

# AN INTRODUCTION TO SAS



## AGENDA

## AN INTRODUCTION TO SAS



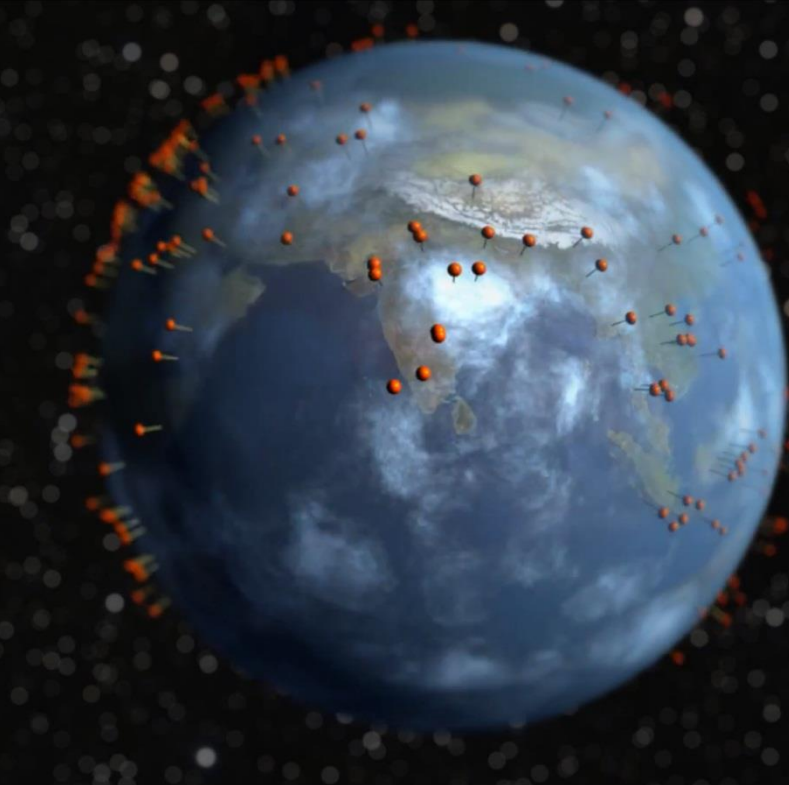
- SAS Corporate Timeline
- SAS Corporate Message
- SAS and Quality Control
- SAS Customers
- SAS Global Academic Program



