SAS Manufacturing Intelligence Platform

Alexander Dähne
Business Development Manager – Manufacturing
SAS EMEA

seugi 21_vienna 2003
“Now more than ever, manufacturers need data integration and analytics across the supply chain, and flexibility to implement new business processes, to quickly define and implement strategic improvements.”

_A Slow Economy is the Time for Manufacturing Improvements_, Michael Burkett
What makes SAS different?

- SAS can provide end to end business intelligence and analytics.

<table>
<thead>
<tr>
<th>Data Access</th>
<th>Business Intelligence</th>
<th>Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>- ETL</td>
<td>- OLAP</td>
<td>- Statistics</td>
</tr>
<tr>
<td>- Data Quality</td>
<td>- Reporting</td>
<td>- Optimization</td>
</tr>
<tr>
<td>- Warehouse Admin</td>
<td>- Dashboards/Portals</td>
<td>- Neural networks</td>
</tr>
<tr>
<td></td>
<td>- Scorecarding</td>
<td>- Decision Trees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Text Mining</td>
</tr>
</tbody>
</table>

And..... ~ 1995 entered into the BI/Analytic packaged solution space: Financial Management, Supplier Relationship Management, Demand Intelligence, Warranty Analysis, Quality, etc..
Analytics Drive the Power of Information

SAS — designed to get the most value from data with Analytics in mind from the start.
Analytics Drive the Power of Information

Data → Information → Knowledge → Intelligence

- Raw Data
- Standard Reports & OLAP
- Ad hoc Reports
- Dynamic Reporting
  - Limited Analysis
    - How much did I spend with supplier X?
    - What are my top 10 quality issues?

Descriptive Statistics → Predictive Modeling → Optimization

$ROI

SAS — designed to get the most value from data with Analytics in mind from the start.
Analytics Drive the Power of Information

SAS — designed to get the most value from data with Analytics in mind from the start.
Analytics Drive the Power of Information

Power of Information

Data Mining
Predictive Analysis
Which customers are likely to leave my brand?
Will this batch meet design specifications?

Descriptive Statistics

Predictive Modeling

Optimization

$ROI

Raw Data
Standard Reports
& OLAP

Ad hoc Reports

SAS — designed to get the most value from data with Analytics in mind from the start.
Analytics Drive the Power of Information

Data Mining/Operations Analysis
Modeling

- What are my optimal transportation routes?
- What/how much should I build?

Optimization

Predictive Modeling

Descriptive Statistics

Ad hoc Reports & OLAP

Standard Reports

Raw Data

Data → Information → Knowledge → Intelligence

SAS — designed to get the most value from data with Analytics in mind from the start.
The Intelligence Gap

- Most companies:
  - Can’t generate the intelligence they need.
  - Can’t generate intelligence fast enough to act on it.
  - Continue to incur huge costs due to uninformed decisions and misguided strategies.

- The opportunities afforded by a successful intelligence strategy have never been greater.
Operational Efficiency
Competitive Advantage

- Leverage the operational investment
- A “must have” in all economic conditions
- Return on intelligence
SAS provides solutions for the Intelligent Enterprise
## Partial Manufacturing Customer List

- ABB
- Apple Computer
- AUDI
- Bosch
- BMW
- Bridgestone
- China Motors
- Coca Cola
- Compaq
- DaimlerChrysler
- Dell
- Delphi
- Federal-Mogul
- Fiat
- Ford Motor
- Fujitsu
- General Electric
- General Motors
- Harley-Davidson
- Heineken
- Hitachi
- HP
- Honda Motors
- IBM
- Intel
- Isuzu Motors
- Kodak
- Lavazza
- Maxtor
- Mazda Motor
- Mitsubishi
- Motorola
- Nestlé
- Nissan Motor
- Nokia
- Pirelli
- Renault
- Sanyo
- Sharp
- Siemens
- Sony
- Sun Microsystems
- ST Microelectronics
- Toyota Motor
- Volkswagen
- Volvo trucks
- Xerox
SAS Intelligence Solutions for Manufacturing

Corporate Performance Intelligence
SAS Strategic Performance Management

Buy
- SAS SRM

Make
- SAS Process Intelligence
- SAS Optimisation

Store
- SAS Demand Intelligence
- SAS VCA

Ship
- SAS Optimisation
- SAS VCA

Sell
- SAS aCRM
- SAS MA
- SAS Warranty Analysis
- SAS Demand Intelligence

Operations Intelligence
SAS VCA  SAS HCM  SAS FMS  SAS ITSM

SAS Intelligence Architecture
Plan  Quality ETL  Intelligent Storage  Business Intelligence  Analytic Intelligence
Competitive Advantage in Purchasing

