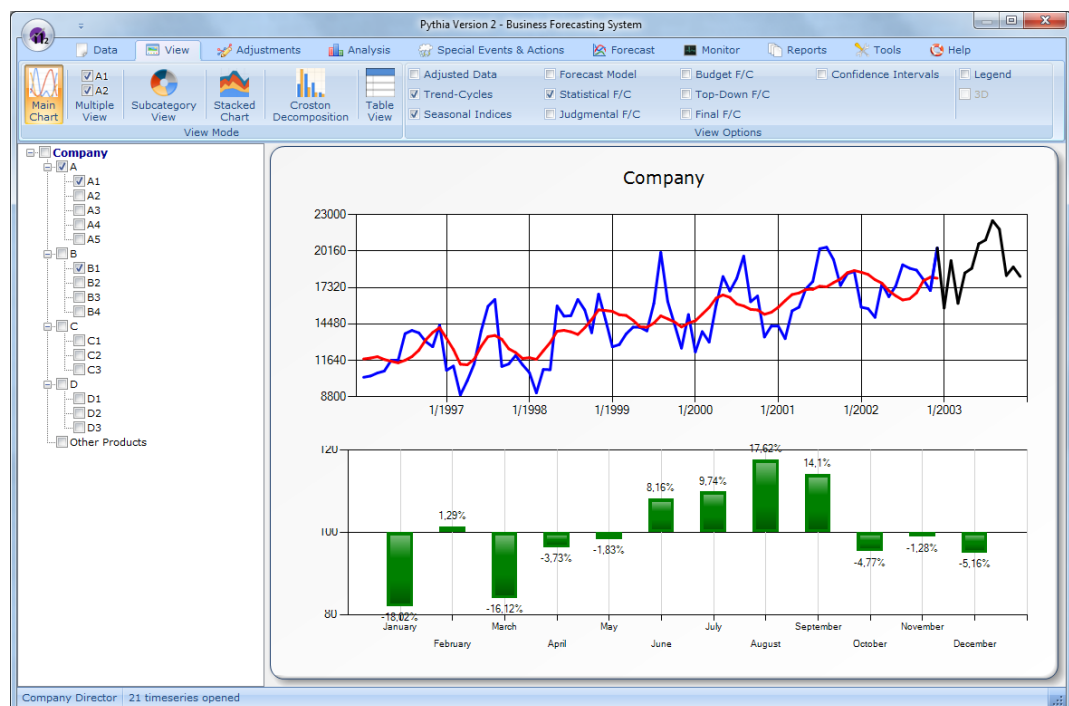




Pythia version 2

Business Forecasting Support System

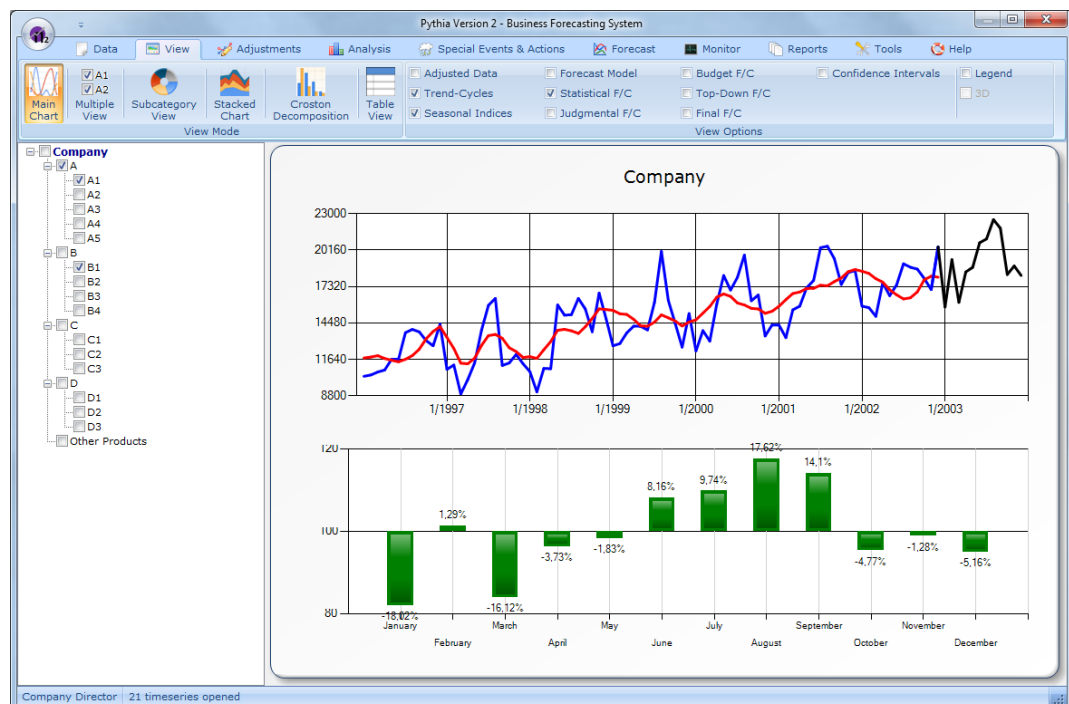




Pythia version 2

Business Forecasting Support System

Pythia is an innovative business forecasting support system. PYTHIA incorporates all available knowledge and experience in the field of forecasting while, at the same time, fully utilizing the new capabilities of computers and software. PYTHIA is aimed at practicing managers (at the level of financial directors, product managers, production/inventory managers and planners/analysts) and it is designed and developed with a single purpose in mind, that of making the task of managerial forecasting as straightforward, user-friendly and practical as possible while not compromising on the question of scientific vigor and statistical accuracy.