# Corporate Timeline

YouTube

sas  
SOFTWARE



**TODAY**  
SAS has over  
**400** offices  
worldwide  
and over **12,000**  
employees

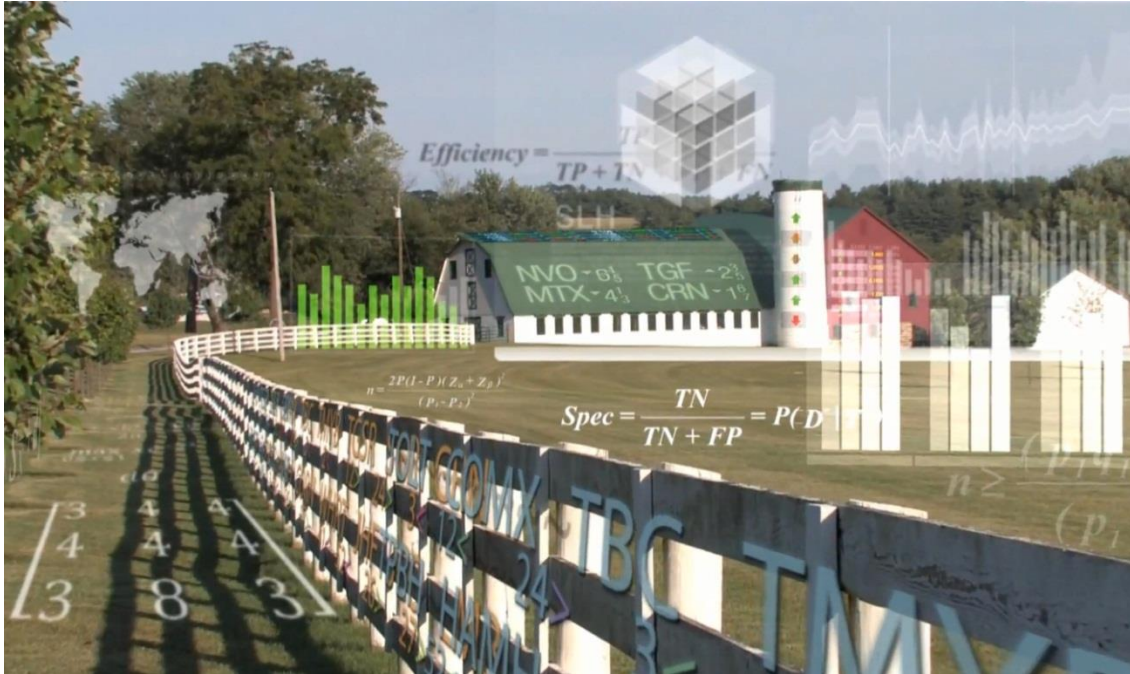
<http://youtu.be/XtO8hT8jZrM>

sas | THE  
POWER  
TO KNOW.





# IMPROVING HUMAN WELFARE IN 2013 INTERNATIONAL YEAR OF STATISTICS



<http://youtu.be/nTBZuQR7dRc>



# SAS CORPORATE MESSAGE

WHAT? – WHY? – HOW?



# What

ANTICIPATE OPPORTUNITY  
EMPOWER ACTION  
DRIVE IMPACT

# Why

COMMITMENT TO CUSTOMERS  
PEOPLE & SKILLS  
TECHNOLOGY

# How

BUSINESS SOLUTIONS  
INFORMATION MANAGEMENT  
ANALYTICS  
BUSINESS INTELLIGENCE  
HIGH-PERFORMANCE ANALYTICS



THE  
POWER  
TO KNOW®



## FORECASTING

Leveraging historical data to drive better insight into decision-making for the future

## DATA MINING

Mine transaction databases for data of spending patterns that indicate a stolen card

## TEXT ANALYTICS

Finding treasures in unstructured data like social media or survey tools that could uncover insights about consumer sentiment

## OPTIMIZATION

Analyze massive amounts of data in order to accurately identify areas likely to produce the most profitable results





## FORECASTING

How many products will be sold this year, next year?

How does this break down into each product over the next 3 months, 6 months?

...

## DATA MINING

Which products are customers likely to buy?

Which workers are likely to quit/resign/be fired?

Which customers are likely to churn?

...

## TEXT ANALYTICS

What are people saying about my products and services? Can I detect emerging issues from customer feedback or service claims?

...

## OPTIMIZATION

What is the least cost route for transporting goods from warehouses to final destinations? What is the optimal inventory and stock to be held of each of the products to minimize out of stock and overall holding costs?

...



**BUSINESS  
INTELLIGENCE**

**REPORTING**

**STATISTICS**

**VISUALIZATION**



Data Visualization  
 Predictive Analytics & Data Mining  
 Forecasting  
 Optimization  
 Model Management and Monitoring  
 Quality Improvement  
 Statistics  
 Text Analytics

**ANALYTICS**

Cloud Analytics  
 In-Memory Analytics  
 Analytics on Hadoop

Customer Intelligence  
 Fraud and Security Intelligence  
 IT & CIO Enablement  
 Performance Management  
 Risk Management  
 Supply Chain Intelligence  
 Sustainability Management

**CROSS-INDUSTRY SOLUTIONS**

**Products and Solutions**

**TECHNOLOGIES**

Business Intelligence  
 Data Quality  
 Data Integration  
 Master Data Management  
 Data Governance  
 Decision Management

