

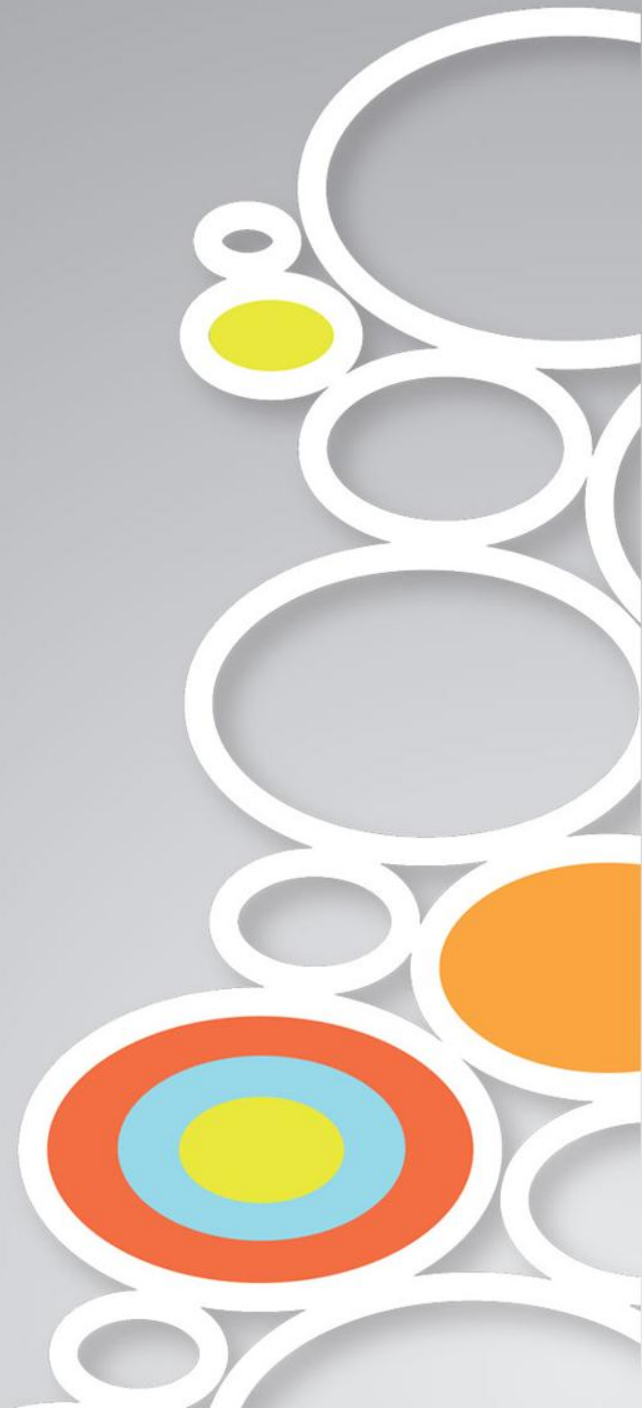
sas[®] forum

SWITZERLAND 2012

make connections • share ideas • be inspired

Supply Chain Business Solutions driven by Advanced Analytics

Rainer Kent Vogt
SAS Institute GmbH, Germany



Changing Supply Chain Challenges

Today's Reality

Margin is destroyed by: wrong product, wrong place, wrong time, poor quality, brand image....

Today's Reality

Inside your company, outside your company, the real world, the virtual world....

Today's Reality

Quality is what customers think it is. We no longer control our brand in this rapidly changing digital world.



Today's Reality

Find the most profitable growth, take the best actions, maximize cross-business impact

Today's Reality

Customer retention, upsell, cross sell, satisfaction, service revenue, social media, fraud, brand velocity.....

SAS provides end to end business analytics ...