- **SAS Supplier Relationship Management**
  - Alert buyers of suppliers at risk
  - Identify total spend by supplier (parent-subsidary)
  - Automatically identify contracts where rebates are at risk
  - Identify maverick spend (who, what, where, when)
  - Rate and rank all your vendors
  - Predict optimal procurement strategies across traditional and e-channels
Competitive Advantage in Production

- **SAS Quality Intelligence**
  - Accelerate root cause identification and problem resolution through the integration of shop floor data
  - Improve yield by identifying key correlations in the manufacturing processes
  - Reduce internal scrap and rework by early warning notification of potential problems
Competitive Advantage in Logistics

- **SAS Logistics Optimization**
  - Create an enterprise-wide view of the supply chain
  - Utilize network optimisation models to align production, packaging and distribution
  - Optimally utilize warehouse storage capacity and minimize finished goods inventory in distribution pipeline
  - Align transportation routes to minimize freight dollars
Competitive Advantage Sales & Marketing

- **SAS Demand Forecasting**
  - Produce highly accurate demand forecasts that consider multiple influences (seasonality, promotions, etc.) across all dimensions (product, customer, location, etc.)
  - Increase inventory turnover by optimising replenishment levels
  - Increase profit by optimizing price by product, customer, location, etc.
Competitive Advantage Sales & Marketing

- **SAS Warranty Analysis**
  - Automatically detect emerging issues
  - Quickly define issues for root-cause analysis
  - Forecast warranty expenses
  - Improve supplier recovery by utilizing detail cost and failure data to identify supplier responsibility
  - Automatically Identify suspect claims
Competitive Advantage Sales & Marketing

- **SAS Service Analysis/Predictive Maintenance**
  - Reduce repeat service visits by alerting dispatchers/technicians of ‘at risk’ service calls
  - Reduce warranty costs through early detection of service and part issues
  - Reduce spare-parts inventory by optimising technician and repair depot inventory levels
  - Reduce customer downtime through proactive alerts of potential equipment failure
Competitive Advantage Sales & Marketing

- **SAS analytical CRM/Marketing Automation**
  - Propensity scoring to **identify customers likely to buy**
  - **Customer profitability analysis** to determine which customer you should keep
  - **Up-sell/cross-sell analysis** that identifies who and when to pursue
  - **Churn analysis** that alerts you when customers are likely to switch brands
  - Multi-stage and multi-channel **campaign management** to improve campaign success rates
Operations Intelligence – *Competitive Advantage*

- **SAS Human Capital Management**
  - Government *compliance reporting*
  - Workforce *analysis* including “what-if” scenario building
    - Compensation, demographics, etc..

---

Copyright © 2003, SAS Institute Inc. All rights reserved.
Operations Intelligence – *Competitive Advantage!*

- **SAS Financial Management**
  - Financial reporting and analysis
  - **Budgeting** role-up’s and what-if’s
  - Cost **Forecasting**
  - **Activity Based Costing** to determine true costs
Operations Intelligence – *Competitive Advantage!*

- **SAS IT Service Management**
  - Resource analysis of both equipment and personnel (utilization, performance, etc.)
  - IT resource charge-back to business units for services consumed
  - IT Cost Analysis to…..

---

![Diagram of Operations Intelligence](image-url)
Corporate Performance Intelligence

– Competitive Advantage!

- SAS Strategic Performance Management
  - Strategy maps to develop and communicate corporate strategy
  - Key performance indicators to track and measure performance (traffic-light approach for quality, costs, flexibility, customer service, …)
  - Hierarchical views that link business unit performance to corporate performance
  - Provides a Balanced Scorecard approach to managing the business
Intelligence — the Only Competitive Advantage

- Superior intelligence leads to superior strategies, measurable value — and a sustainable edge.
- Differentiation based on intelligence is very difficult for competitors to replicate.
- Intelligence is the only asset that maintains its value regardless of the current economic situation.
“SAS Institute offers the most comprehensive, analytically rich business intelligence platform available in the market. There is no single vendor that offers the same analytic breadth and depth....SAS offers an end-to-end solution and there are no obvious full-scale alternatives.”

Gartner, July 2002