Data Management on Hadoop  
 In-Database Solutions  
 Grid Computing

**INDUSTRY SOLUTIONS**

Automotive  
 Casinos  
 Communications  
 Consumer Goods  
 Defense and Security  
 Education  
 Financial Services  
 Government  
 Health Care Providers  
 Health Insurance  
 High-Tech  
 Life Sciences  
 Manufacturing  
 Media  
 Oil & Gas  
 Retail  
 Small & Midsize Business  
 Sports  
 Travel & Transportation  
 Utilities

# SAS FRAUD FRAMEWORK

## UNIQUE HYBRID APPROACH TO FRAUD ANALYTICS

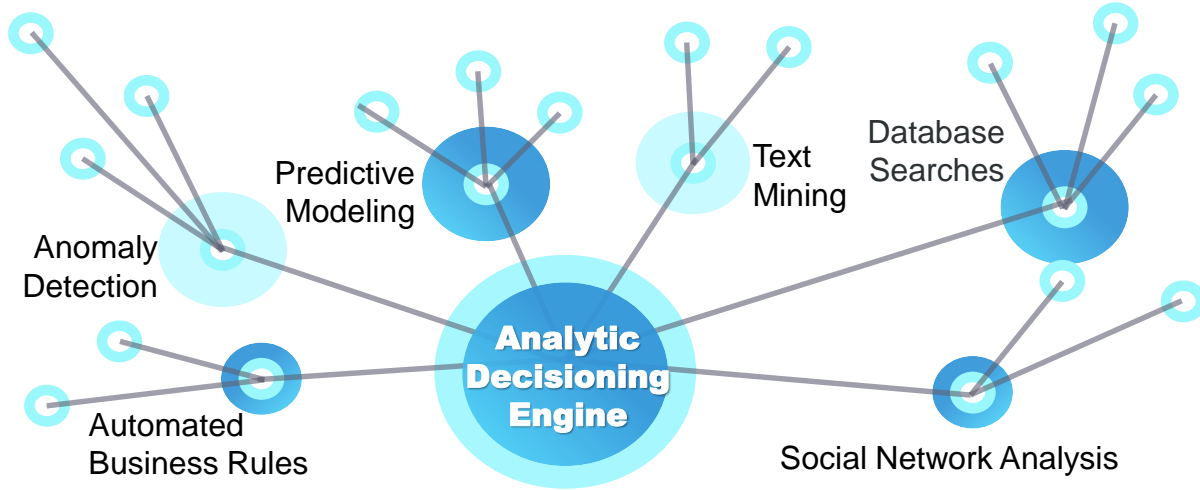
**Anomaly detection**  
**(example):** Looking for an injury claim that has an unusually large recovery time

**Business rule**  
**(example):** A claim is suspicious if it is submitted with a large delay after the event.

**Predictive modelling (example):** A claim being submitted on a Monday may be an input to the predictive model of a suspicious claim

**Text mining (example):** Similar suspicious accident descriptions occurring across multiple claims

**Database Searches**  
**(example):** Looking for matches across the lists of suspicious medical providers, lawyers etc.



**SNA (example):** Looking for connected claims that involve similar soft tissue injuries

# SAS SOCIAL NETWORK ANALYSIS – DEMONSTRATION VIDEO

SAS Social Network Analysis - Windows Internet Explorer

http://sasbap.demo.sas.com:8790/SAS/NA/index.jsp?sessid=... SAS Social Network Analysis

SAS Financial Crimes Monitor SAS Social Network Analysis... SAS Enterprise Case Manag... SAS Information Delivery Po... SAS @ Business Rules Mana...