Pythia version 2 features:

- A very simple and user friendly interface based on ribbon menu.
- Intermittent demand data support (analysis and forecasting).
- Input from SQL Compact Edition & text files (as well as SQL Server).
- Graphical and numerical interpretations in all stages of forecasting.
- Rewritten subroutines for maximum speed of calculations.
- More reporting options.
- External tools (*forthcoming*).

Pythia's Data Adjustment & Analysis

View Options

- Main Chart
- Multiple View
- Subcategory View
- Stacked Chart
- Croston Decomposition
- Table View

Data Adjustments

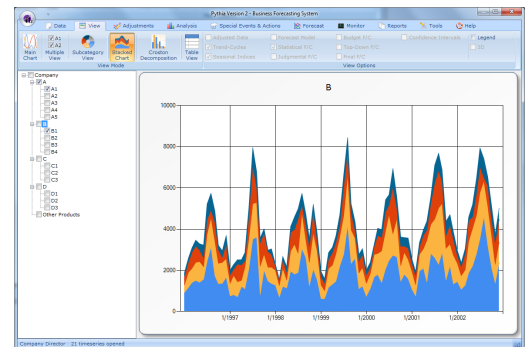
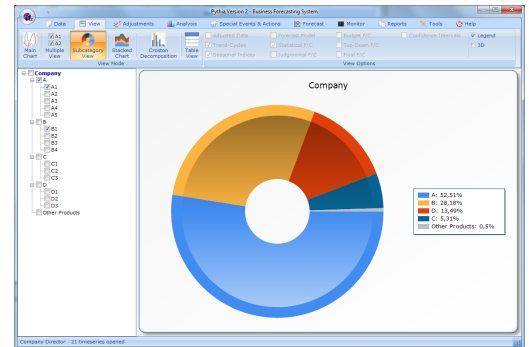
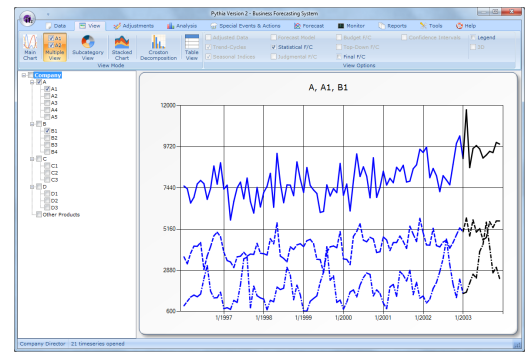
- Edit Data (by chart or by table)
- Missing Values
- Zero Values
- Working & Trading Days
- Bank Holidays

