Advanced Demand Planning and Forecasting Analytics Training Course



21 - 25 Dec 2026

Boston

7500 € (Per Person)

Ref: #PSC8884_133098

Course Introduction / Overview:

This comprehensive training course is designed to equip professionals with the advanced analytical skills required to master the complex fields of demand planning and forecasting. In today's volatile market, the ability to accurately predict customer demand is no longer a competitive advantage but a business necessity. This program moves beyond basic methodologies to explore sophisticated statistical models, predictive analytics, and the integration of machine learning for superior forecast accuracy. As discussed by renowned forecasting expert Spyros Makridakis in works like "Forecasting: Methods and Applications", a deep understanding of various models and their appropriate application is crucial for success. Participants will delve into time series analysis, causal modeling, and the strategic implementation of Sales and Operations Planning (S&OP). BIG BEN Training Center has structured this course to provide a holistic view, combining theoretical knowledge with practical application. By mastering these techniques, attendees will be empowered to reduce inventory costs, mitigate the bullwhip effect, improve customer service levels, and drive strategic decision-making across their organizations, transforming the supply chain into a value-driven, responsive, and efficient operation.

Target Audience / This training course is suitable for:

- Demand Planners and Analysts.
- Supply Chain Managers and Professionals.
- Operations and Production Managers.
- Inventory Control Specialists.
- Financial Analysts and Planners.
- Sales and Marketing Managers.
- Business Intelligence and Data Analysts.
- S&OP Process Owners and Participants.
- Logistics and Distribution Managers.
- Procurement and Sourcing Professionals.

Target Sectors and Industries:

- Retail and Consumer Packaged Goods (CPG).
- Manufacturing and Industrial Products.
- Pharmaceuticals and Healthcare.
- Automotive and Aerospace.
- Technology and Electronics.
- Food and Beverage.
- Third-Party Logistics (3PL) and Distribution.
- Government Agencies and Public Sector Organizations.
- E-commerce and Direct-to-Consumer Businesses.

Target Organizations Departments:

- Supply Chain Management.
- Operations and Production.
- Finance and Accounting.
- Sales and Commercial Teams.
- Marketing and Product Management.
- Logistics and Distribution.
- Procurement and Sourcing.
- Information Technology (IT) and Data Analytics.
- Strategic Planning and Business Development.

Course Offerings:

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

- Master a range of advanced statistical forecasting models, including ARIMA and exponential smoothing.
- Implement causal and regression models to understand the drivers of demand.
- Apply machine learning and AI techniques for enhanced predictive accuracy.
- Develop and manage a robust Sales and Operations Planning (S&OP) process.
- Calculate and interpret key forecast accuracy metrics like MAPE, WMAPE, and Bias.
- Utilize Forecast Value Added (FVA) analysis to improve the forecasting process.
- Design strategies for demand sensing and shaping to proactively manage market volatility.
- Integrate collaborative planning, forecasting, and replenishment (CPFR) principles with key partners.
- Optimize inventory levels based on forecast uncertainty and service level targets.
- Leverage data visualization techniques to communicate forecast insights effectively to stakeholders.

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 in a professional context. This course moves beyond traditional lectures to foster a dynamic learning environment built on a foundation of experiential activities. A significant portion of the program is dedicated to hands-on workshops where participants will work with real-world data sets to build, test, and refine various forecasting models. We utilize a blend of case studies from diverse industries to illustrate the challenges and successes of implementing advanced demand planning systems. Collaborative group exercises and business simulations will challenge teams to solve complex supply chain problems, make strategic S&OP decisions, and present their findings. Expert-led discussions will facilitate a deep dive into complex topics, encouraging participants to share their own experiences and learn from their peers. Continuous feedback is provided by the instructor to guide learning and ensure a thorough understanding of the advanced analytical concepts and their strategic application in the workplace.