SAS Social Network Analysis Log Off

Disposition Search

Alert Type	Name	UTR	Risk Score	Money At Risk	Risk Description	Bas
<input type="checkbox"/> Benefits, Income Tax	Lola Dean	8765678645	950	26000	Claiming benefits but rental income identified. high individual and address entry count in the network	1
<input type="checkbox"/> Income Tax	Barry Smith	6564644462	910	9500	No self assessment tax but income identified from third party	1
<input type="checkbox"/> Income Tax						1
<input type="checkbox"/> Child Benefit						1
<input type="checkbox"/> Income Tax						1

Filters

- Risk Description
- Name
- Risk Score
- Alert Type
- UTR

1 - 5 of 5 results

Start SAS Social Network A... Desktop EN 11:54 AM

# SAS AND QUALITY CONTROL





## Tylenol Recall Broadens; Includes Extra Strength, Benadryl

J&J Expands Previous Recall to Include Additional Tylenol Products

BY LARA SALAHI AND JOSEPH BROWNSTEIN  
June 16, 2010



8 COMMENTS

Print RSS FONT SIZE: A A A SHARE: Email Twitter Facebook YouTube LinkedIn [+]  
More

A Tylenol recall issued last year by the Johnson & Johnson unit of McNeil Consumer Healthcare because of chemical contamination has been expanded for a second time to include Benadryl Allergy Ultratablets and Extra Strength Tylenol.



Tylenol Extra Strength, shown in this file photo, and Roloids are two products that have now been...  
(Brendan Smialowski/Getty Images)

The latest recall includes four lots of Benadryl Allergy Ultratab tablets in 100 count bottles sold in the U.S. with lot numbers AJA008, ADA194, ABA022 and ABA264, and one lot of Tylenol Extra Strength Rapid Release Gel Cap with lot number ASA202.

**Click [HERE](#) to see a complete list of recalled medications**

The initial Tylenol recall expansion that was issued Jan. 15 included Roloids, Tylenol Extra Strength, and a number of other medicines. The company's press release stated that the latest expansion was issued

because the medications were mistakenly left out of the original recall.

60  
million  
bottles  
\$665M

\*Initial recall included 60 million bottles

# SAS MESSAGE CUSTOMER DRIVEN QUALITY

## Improve Yield, Reduce Scrap and Rework

- Automated process monitoring and alerting
- Integrated incident analysis
- Automated reporting

## Improve Customer Experience, Safety and Lower Warranty Costs

- Automated Early Warning
- Issue Impact Analysis
- Failure Definition and Root Cause Analysis