Analysis

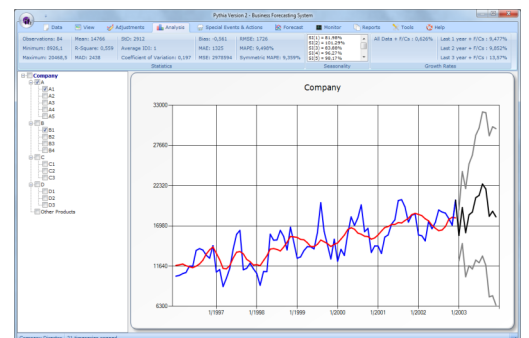
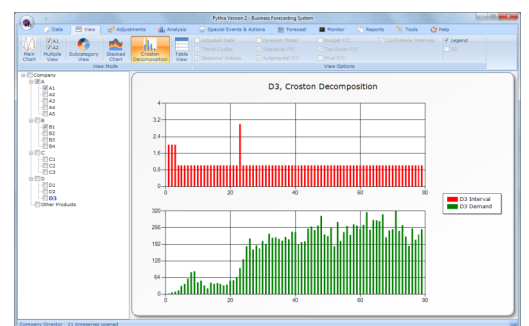
- Observations
- Minimum
- Maximum
- Mean
- R-Square
- MAD
- Standard Deviation
- Average IDI
- Coefficient of Variation
- Bias
- Mean Absolute Error
- Mean Square Error
- Root Mean Square Error
- Mean Absolute Percentage Error
- Symmetric MAPE
- Seasonal Indices (via Classical Decomposition Method)
- Growth Rates

Special Events & Actions

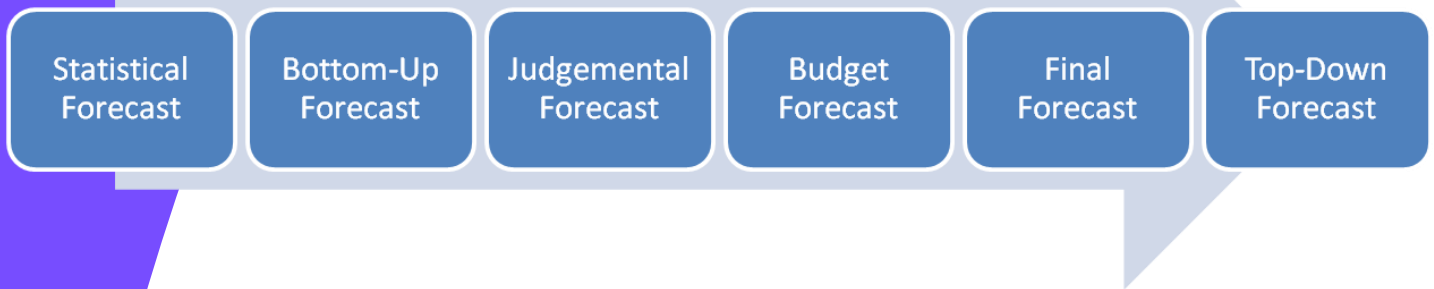
- Five Methods for automatic SEA identification
- Customization of methods sensitivity
- Adjust confirmed SEA (type, periods, impacts, budget, etc.)
- Adjust time series through excluding confirmed SEA
- View adjusted data & impacts chart



