Advanced Demand Planning and Forecasting Analytics Training Course

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4100 € (Per Person)

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Course Introduction / Overview:

In today's increasingly volatile and competitive global market, the ability to accurately predict customer demand is no longer a competitive advantage but a fundamental necessity for survival and growth. This course provides a comprehensive exploration of the principles and practices of modern demand planning and forecasting analytics. We will move beyond traditional methods to embrace the sophisticated statistical and machine learning models that drive superior supply chain performance. As highlighted by forecasting pioneer Spyros Makridakis in his extensive research, including the famous "M-Competitions," the key to forecasting improvement lies in understanding and applying the right models for the right context. This program, offered by BIG BEN Training Center, is meticulously designed to equip participants with the skills to analyze historical data, identify demand patterns, and build robust predictive models. Participants will delve into concepts discussed in seminal works like "Forecasting: Methods and Applications," learning to not only generate accurate forecasts but also to integrate them seamlessly into the Sales and Operations Planning (S&OP) process, thereby enhancing organizational agility and profitability. This is an immersive journey from foundational concepts to advanced predictive analytics, empowering you to transform your organization's forecasting capabilities.

Target Audience / This training course is suitable for:

- Demand Planners and Managers.
- Supply Chain Analysts and Managers.
- Forecasting Analysts.
- Inventory Control Specialists and Managers.
- S&OP and IBP Process Owners and Participants.
- Operations Managers.
- Financial Analysts involved in planning.
- Marketing and Sales Managers responsible for forecasting.
- Data Scientists working in supply chain.
- Logistics and Distribution Managers.

Target Sectors and Industries:

- Retail and E-commerce.
- Consumer Packaged Goods (CPG) and Fast-Moving Consumer Goods (FMCG).
- Manufacturing and Industrial Products.
- Pharmaceuticals and Healthcare.
- Automotive and Aerospace.
- Technology and Electronics.
- Food and Beverage.
- Third-Party Logistics (3PL) and Distribution.
- Governmental agencies and public sector logistics.

Target Organizations Departments:

- Supply Chain Management.
- Planning and Forecasting.
- Logistics and Distribution.
- Operations.
- Finance and Accounting.
- Sales and Marketing.
- Procurement and Sourcing.
- Information Technology and Data Analytics.
- Product Management.

Course Offerings:

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

- Master a range of advanced statistical forecasting models, including exponential smoothing and ARIMA.
- Apply predictive analytics and machine learning techniques for enhanced demand prediction.
- Develop and implement a robust data cleansing and preparation process for forecasting.
- Measure forecast accuracy and bias using key performance indicators like MAPE, WAPE, and BIAS.
- Lead and contribute effectively to Sales and Operations Planning (S&OP) and Integrated Business Planning (IBP) cycles.
- Analyze and mitigate the bullwhip effect within the supply chain.
- Create effective forecasting strategies for new product introductions and promotional events.
- Implement Forecast Value Added (FVA) analysis to improve the forecasting process.
- Utilize demand sensing and shaping techniques to respond to short-term market changes.
- Develop a strategic framework for continuous improvement in forecasting performance.

Course Methodology:

This training course employs a dynamic and interactive learning methodology designed for maximum knowledge retention and practical application. At BIG BEN Training Center, we believe that adult learning is most effective when it is engaging, relevant, and hands-on. The curriculum is delivered through a blend of expert-led presentations, real-world case study analyses, and interactive group discussions that encourage collaborative problem-solving. Participants will engage in practical workshops and simulation exercises where they can apply statistical and machine learning models to real datasets, experiencing the challenges and rewards of demand forecasting firsthand. The methodology emphasizes a participant-centered approach, where active involvement is crucial. Ample time is allocated for Q&A sessions, peer-to-peer learning, and direct feedback from the instructor. This immersive environment ensures that participants not only grasp the theoretical concepts but also develop the confidence and competence to apply these advanced techniques directly to their professional roles upon returning to their organizations, driving tangible improvements in forecast accuracy and business performance.

Course Agenda (Course Units):

Unit One: Foundations of Modern Demand Planning

- The Strategic Role of Forecasting in the Supply Chain.
- Understanding Demand Patterns: Trend, Seasonality, and Cyclicality.
- Data Cleansing, Pre-processing, and Outlier Detection.
- Qualitative vs. Quantitative Forecasting Techniques.
- Introduction to Time Series Analysis and Decomposition.
- Establishing Baseline Forecasts and Naive Models.
- The Forecasting Process and Management Cycle.

Unit Two: Advanced Statistical Forecasting Models

- Mastering Moving Averages and Weighted Moving Averages.
- Advanced Exponential Smoothing Methods (Holt-Winters).
- Box-Jenkins Methodology and ARIMA Models.
- Identifying and Modeling Seasonality with Advanced Techniques.
- Intermittent Demand Forecasting (Croston's Method).
- Selecting the Appropriate Statistical Model for Different Scenarios.
- Practical Application of Models using Software Tools.

Unit Three: Predictive Analytics and Machine Learning in Forecasting

- Introduction to Causal and Regression-Based Forecasting.
- Incorporating External Variables (e.g., economic indicators, promotions).
- Fundamentals of Machine Learning for Demand Forecasting.
- Applying Algorithms like Random Forest and Gradient Boosting.
- Introduction to Neural Networks for Time Series Prediction.
- Demand Sensing for Short-Term Volatility Management.
- Comparing Machine Learning Models with Traditional Methods.

Unit Four: Integrating Forecasting into Business Processes

- The Sales and Operations Planning (S&OP) and IBP Framework.
- Achieving Consensus Forecasting through Collaboration.
- Collaborative Planning, Forecasting, and Replenishment (CPFR).
- Measuring and Improving the Forecasting Process with Forecast Value Added (FVA).
- Demand Segmentation and Differentiated Forecasting Strategies.
- Lifecycle Management and New Product Introduction (NPI) Forecasting.
- Promotional and Event-Based Forecasting Techniques.

Unit Five: Performance Management and Strategic Demand Shaping

- Key Metrics for Measuring Forecast Accuracy and Bias (MAPE, WAPE, MSE).
- Building a Forecasting Performance Dashboard.
- Root Cause Analysis for Forecast Errors.
- Understanding and Mitigating the Bullwhip Effect.
- Introduction to Strategic Demand Shaping and Management.
- Leveraging Analytics for Inventory Optimization.
- Developing a Roadmap for Continuous Forecasting Improvement.

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:

In an era of increasing market volatility and AI-driven analytics, does the role of human judgment in demand forecasting become more or less critical?

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

This course distinguishes itself by providing a holistic and integrated perspective on demand forecasting, bridging the critical gap between advanced analytical theory and strategic business application. While many programs focus narrowly on either traditional statistical methods or complex machine learning algorithms, this curriculum synthesizes both, empowering participants to select and apply the most appropriate technique for any given business scenario. We move beyond the "black box" approach to analytics, ensuring a deep conceptual understanding of how these models work and, more importantly, how to interpret their outputs to make informed business decisions. A significant differentiator is the heavy emphasis on integrating forecasting into core business processes like Sales and Operations Planning (S&OP). The course is not just about creating a number; it is about creating a credible, consensus-driven plan that aligns the entire organization. Through practical case studies and simulations, participants learn to manage stakeholder inputs, measure process effectiveness through frameworks like Forecast Value Added (FVA), and ultimately use forecasting as a tool for strategic demand shaping and competitive advantage, a dimension often overlooked in purely technical training.