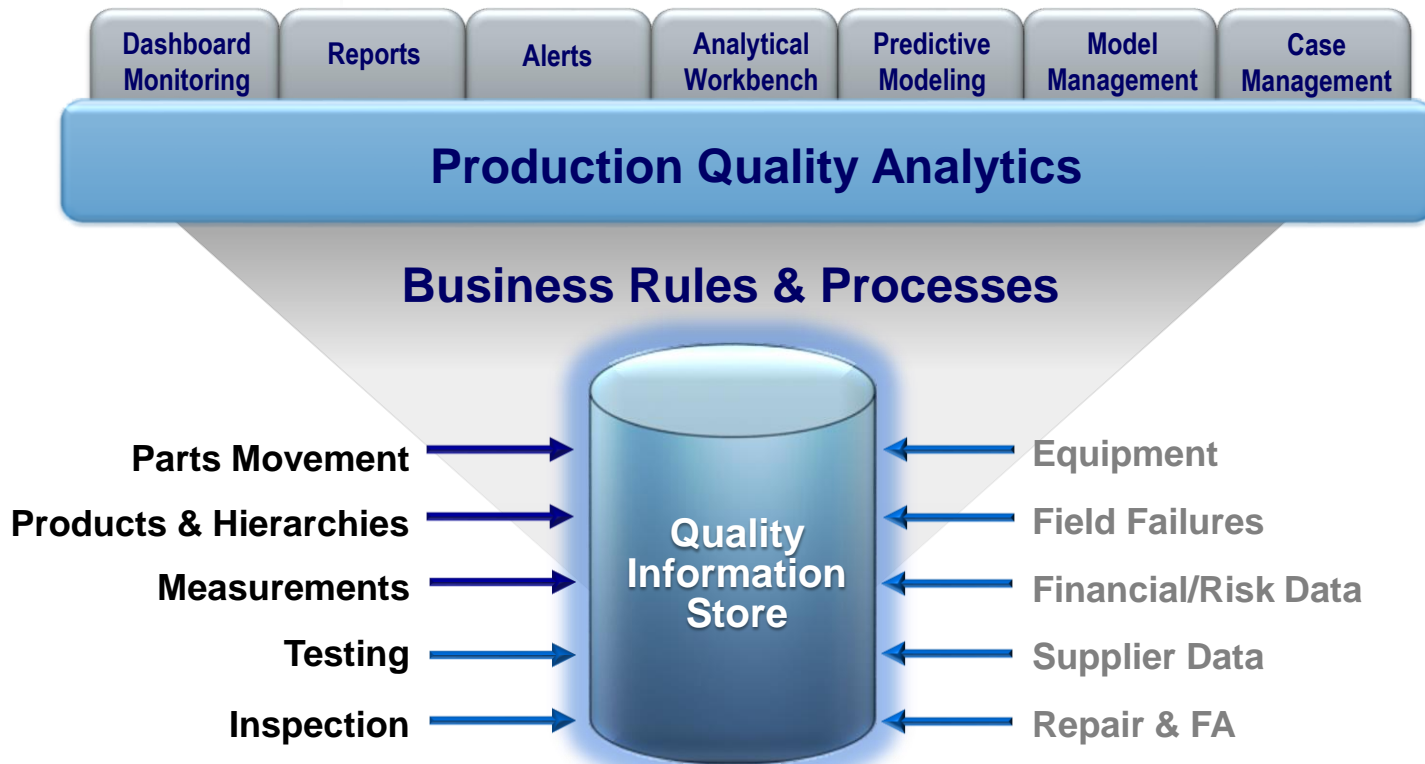


## Improve Asset Uptime, Safety and Reduce Operational Costs

- Integration of sensor, maintenance data
- Integrated Predictive Modeling
- Optimize Overall Equipment Effectiveness

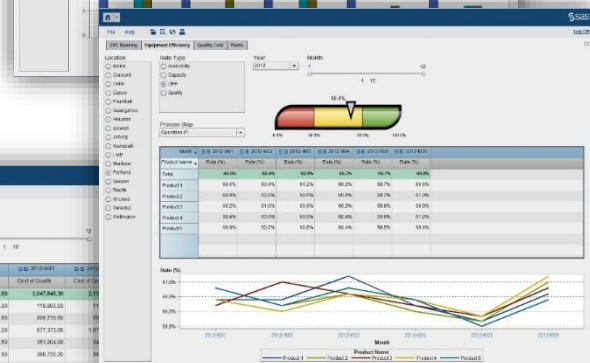
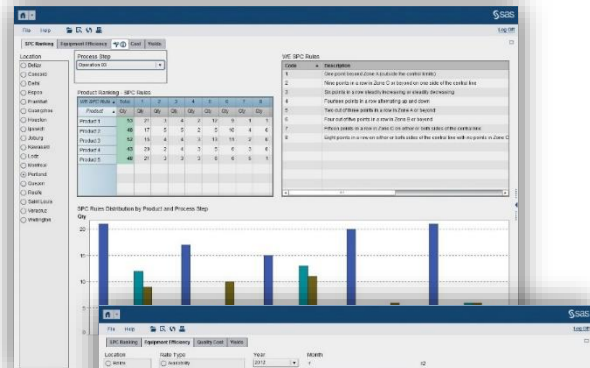
## Improve Perceived Quality, Identify Emerging Product Issues

- Integrate internal and social media data
- Leverage advanced text analytics
- Provide feedback to engineering for future design consideration.