Year	Period	Original Data	Trend-Cycle	Seasonal Index	Statistical FIC	Judgmental FIC	Confidence Interval
2000	11	4709	5308.33	86.88%			
2000	12	3864	4902.33	87.99%			
2001	1	2977	4492.33	89.99%			
2001	2	2396	4082.33	96.75%			
2001	3	3968	3672.33	79.88%			
2001	4	4657	3262.33	83.81%			
2001	5	5155	2852.33	97.22%			
2001	6	5471	2442.33	122.87%			
2001	7	7949	1932.33	142.77%			
2001	8	7425	1522.33	146.71%			
2001	9	6529	1112.33	131.84%			
2001	10	5079	702.33	92.24%			
2002	11	3797	292.33	86.88%			
2002	12	5015	-117.67	87.88%			
2003	1				3083.13	3083.13	1983.13 - 4183.13
2003	2				3473.85	3473.85	2373.85 - 4573.85
2003	3				4878.79	4878.79	3478.79 - 6278.79
2003	4				6683.23	7183.23	5283.23 - 8683.23
2003	5				8278.76	8278.76	6283.76 - 10283.76
2003	6				8778.29	8778.29	6783.29 - 10783.29
2003	7				9783.64	9783.64	7783.64 - 11783.64
2003	8				10383.03	10383.03	8383.03 - 12383.03
2003	9				10478.26	10478.26	8478.26 - 12478.26
2003	10				1012.95	1012.95	612.95 - 1412.95
2003	11				1984.09	1984.09	158.09 - 3384.09
2003	12				3483.87	3483.87	2483.87 - 4483.87



Pythia's Forecasting Procedure



Statistical Forecasting

- Multipurpose Forecasting Methods (short-term, mid-term, long-term)
- Naïve, Simple Moving Average, Simple Exponential Smoothing, Holt Exponential Smoothing, Damped Exponential Smoothing, Holt-Winters, Linear Trend, Exponential Trend, Theta, Averaging, Croston, Syntetos-Boylan Approximation, ADIDA, Expert Method
- Customization of methods' parameters

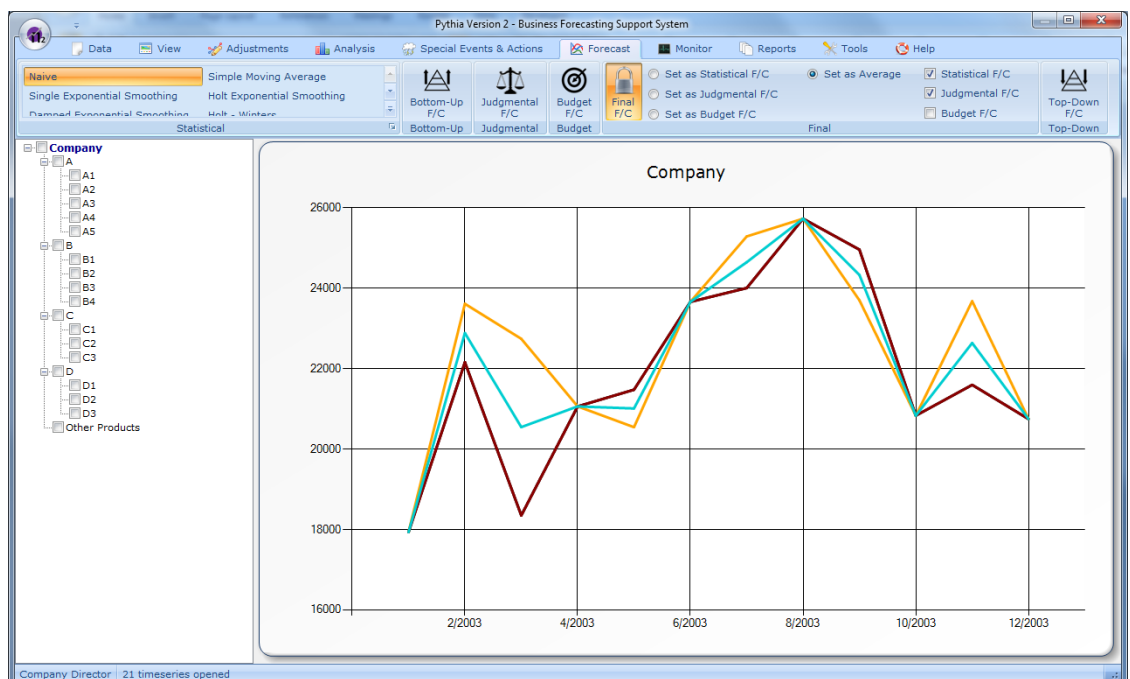
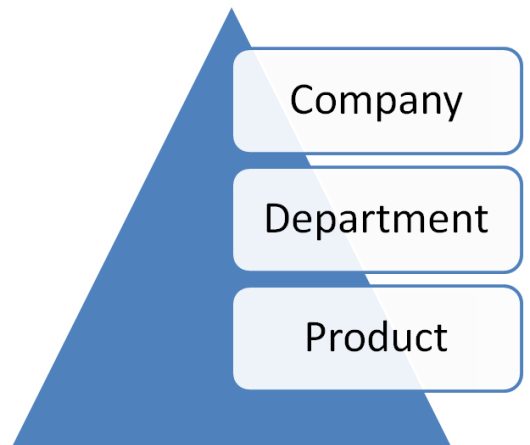
Bottom-Up Forecasting