SAS® Data Management

Business Analytics Framework

Business Solutions

Reporting
Analytics

Data Management

sas

Enterprise Connectivity

Data Quality

ETL (Extract, Transform, Load)

Metadata Management

Data Migration & Synchronization

Data Federation

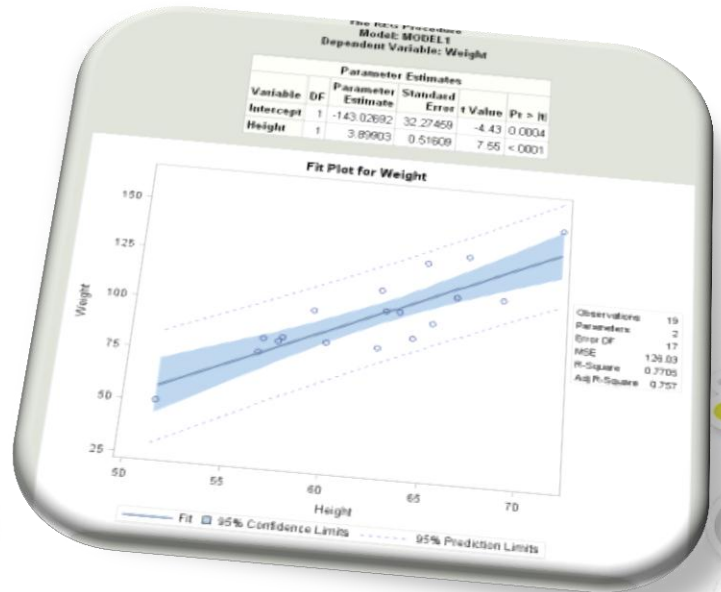
Master Data Management

The image displays two overlapping screenshots of the SAS Data Management software interface. The left screenshot shows a data flow diagram with nodes for 'CLASS', 'Sort', 'Table Loader', and 'CLASS2'. Below the diagram, a log window shows the execution of the 'TABLE LOADER' procedure, indicating it completed successfully. The right screenshot shows a 'Statistics' window with a table of execution results.

Status	Records	Start time	End time	Real time	CPU time	Memory	I/O	Threads	Server
Successful	2,000,000	10:11:33	10:12:00	00:00:50	00:00:20	12	22		
Warning	2	10:13:00	10:13:50	00:00:50	00:00:20			1	poplar
Error	16	10:14:00	10:14:50	00:01:00	00:00:20	45	85	3	poplar
Successful	22,000	10:15:00	10:15:50	00:50:00	00:00:20	8	23	4	aspen
Error		10:16:00	10:16:50	00:50:00	00:00:20	11	1	5	aspen

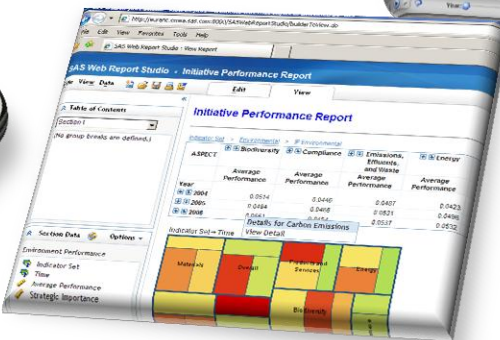


- # SAS® Analytics
- Data Visualization
 - Statistics
 - Data Mining
 - Forecasting & Econometrics
 - Quality Improvement
 - Operations Research
 - Text Analytics
 - Model Management and Deployment





- # SAS® Reporting
- Dashboards
 - Business Visualization
 - Web-based Reporting & Authoring
 - Microsoft Office Integration
 - Query & Analysis
 - Guided Analysis
 - Integrated Analytics



... and vertical solutions for specific business needs



SAS® for Manufacturing

Supply & Demand



- Consensus Forecasting
- Forecast Accuracy
- Inventory Costs
- Sales & Operations Planning

Customers



- Customer Perceptions
- Customer Behavior
- Price Optimization
- Marketing Optimization

Operations



- Product & Production Quality
- Production Asset Utilization
- Energy & Emissions Management
- Performance Measurement & Reporting
- Cost of Quality

Service



- Warranty Costs
- Service Parts Costs
- Service Contracts Profitability
- Service & Parts Fraud
- Contact Center Performance



SAS Solution Categories

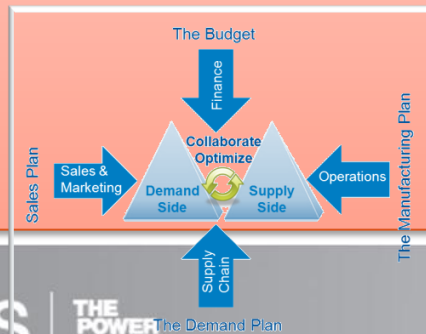
Demand Synchronization

Accurately calculating demand and balancing supply constraints is a top priority for executives within all manufacturing sectors.