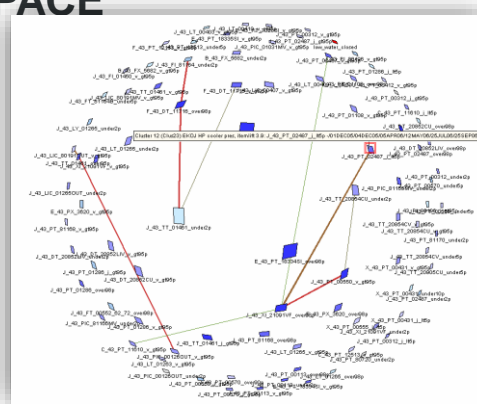
- Pre-defined Quality Reports
- Configurable
- Drillable reports
- Filtering and highlighting
- Self-service Reporting and Analysis

- Avoid creation of recurring manual reports
- Automated reports are available when they are needed
- Independency from IT
- High flexibility

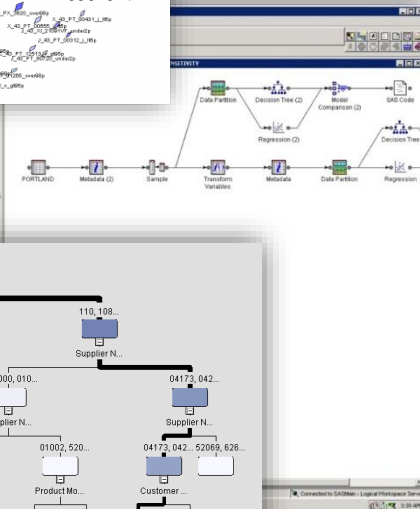


- Predictive Quality
  - Data Mining
  - Root Cause Analysis
  - Advanced Process Control

- Very complex problems can be solved
- Predictive modeling allows optimal set-up of process flows and process settings
- Root cause analysis finds out complex interdependencies between processes and assets



Property	Value
Name	SCENARIO 3: PRODUCT_PARAM
Short	Scen
Address	





# BUSINESS CHALLENGE – SAS ASSET PERFORMANCE ANALYTICS



If this unexpectedly fails



This plane is grounded (or worse)

This company loses money



# BUSINESS CHALLENGE – SAS ASSET PERFORMANCE ANALYTICS



If this company can  
**PREDICT...**

...when this part  
will fail



**MAINTENANCE** based on  
that prediction can keep  
this **ASSET** working



**CUSTOMERS**



# DBS

## BUSINESS ISSUE

- Reduce ATM cash-outs at peak hours
- Improve customer experience
- Streamline reloading process
- Lower bank's transportation costs

## SOLUTION

- [SAS® Forecast Server](#) and [SAS/OR®](#)

## RESULTS

- 20 percent fewer cash-outs
- 350,000 visits improved
- 10 percent fewer reloading trips
- 33 percent less cash left over

# BANKING

“Using this innovative solution, a first in the banking world, DBS is now able to convert valuable ATM usage and customer behavior data into a daily, weekly and even monthly execution plan, allowing for optimal reloading at non-peak times.”

## Nimish Panchmatia

Sr. Vice President, SSB  
Channel Operations

# WISTRON

## BUSINESS ISSUE

- Establish a next-generation service parts management system capable of forecasting demand in the coming three to six years.

## SOLUTION

- [SAS® Service Parts Optimization](#)

## RESULTS

- More precise forecasts and a clear picture of long-term inventory flow bring greater efficiency
- Cost savings
- Customer satisfaction

# MANUFACTURING

“With help from SAS, Wistron effortlessly deals with the complex management issues that arise from our successful and growing business.”

## Jack Chen

Senior Director of Operation  
Division



# POSCO STEEL

## BUSINESS ISSUE

- Goal to reduce scrap and improve throughput, output and quality.
- Implement a corporate-wide Six Sigma strategy

## SOLUTION

- Customer-Driven Quality: Quality Analytics

## RESULTS

- Quality Analytics implemented corporate wide utilizing the SAS
  - ROI of >\$14 million on Six Sigma Projects and \$1.5 million on other projects within first two years of implementation.