Course Agenda (Course Units):

Unit One: Foundations of Modern Demand Planning

- The Strategic Role of Forecasting in the Supply Chain.
- Understanding Demand Patterns: Level, Trend, Seasonality, and Cyclicality.
- Data Cleansing, Preparation, and Outlier Management for Accurate Forecasting.
- Introduction to Key Performance Indicators (KPIs) for Forecast Accuracy.
- The Hierarchy of Forecasting: Strategic, Tactical, and Operational Levels.
- Qualitative vs. Quantitative Forecasting Techniques.
- Exploring the Bullwhip Effect and its Impact on Supply Chain Performance.
- Introduction to Demand Planning Software and Systems.

Unit Two: Advanced Statistical Forecasting and Time Series Analysis

- Mastering Moving Averages and Weighted Moving Averages.
- In-depth Application of Exponential Smoothing Models (Simple, Holt's, and Winters').
- Decomposition Methods for Isolating Trend and Seasonality.
- Introduction to Autoregressive Integrated Moving Average (ARIMA) Models.
- Identifying Stationarity and Applying Differencing Techniques.
- Analyzing Autocorrelation (ACF) and Partial Autocorrelation (PACF) Plots.
- Practical Workshop: Building and Evaluating Time Series Models.
- Selecting the Appropriate Statistical Model for Different Demand Profiles.

Unit Three: Predictive Analytics and Causal Modeling

- Introduction to Causal Forecasting and Regression Analysis.
- Building Simple and Multiple Linear Regression Models.
- Incorporating External Variables: Promotions, Economic Indicators, and Market Trends.
- Understanding and Interpreting Regression Outputs and Diagnostics.
- Introduction to Machine Learning for Demand Forecasting.
- Exploring Algorithms such as Random Forest and Gradient Boosting.
- The Role of Artificial Intelligence and Big Data in Predictive Analytics.
- Workshop: Developing a Causal Model to Predict Demand.

Unit Four: Sales & Operations Planning (S&OP) and Collaboration

- The Five-Step S&OP Process: From Data Gathering to Executive Review.
- Developing a Consensus-Based Demand Plan.
- Integrating Demand, Supply, and Financial Planning.
- Roles and Responsibilities within the S&OP Cycle.
- Collaborative Planning, Forecasting, and Replenishment (CPFR) with Suppliers and Customers.
- Techniques for Effective Stakeholder Management and Communication.
- Running Successful Demand Review and Consensus Meetings.
- Case Study: Implementing a World-Class S&OP Process.

Unit Five: Performance Measurement, Optimization, and Future Trends

- Advanced Forecast Accuracy Metrics: MAPE, WMAPE, MASE, and Bias.
- Conducting Forecast Value Added (FVA) Analysis.
- Setting Safety Stock and Optimizing Inventory Policies.
- Introduction to Demand Sensing for Short-Term Forecast Adjustments.
- Strategies for Demand Shaping through Pricing and Promotions.
- The Future of Demand Planning: AI, Automation, and Prescriptive Analytics.
- Developing a Continuous Improvement Culture in the Forecasting Process.
- Final Project: Creating a Comprehensive Demand Plan and Performance Dashboard.

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:

How might the increasing integration of real-time IoT data and prescriptive analytics fundamentally reshape the traditional S&OP cycle in the next decade?

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

This course distinguishes itself by moving beyond a purely technical examination of forecasting algorithms to a holistic, strategic perspective on demand management. While many programs focus solely on statistical methods, we integrate these foundational techniques with cutting-edge machine learning and AI applications, preparing participants for the future of the field. A core differentiator is our deep dive into the Sales and Operations Planning (S&OP) process, treating it not as a separate topic but as the central framework where forecasting drives business strategy. We emphasize the development of a consensus-based plan that aligns supply, demand, and financial objectives. Furthermore, the curriculum is built around practical application, using industry-relevant case studies and hands-on data workshops that challenge participants to solve real-world problems. The focus on performance measurement through frameworks like Forecast Value Added (FVA) analysis equips attendees with the skills to not only create a forecast but to critically evaluate and continuously improve the entire planning process, ensuring a tangible and sustainable impact on their organization's bottom line.