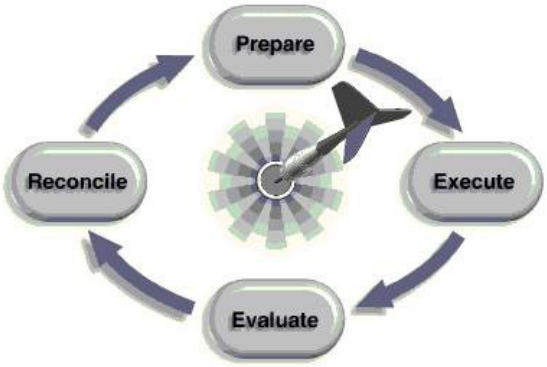


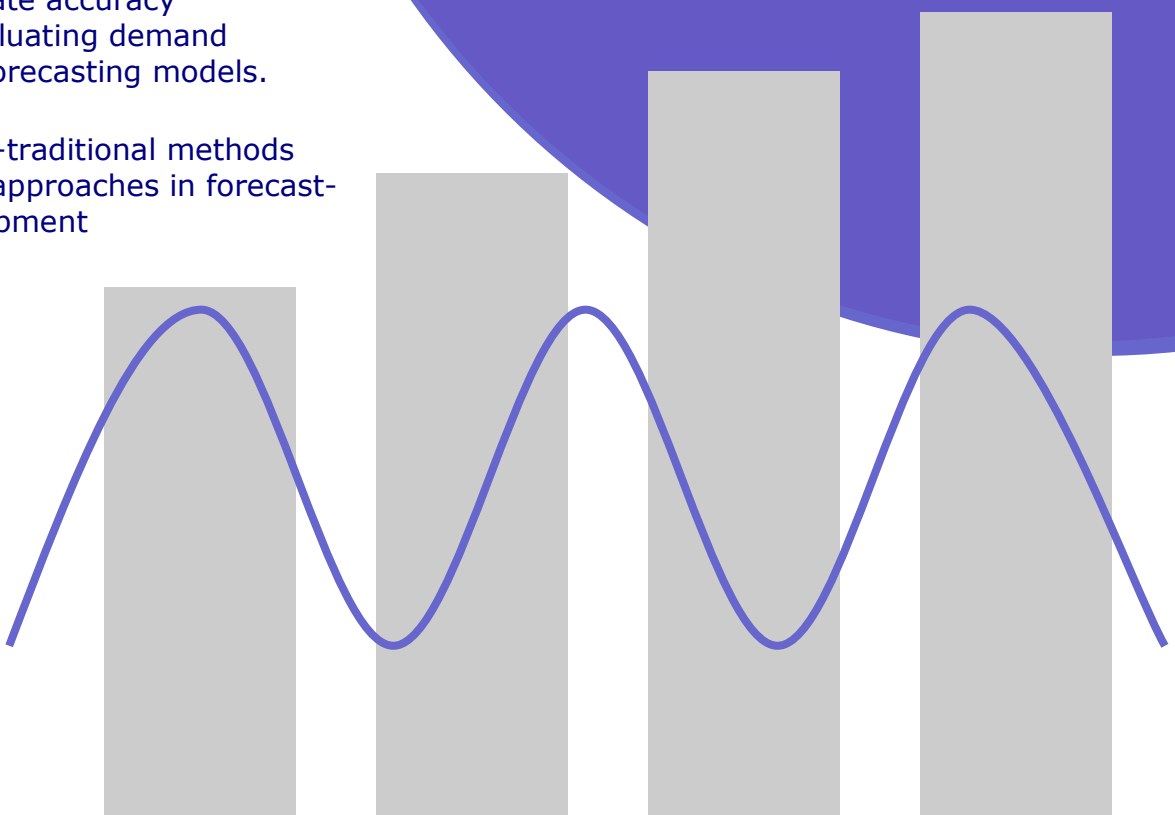
Smarter Forecasting and Planning

Certified Professional in Demand Forecasting Workshop

(Five day combined I & II workshop)
Demand Forecasting Principles, Methodologies, Performance

Key Learning Objectives:

1. Establish a framework for demand forecasting in the supply chain
2. Introduce a four-step process for streamlining the forecasting cycle
3. Define, interpret ,visualize major demand forecasting techniques.
4. Identify appropriate accuracy measures for evaluating demand forecasting and forecasting models.
5. Complement non-traditional methods with established approaches in forecast-ing model development