Judgmental Forecasting

Budget Forecasting

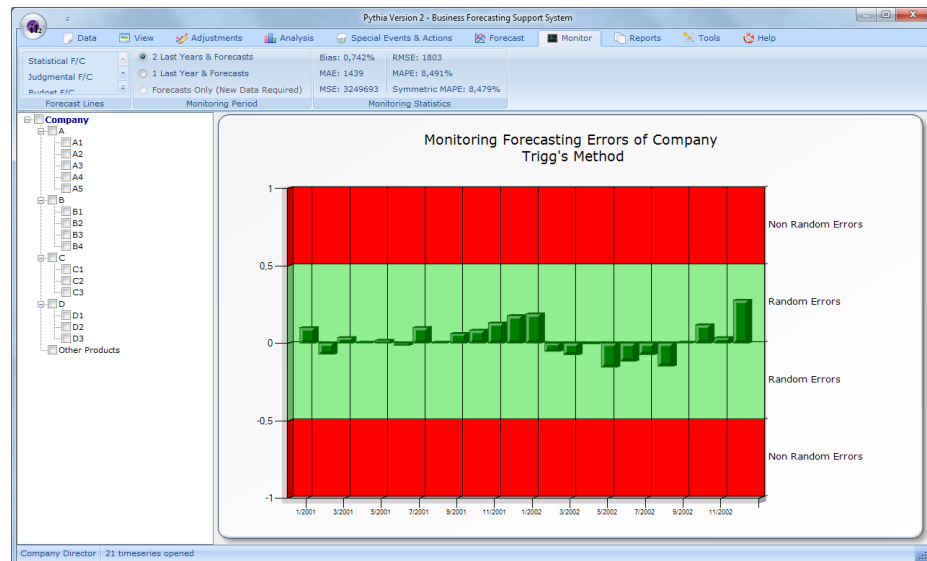
Final Forecasting

Top-Down Forecasting



Pythia's Monitoring

Past patterns and established relationships can and do change invalidating the forecasts that inevitably are based on the extrapolation of such patterns and the continuation of relationships. The Monitoring module continuously checks for the difference between the actual and predicted values and provides a warning signal when such differences (i.e., the forecast errors) cease to be random. In such a case the user can re-forecast and/or take appropriate actions, if needed, to correct the situation.



Pythia's Reporting

PYTHIA supplies detailed reporting information on all aspects of data analysis and forecasting while also showing detail information about the accuracy of different types of predictions (original data without adjustments, adjusted data, statistical forecasts, judgmental overrides, budget objectives, and final forecasts). The reports can be customized and are exported in an Excel sheet for further usage.

Technical Description

PYTHIA was developed using Microsoft's Visual Basic.NET 2008 while the Dundas Chart, for Basic.NET, was employed for the system implementation (the Dundas Chart was chosen for its advanced charting functionality and superior graphic options). Finally, the Microsoft SQL Server 2005 database is utilized by PYTHIA to store and retrieve the required information for the data analysis, forecasting and monitoring.