Forecasting provides the basis for accurate statistical baseline forecasts and enables critical demand sensing and shaping capabilities.

Inventory optimization reduces the risk of stock outs and large inventory holding costs.

Sales and Operations Planning analytics allows organizations to optimally manage business constraints to optimize profits.



Customer Driven Quality

Quality has emerged as a key topic for manufacturers. It is a key differentiator and has a major impact on the pricing and performance of any product in the market.

Predictive analytics provide the insight to what drives quality issues in a manufacturing process, as well as the assets used within the facility.

Social media analytics allow companies to understand if they are living up to their brand promise.

Powerful analytic algorithms monitor field events for the earliest indication of a quality problem.



After-Market Service

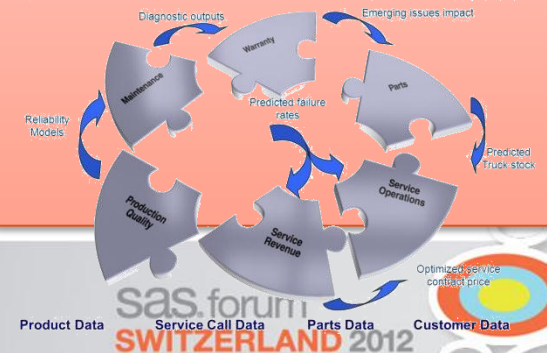
Customer service is a critical function for every manufacturer. After-Market Service contributes 30% of the revenue and ~40% of all profits.

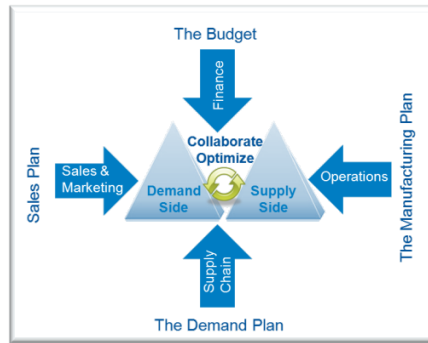
Predictive Analytics provides the foresight to anticipate service demand.

Predictive Analytics provides early warnings to product/usage issues.

The service chain is an integrated process, so too are the analytic inputs and outputs that drive better decision making.

The service chain uses the same data and shares functional outputs





DEMAND SYNCHRONIZATION

SAS® Demand-Driven Forecasting

- Key Capabilities
 - Automatically create statistical forecasts on a large scale
 - Model the effects of sales promotions, marketing events, and other external events
- Features
 - Automated forecast model selection
 - Complete model repository
 - What If analysis, Scenario Planning
 - Structured Consensus Planning



SAS® Forecasting for SAP APO

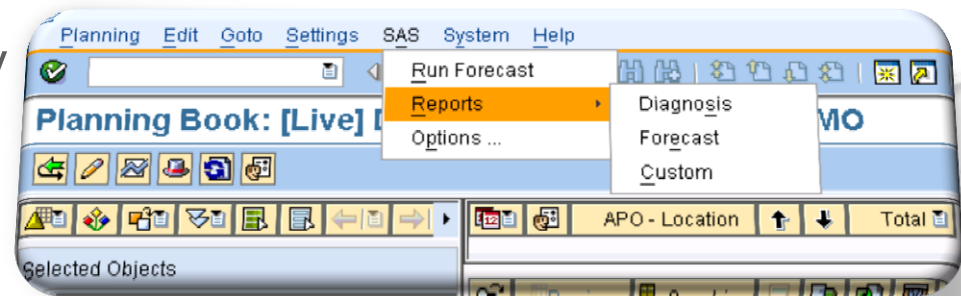
■ Key Capabilities

- Seamlessly integrate SAS' superior forecasting with planning capabilities of the SAP Demand Planning module

■ Features

- Automated Forecast Model Selection
- Complete Model Repository
- Demand Sensing, Shaping
- Event Modeling Console
- What If Analysis, Scenario Planning

