Advanced Demand Sensing and Inventory Replenishment Training Course

02 - 06 Nov 2026

Rome

5800 € (Per Person)

Ref: #IM2839_158950

Course Introduction / Overview:

In today's volatile and fast-paced market, traditional forecasting methods are no longer sufficient to maintain a competitive edge. This course addresses the critical need for agile and responsive supply chains by focusing on the advanced concepts of demand sensing and intelligent inventory replenishment. We move beyond historical data analysis to explore how real-time information, predictive analytics, and machine learning can be harnessed to create a highly accurate, short-term view of demand. As highlighted by supply chain thought leaders like Professor Hau L. Lee of Stanford University, understanding and mitigating demand distortion is key to preventing the bullwhip effect and optimizing performance. This program, offered by BIG BEN Training Center, provides a comprehensive framework for integrating these cutting-edge demand signals directly into your inventory strategies. Participants will learn to design and implement replenishment systems that not only reduce stockouts and excess inventory but also enhance overall supply chain resilience, customer satisfaction, and profitability. This is a practical, hands-on journey from foundational principles to advanced optimization techniques, equipping professionals with the skills to transform their supply chain into a proactive and data-driven powerhouse.

Target Audience / This training course is suitable for:

- Supply Chain Managers and Directors.
- Inventory Planners and Analysts.
- Demand Planners and Forecasters.
- Logistics and Operations Managers.
- Procurement and Sourcing Professionals.
- Supply Chain Data Scientists and Analysts.
- S&OP (Sales and Operations Planning) Managers.
- Retail Category Managers.

Target Sectors and Industries:

- Retail and E-commerce.
- Fast-Moving Consumer Goods (FMCG).
- Manufacturing and Industrial Production.
- Pharmaceuticals and Healthcare.
- Automotive and Aerospace.
- Electronics and High-Tech.
- Third-Party Logistics (3PL) Providers.
- Government and Public Sector Agencies.

Target Organizations Departments:

- Supply Chain Management.
- Logistics and Distribution.
- Inventory Control and Management.
- Planning and Forecasting.
- Procurement and Purchasing.
- Operations Management.
- Data Analytics and Business Intelligence.
- Sales and Commercial Operations.

Course Offerings:

By the end of this course, the participants will have able to:

- Master the core principles of demand sensing using real-time data sources.
- Differentiate between traditional forecasting, demand planning, and demand sensing.
- Implement advanced statistical and machine learning models for short-term demand prediction.
- Develop and apply sophisticated inventory replenishment models beyond basic EOQ.
- Optimize safety stock levels to balance service level targets and carrying costs.
- Analyze and mitigate the bullwhip effect within the supply chain.
- Integrate demand sensing insights into the Sales and Operations Planning (S&OP) process.
- Evaluate and select appropriate technologies for enabling demand sensing capabilities.
- Design a resilient inventory strategy that can adapt to market volatility and disruptions.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, engaging, and practical, ensuring that participants can immediately apply their learning to real-world challenges. This course moves beyond theoretical lectures to immerse attendees in a dynamic learning environment. We utilize a blend of expert-led instruction, in-depth case study analyses of leading companies, and collaborative group workshops. Participants will work on practical exercises and simulations that challenge them to analyze real-time data sets, build rudimentary sensing models, and make strategic inventory decisions. Open discussions and peer-to-peer learning are heavily encouraged, allowing for the exchange of diverse experiences and industry perspectives. Our experienced instructors facilitate these sessions, providing personalized feedback and guiding participants through complex concepts with clarity. The focus is on building tangible skills, fostering critical thinking, and equipping professionals with a strategic framework they can implement to drive measurable improvements in their organizations' supply chain performance. The program is structured to build knowledge progressively, ensuring a solid understanding of each concept before moving to the next.

Course Agenda (Course Units):

Unit One: Foundations of Proactive Supply Chain Management

- The evolution from traditional forecasting to demand sensing.
- Understanding demand latency and the cost of forecast error.
- Key components of a modern inventory management system.
- The strategic importance of supply chain visibility and agility.
- Introduction to the bullwhip effect and its primary causes.
- Differentiating between demand planning, forecasting, and shaping.
- Mapping your current inventory processes and identifying gaps.

Unit Two: Mastering Demand Sensing Techniques

- Exploring real-time data sources for demand sensing (POS, social media, IoT).
- Fundamentals of time-series analysis for short-term forecasting.
- Applying statistical methods like exponential smoothing for demand signals.
- Introduction to machine learning models (e.g., regression, clustering) for pattern recognition.
- Techniques for data cleansing and preparation for sensing models.
- Using downstream data to improve upstream forecast accuracy.
- Evaluating the accuracy and effectiveness of a demand sensing model.

Unit Three: Advanced Inventory Replenishment Models

- Revisiting classic inventory models (EOQ, ROP) and their limitations.
- Developing dynamic and probabilistic replenishment strategies.
- Multi-echelon inventory optimization (MEIO) concepts.
- Implementing Vendor-Managed Inventory (VMI) and Collaborative Planning (CPFR).
- Strategies for managing products with different demand profiles (e.g., intermittent, seasonal).
- Calculating and optimizing safety stock in a volatile environment.
- The role of lead time variability in replenishment planning.

Unit Four: Integrating Sensing and Replenishment for Optimal Flow

- Creating a closed-loop system between demand signals and inventory policy.
- Aligning inventory strategy with overall business and financial objectives.
- The role of demand sensing in the Sales and Operations Planning (S&OP) cycle.
- Technology enablers for an integrated sensing and replenishment system.
- Change management principles for implementing new planning processes.
- Developing key performance indicators (KPIs) to measure success.
- Case study workshop on successful integration projects.

Unit Five: Optimization, Resilience, and Future Trends

- Balancing inventory costs against customer service level targets.
- Building supply chain resilience through strategic inventory positioning.
- The impact of sustainability goals on inventory and replenishment decisions.
- Scenario planning and simulation for risk mitigation.
- The future of demand management with AI and autonomous planning.
- Developing a strategic roadmap for implementation in your organization.
- Final project presentation and course wrap-up.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As machine learning models become more autonomous in demand sensing, what is the evolving role of the human planner in overseeing and validating inventory decisions?

What unique qualities does this course offer compared to other courses?

This training course distinguishes itself by providing a deeply integrated and holistic perspective that bridges the critical gap between sensing market demand and executing intelligent inventory replenishment. While many programs treat these as separate disciplines, our curriculum is built on the principle that they are two sides of the same coin, and their synergy is where true competitive advantage lies. We move beyond high-level theory to provide a practical, hands-on framework for implementation. The course emphasizes the use of modern analytical techniques, including predictive analytics and machine learning principles, not as abstract concepts but as applicable tools for interpreting real-time data streams. Furthermore, our focus is on strategic application; participants will not only learn how to calculate an optimal inventory level but also understand how to design a resilient and agile inventory policy that aligns with broader business objectives like profitability and customer satisfaction. The inclusion of multi-echelon optimization concepts and integration with the S&OP process ensures that attendees leave with a comprehensive, enterprise-level understanding, empowering them to lead transformative change rather than just incremental improvements.