chain positions with several manufacturing companies. He was Director of Market Analysis and Demand Planning for the Gillette Company (now part of P&G), and prior to that he led the Sun care, Foot care and OTC forecasting processes for Schering-Plough Consumer HealthCare.

Mark has a Ph. D. in Finance from Arizona State University, an MBA from the University of Toledo and is a member of the Institute of Chartered Accountants of India.

# DAY TWO

8:00am —8:15am Day one review

8:30am —10:00am Economic Order Quantity and Purchase Quantity Discounts

- Principles of Inventory management
- Economic Order Quantity
- Derivation of the EOQ
- Determinants of EOQ
- Ordering Costs versus Carrying Costs
- Components of Inventory carrying / holding costs – capital, storage, obsolescence, handling (breakdown) and their impact
- Estimating Inventory Carrying costs for various industries
- Placing an Order for different quantities
- Purchase Quantity Discount

**Exercise:** Deciding to take a Purchase Quantity Discount

10:00am—10:15am Coffee Break

10:15am—12:30pm Inventory Optimization and Management- Safety Stock

- Independent Demand Item Reordering
- Safety Stock calculations
- Determinants of Safety Stock – Service Level Agreement, Demand Volatility and Lead Time
- Effect of Demand Uncertainty in Safety Stock – Different Scenarios
- The perils of variability in Supplier lead time
- Supplier Lead time Variance
- Effect of Supplier Uncertainty on Safety Stock Calculations

**Exercise:** Service percent effect on Safety Stock

12:30pm—1:30pm Lunch Break

1:30pm —3:00pm Inventory Optimization and Management- Min Max Models

- Re-order Point
- Demand During Lead Time
- Definition of MIN level in the Min-Max Model
- Definition of MAX level in the Min-Max Models
- Inventory Cycle and Cycle Time
- Cycle Stock
- Time phased Order Point (TPOP)
- Lifetime buys and Minimum Buys



**Case Exercise:** on Safety Stock, Min-Max, and Re order Point.

3:00pm—3:15pm Coffee Break

3:15pm—4:00pm Work on the Case Exercise above.

4:00pm—5:00pm Work-site Inventory Management Techniques

- Challenges and Benefits of improving & maintaining inventory
- Accuracy
- Periodic review process vs. Perpetual Inventory
- Cycle counting vs. physical Inventory
- Kanban systems
- Kanban Methodology
- Determining Container Size and Quantity
- Safety stock, Min-Max and DDLT in Kanbans.

**Exercise:** Kanban Calculation exercise

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2-Day Inventory Optimization



\*The price does not include service tax



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Demand Planning, LLC is a consulting boutique comprised of seasoned experts with real-world supply chain experience and subject-matter expertise in demand forecasting, S&OP, Customer planning, and supply chain strategy.

We provide process and strategy consulting services to customers across a variety of industries: pharmaceuticals, CPG, High-Tech, Foods and Beverage, Quick Service Restaurants and Utilities.

Through our knowledge portal Demand Planning.Net, we offer a full menu of training programs through in-person and online courses in Demand Forecast Modeling, S&OP, Industry Forecasting, collaborative Forecasting using POS data.

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