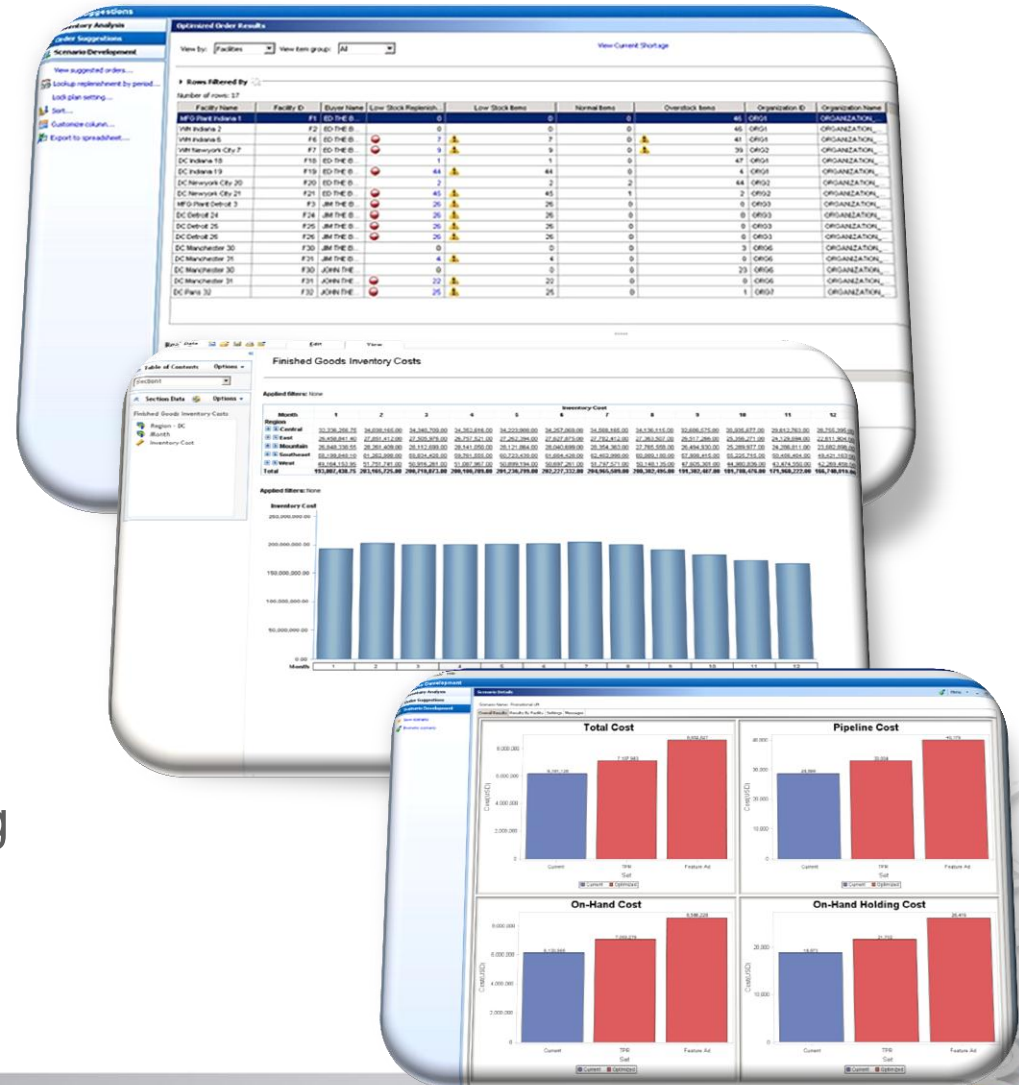
Pack Size	Unit	M 12 2008	M 01 2009	M 02 2009
Actual Sales				
Total	EA			
DF100	EA			
DF200	EA			
Clean History				
Total	EA			
DF100	EA			
DF200	EA			
Base History				
Total	EA			
DF100	EA			
DF200	EA			
Baseline Forecast				
Total	EA	1,979	2,042	1,994
DF100	EA	1,755	1,831	1,789
DF200	EA	224	211	205
Disaggregation Factor				
Total	EA	400	300	300
DF100	EA	300	200	200
DF200	EA	100	100	100
Total Promotions				
Total	EA			
DF100	EA			
DF200	EA			
Unconstrained DP				
Total	EA	1,321	1,267	1,224
DF100	EA	1,058	1,007	956
DF200	EA	263	260	268