Program is endorsed by International Institute of Forecasters (IIF)

CPDF Level I&II– Combined Program

Day 1

Part 0 - *Pre-course Computer Workshop*

Part I - The Demand Forecasting and Planning Cycle in the Supply Chain

What is demand forecasting?
Demand Forecasting and the evolution of Supply Chain
Who will use the forecast and what are their data needs?
Forecasting as a structured process– The PEER Model

Workshop A: Defining the Target- How to Quantify Drivers of Demand for New and Existing Products and Services

Part II - Improving Data Quality through Data Exploration and Visualization

Data exploration– Learning from actual examples
Judging the quality of data
Handling unusual events and outliers
What are forecasting models?- Quantitative vs. qualitative methods
Evaluating forecasts and forecasting models
Combining and reconciling the final forecast

Computer Workshop B: Exploring Trend and Seasonal Variation.

Part III - How To Use Components of a Time Series

Moving averages for smoothing kinks out of data
Finding the lift in promotions with moving medians
Identifying day-of-week effects through ANOVA methods
Creating additive and multiplicative seasonal factors
Seasonal adjustment of time series

Computer Workshop C: Creating Projections and Seasonal Adjustments with RMA Decomposition Technique.

Day 2

Recap of Day 1

Part IV – Forecasting with State Space Forecasting Models

Why use Naïve forecasting techniques?
Types of smoothing weight
Forecasting profiles for exponential smoothing
Applying univariate time series techniques
Handling special events with exponential smoothing model
Scenario forecast
Product lifecycle

Computer Workshop D: Large Volume, Data-driven Baseline Forecasting with Exponential Smoothing Models

Part V – Big Data: Data Mining, Exploration and Data Quality

Predictive Analytics– something new?
Methodologies for large-scale data exploration
Basic statistical tools for summarizing data
Traditional and nonconventional measures of variability
Data framework for demand forecasting in the cloud
Identifying criteria for assessing data quality
Handling exceptions in large data sets
Data process frameworks and job checklists

Computer Workshop E: Data Exploration, Outlier Correction, and Predictive Analytics

Part VI – Forecasting with ARIMA Time Series Models

Creating a flexible model building strategy
Detecting autocorrelation in time series
Identifying seasonal and non-seasonal ARIMA models
Diagnostic checks and ARIMA modeling checklist

Computer Workshop F– How to Create Short-term Trend and Seasonal Models

Day 3

Recap of Day 2

Part VII – How to Measure Forecast Accuracy

Basis of accuracy measurement– Bias and Precision
Forecasting errors and waterfall charts
Goodness of fit versus forecast performance
Cost of inaccurate forecasts
Traditional and conventional accuracy measurement

Computer Workshop G– Root Cause Analysis and Exception Reporting

Part VIII – Graphical Tools for Forecast Process Improvement

Ladder charts for monitoring forecast modeling results
Prediction– Realization diagrams and business cycles
Prediction intervals for controlling judgemental overrides
Cumulative tracking signals– Trigg's approach

Computer Workshop H– How to use Predictive Visualization to Track and Monitor Forecasting Performance

Part IX – Implementing the Demand Forecasting Function in an Integrated Business Planning Process

The Delphi Method
The forecasting audit
A framework for setting forecasting standards
Planning for process improvement
Overcoming barriers and closing gaps

CPDF Level I&II– Combined Program

Day 4

Recap of Day 3

Part X – Practical Uses of Forecast Modeling

Marketing– Promotion planning

Sales– Pricing: Elasticities

Operations– Safety stock and inventory forecasting

Finance– Rolling forecasts and budgeting

Computer Workshop I: Using a Time-phased Order Forecasting Model for Customer Replenishment Planning

Part XI – Designing Regression Models for Forecasting

Finding a linear association between two variables
Checking ordinary correlation with a nonconventional alternative
What are regression model assumptions?
What is a "best" fit?
The least square assumption demystified
The ANOVA table output for regression analysis
Paring the output for use in forecasting
Creating forecasts and prediction limits

Computer Workshop J– Using Causal Models for Advertising and Promotion Analysis

Day 5

Part XII– Working with Residuals and Forecast Errors to Improve Forecasting Performance