SAS[®] Inventory Optimization

- Key Capabilities
 - Optimize inventory replenishment policies and order quantities based on user-specified constraints

- Features
 - Multi-echelon Inventory Optimization
 - Replenishment Planning
 - Supply Shaping
 - What If Analysis Scenario Planning





CUSTOMER DRIVEN QUALITY



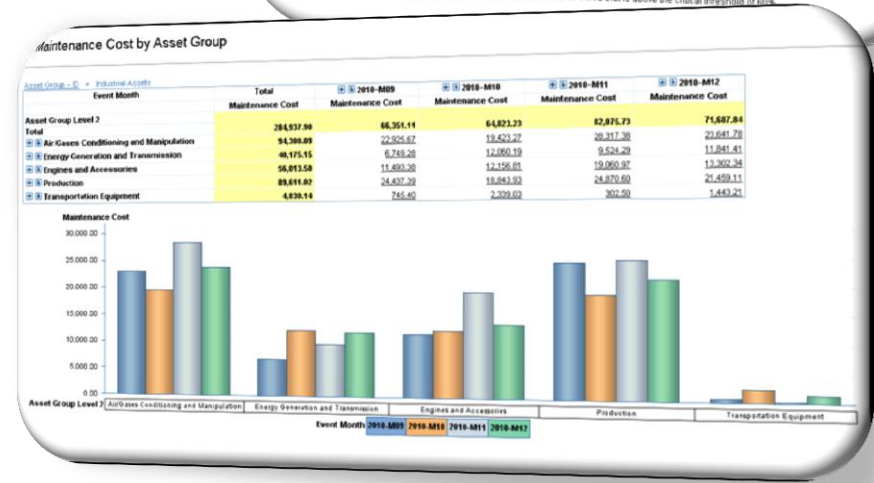
SAS® Quality Lifecycle Analysis

Key capabilities

- Identifies anomalies in the production process that impact yield and product quality
- Prioritizes problems based on business impact
- Determines root cause more quickly

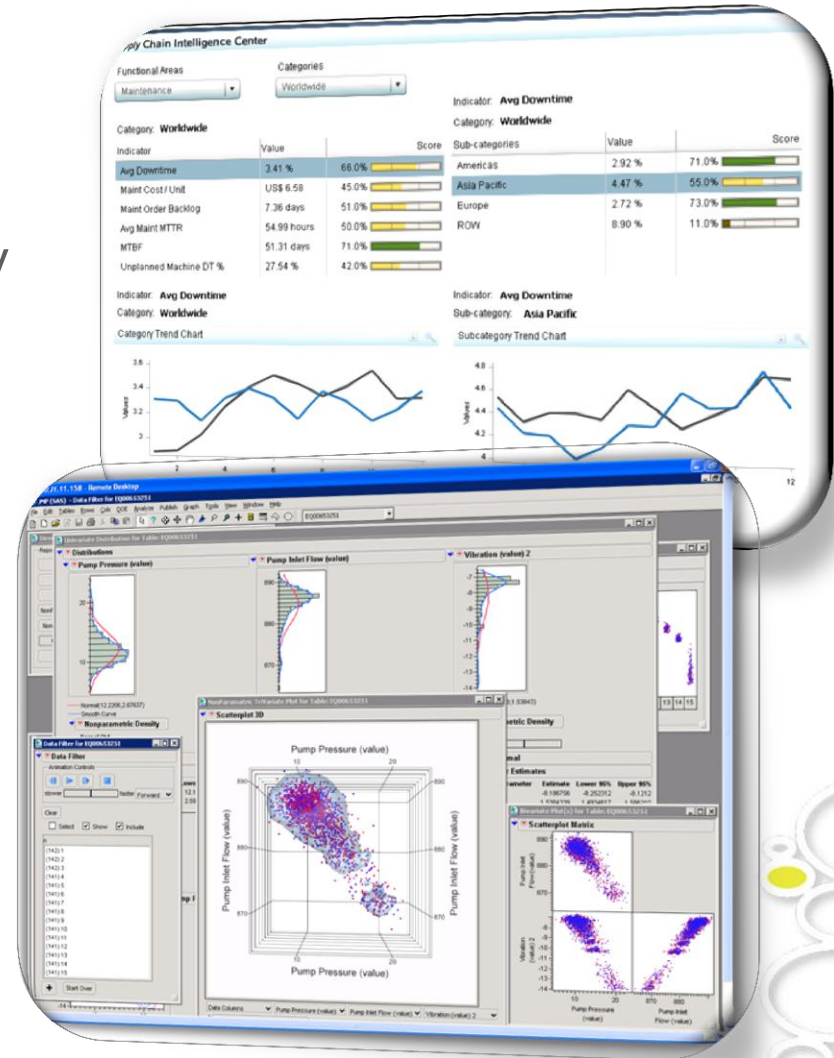
Features

- Provides automated reporting and alerting
- Provides a collaborative environment

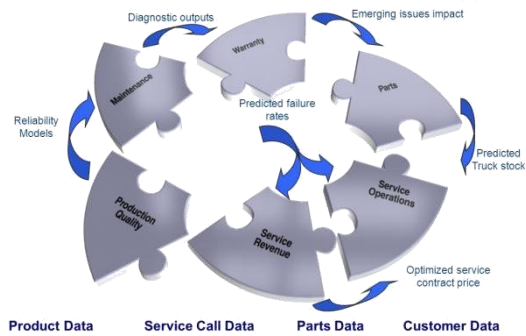


SAS® Predictive Asset Maintenance

- Key capabilities
 - Identifies equipment that is likely to fail and / or determines its remaining lifetime
 - Prioritizes problems based on business impact
 - Determines root cause more quickly
- Features
 - Provides automated reporting and alerting
 - Provides a collaborative environment