Dealing with lack of normality in time series regression modeling
Looking out for "Black Swans"
How good was the fit and what does it say about forecasting ?
Dealing with nonrandom patterns in residuals
Impact of error term assumptions on prediction interval determination
Creating prediction intervals for forecast monitoring
Using prediction limits for quantifying uncertainty in forecasts
A checklist for multiple linear regression

Computer Workshop K - Taming Volatility— Root Cause Analysis and Exception Handling

Part XIII - Improving Forecasts with Subjective Judgment

When to make judgmental adjustments to forecasts
Judgmental traps in forecasting

Melding quantitative and qualitative approaches for forecast development and process improvement

Creating the final forecast with Change and Chance numbers

Computer Workshop L– GLOBL Case: Simulating The Forecasting Cycle (You may bring your own data).

Global Electronics Manufacturer (a fictitious company) provides consumer electronic technology products to a broad range of customers worldwide
Participants will eva;iate amd reconcile forecasts and prediction limits for three product lines based on univariate exponential smoothing and multiple linear regression models.

Workshop Takeaway and Closing Remarks

CPDF Certification Curriculum Overview

Each Level of the CPDF program consists of both instructor-led workshop training hours, and independent hours to be accomplished through self-paced e-learning environment. The successful completion of each level will qualify participants to earn a certificate, CPDF levels & certificates are described below:

Basic Level : *Certificate in Demand Forecasting*

90 Training Hours	15 hours hands-on workshop
	75 hours, 6 work sheets E-learning

Master Level : *Certificate in Demand Forecasting*

60 Training Hours	15 hours hands-on workshop
	45 hours, 6 work sheets E-learning

Professional Level: *Certificate in Demand Forecasting*

50 Training Hours	20 hours hands-on workshop
	30 hours, 6 work sheets E-learning

Program Requirements:

- College degree or Job experience
- Reasonable experience in MS Excel
- Acceptable level of English language

Program Assessment:

- Full attendance of hands-on workshops is required
- Successful submission of required worksheets through e-learning system
- CPDF is not a test-based program.

It's a hand-on workshop. Please bring your own laptops to run the computer exercises!!

Who Should Attend?

- Demand Forecasters
- Supply Chain Managers
- Demand planners
- Supply planners
- Production Managers
- Operations Managers
- Financial analysts
- Market analysts
- Researchers
- Forecasters
- Economists
- Strategists
- Marketing & Sales managers

WHY STUDY WITH US?

1.International trainers

2.Trainers have long and global experience in demand management and forecasting.

3.High quality and excellent style of delivery with participative debate and discussion, case studies.

4.E-learning service through a unique Online Web Platform designed exclusively for CPDF Students.

5.100% Student pass rate, endorsed by past and present students in the region.

6.Abilities to enhance local demand date with international experience and theories.

7.Interchange demand forecasting experience management with local culture and knowledge.

Our Training Partner

DELPHUS

Delphus Inc. (www.delphus.com) is a privately held corporation, headquartered in Morristown, New Jersey. Established in 1987, the company has been dedicated to providing strategic market analyses, forecasting software tools and data mining solutions for sales and marketing managers, inventory and production planners in manufacturing, distribution, retail firms and hospital management operations.

Program Leader

Dr. Hans Levenbach is the founder and President of Delphus Inc., which specializes in predictive-analytic solutions for demand planning in supply chain organizations. He is also an elected Fellow, former President and Treasurer of the International Institute of Forecasters (IIF). He has been a member of the editorial board of Foresight Journal, the practitioner journal published by the IIF. He is also a member of APICS, INFORMS, American Statistical Association and an elected member of the International Statistics Institute. Hans has been instrumental in designing the "Certified Professional Demand Forecaster" (CPDF®) curriculum (www.cpdftraining.org/curriculum.htm).

What is CPDF®?

This is a job certification program for demand forecasters and planners working in supply chain industries. The International Institute of Forecasters (IIF), a thirty-four year old non-for-profit membership organization whose purpose is to advance knowledge and research in forecasting, has endorsed it. The CPDF program is a 200 hours curriculum comprised of three modules, I, II, and III Certification can be earned at each of the three levels. The CPDF qualification will address multidimensional job roles in demand forecasting such as data display and validation, database management, dashboard display, understanding quantitative and qualitative projection techniques, model creation and execution, forecast accuracy measurement, model and forecaster performance analysis, organization, and collaborative planning.