The service chain uses the **same data** and **shares functional outputs**

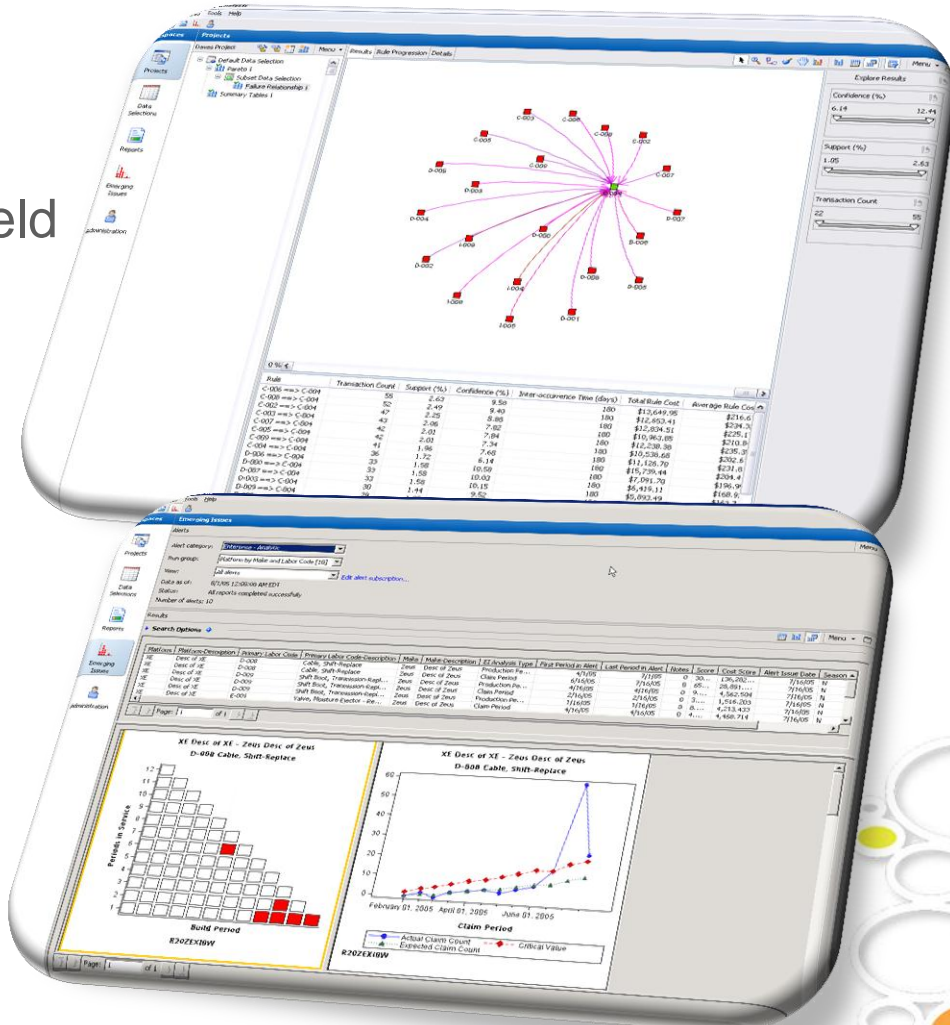


AFTER-MARKET SERVICE



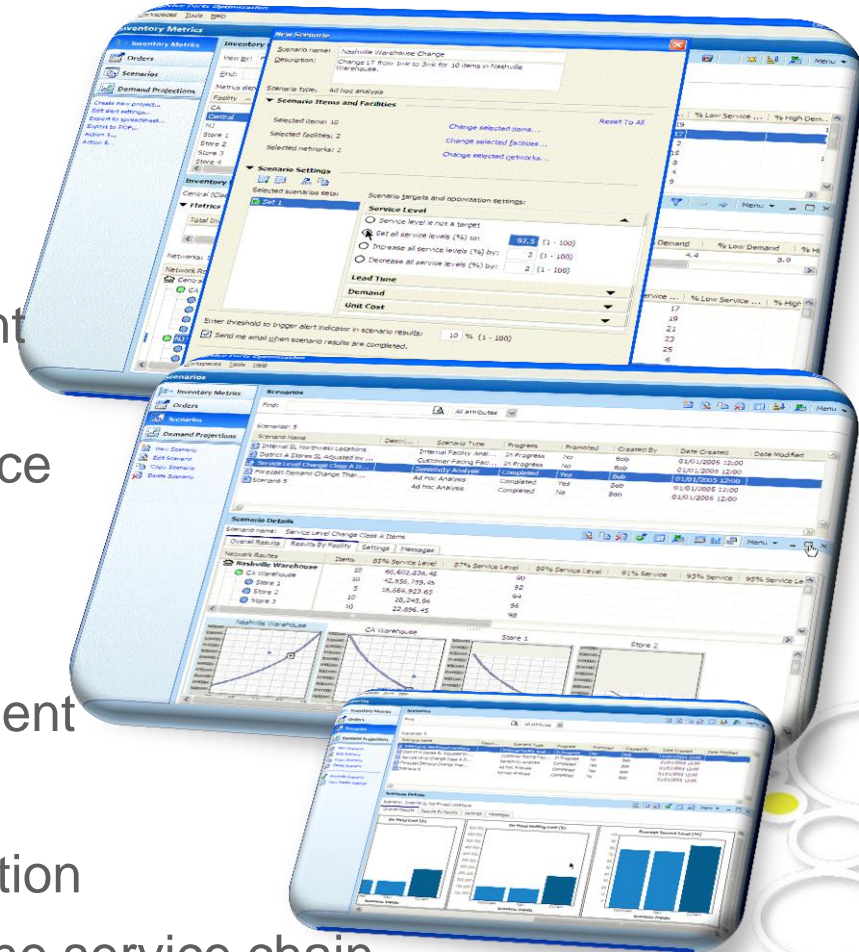
SAS[®] Warranty Analysis

- Key capabilities
 - Early issue detection from field data
 - Problem prioritization
 - Problem identification and definition
- Features
 - Data integration
 - Warranty-specific predictive analytics
 - Integrated text analysis
 - Easy reporting capabilities



SAS® Service Parts Optimization

- Key capabilities
 - Reduce stockouts and overages with accurate forecasting
 - Optimize inventory replenishment policies and order quantities
 - Achieve targeted customer service levels
- Features
 - Robust, effective data management
 - Accurate forecasts at every level
 - Multi-echelon inventory optimization
 - Information sharing throughout the service chain



SAS® Suspect Claims Detection

- Key capabilities

- Reduce service costs
- Maximize effectiveness of auditors' time
- Improve service network effectiveness
- Analyze and optimize parts usage
- Short time to implementation

- Features

- Scoring
- Data and text mining with predictive models
- Hosted solution - flexibility
- IT and analytics expertise

A screenshot of the SAS Suspect Claims Detection interface showing a detailed table of claims data. The table has columns for 'Part Description', 'Part Number', 'Part Name', 'Part Category', 'Part Status', 'Part Location', 'Part Date', 'Part Value', 'Part Status', 'Part Location', 'Part Date', 'Part Value', 'Part Status', 'Part Location', 'Part Date', 'Part Value'. The table contains multiple rows of data, including part numbers like '1980410' and '1980415', and part names like 'ALDIT No Parts' and 'BUCCO LPTA'. The table is presented in a clear, organized manner with alternating row colors for readability.

SAS® Call Center and Planning Optimization

- Key capabilities
 - Service demand forecasting
 - Staff supply optimization
 - Root cause analysis
 - Demand, behavior, performance drivers
 - Analytic agent performance measurement
 - Actual to demand tracking alert
- Features
 - High powered predictive modeling
 - Revolutionary optimization methodology
 - Demand / supply planning integration





SUCCESS STORIES



Challenge

- Capacity out of sync with Demand, resulting in shortages and excess.
- Monthly Forecast Frequency, limited Number of products and levels in the hierarchy
- 100+ independent Spreadsheets
- Limited department involvement in the forecasting process
- Unable to identify Emerging Trends and Exceptions

Solution

- SAS® Demand-Driven Forecasting
- Accurately forecasts demand to facilitate optimized production capacity planning

Results

- Sync capacity with demand for improved forecast accuracy to raise fill rate and reduce inventory
- Weekly Forecast frequency with Formal S&OP process, increase planning and product hierarchies
- Reduce Spreadsheets and provide a secure database for planning
- Identify Emerging Trends and exceptions

Canadian Pacific Railway Company



Challenge

- Increase average revenue per car. Decrease the cost of transport.
- Better allocate resources, such as the number of cars, rail tracks, mechanics, and their locations along with helping sales target the best customers.
- Forecast error is too high, creating inefficiencies in planning and execution for operations, finance, marketing and sales.

Solution

- SAS® Demand-Driven Forecasting
- Accurately forecasts the need / demand for transportation in order to optimally allocate resources such as rail cars, rail lines, mechanics, and other labor in their work force.

Results

- CP Rail can now identify who are the best customers to call on when a key index such as unemployment goes up.
- Reports now incorporate key economic indicators (price indices, unemployment, interest rates, and inflation) that are reflected in the demand for commodities they transport such as coal, wheat and fertilizers.
- Resource allocations are based on traffic volumes for transportation from origin to destination.





Challenge

- Poor forecasting models in SAP
 - Heavy bullwhip effects overstocked on slow movers
 - Under stocked on fast movers
 - No good alerts on stock outs or overstocked parts

Solution

- SAS® Service Parts Optimization

Results

- Improved customer service
- Improved inventory turns
- Improved forecast accuracy

"Our customers expect us to deliver parts overnight, weekend and in some cases within hours. It requires a very good transportation plan and a system that provides a good basis for planning and forecasting of inventory. The first thing we have . The logistics system we are now getting through SAS Institute."

Magne Svendsen

Managing Director, After Sales Kverneland





Challenge

- Downtimes caused by defect assets on its oil drilling platforms in the North Sea caused hundreds of thousands \$ in lost revenue
- Maintenance costs were far too high

Solution

- SAS® Predictive Asset Maintenance
- SAS® Performance Management
- SAS® Enterprise BI Platform
- SAS® Integrated Planning

Results

- Reduced unplanned shutdowns by 80%
- Increased production by 2 - 5%
- Increased productivity by 20%
- Reduced Operating Costs 5 - 10%
- Realized a 590% ROI in year one
- \$700 million operational savings over the following years



sas[®] forum SWITZERLAND 2012

make connections • share ideas • be inspired

www.sas.de

Rainer Kent Vogt

Business Competence Center Supply Chain • Germany

Tel: + 49 6221 415 3144 • Mobile: + 49 173 6652 310

Rainer.Vogt@ger.sas.com

SAS Institute GmbH • In der Neckarhelle 162 • 69118 Heidelberg