## PROCESS (STEEL) MANUFACTURING

*"Only SAS and its analytical power empowered us to discover fundamentally new insights into our physical processes. The end result was that we could decrease the scrap ratio from 15 percent to 1.5 percent, giving us a \$150,000 return on the investment on this part of process alone."*

### Ill-Chul Shin

Manager and "Master Black Belt"



Run

Technology Analysis | Compatibility | Pareto Frontier Comparison | Probabilistic Analysis | Fleet Definition and Analysis | Fleet Noise Analysis | Developer Files



# JMP DASHBOARD APPLICATION DEVELOPED FOR NASA

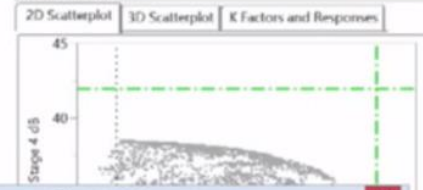
Environmentally Responsible Aviation

- Select Vehicle
- Technologies**
- Advanced ITD GF Cycle
  - UDF Cycle
  - Advanced TBC Coatings - HPT Blade
  - Advanced TBC Coatings - HPT Vane
  - Advanced TBC Coatings - LPT Blade
  - Advanced TBC Coatings - LPT Vane
  - Aft Cowling Liners
  - Blisk
  - Combustor Noise Plug Liner
  - Composite Technologies (2010 Baseline)
  - Excrescence Reduction
  - Fixed Geometry Core Chevrons
  - Gust Load Alleviation
  - Lip Liner
  - PMC Fan Blade with Metal Leading Edge
  - Polymer Matrix Composites (PMC) - Bypass Duct
  - Polymer Matrix Composites (PMC) - Fan Case
  - Polymer Matrix Composites (PMC) - Fan Stator
  - Polymer Matrix Composites (PMC) - Nacelles
  - Ti-Al - LPT Aft Blades
  - Ti-Al - LPT Forward Blades
  - Ti-Al - LPT Stator
  - Zero Splice Inlet
  - Active Compressor Clearance Control
  - Active Compressor Flow Control
  - Active Film Cooling
  - Active Turbine Clearance Control
  - Active Turbine Flow Control - ADD
  - Active Turbine Flow Control - GTF
- Indicate/Toggle: None Selected Toggle ID

### Selected Technologies

- Advanced ITD GF Cycle
- Save Tech
- Name: Tech
- Technol**
- Clear (GF)
  - Clear (UDF)
  - ITD GF
  - ITD UDF
  - allNoise
- Add Vehicle
- Load Surrogates?
- OK
- ITD Pac**
- Apply Full ITD Package
- Remove ITD subset:
- ITD12A
  - ITD21A
  - ITD21C
  - ITD40
  - ITD50A
  - ITD30A
  - ITD35A

### Metric Analysis



Select Vehicle

Select Vehicle:

- LSA - TW - GF
- LSA - OWN - GF
- LSA - TW - UDF
- LTA - TW - GF
- LTA - B27A - GF
- LTA - BXW - GF
- LTA - HWB - GF
- LTA - HWB - UDF

OK

- Color By
- Fuel Burn % Reduction
  - NOx % Reduction
  - Cumulative Noise dB
  - Noise Margin Below Stage 4 dB
  - None

**Selected Case:**

Technology Package from Scatterplot

Technology Package by Number:

Show Package for Common Technologies

Show Technology Difference

Reset Data Table | Show/Hide Technologies

Indicate Pareto Front | Show Pareto Front

Toggle Views

Top

Side

Front

Angle 1

Angle 2

Angle 3

Zoom

Size



[http://youtu.be/o9ZN2dc\\_WU8](http://youtu.be/o9ZN2dc_WU8)

Noise Analysis

# SAS GLOBAL ACADEMIC PROGRAM



# SOFTWARE

## JMP

JMP Clinical  
JMP Genomics

## SAS EAS

Education Analytical Suite

## EAS Add-ons:

Data Mining  
Text Analytics

# SAS ONDEMAND FOR ACADEMICS

SAS OnDemand for Academics provides a no-cost online delivery model to professors for teaching and students for learning data management and analytics. By connecting to a SAS server in the cloud, users access the analytical power of SAS software through a user-friendly, point-and-click interface.

Read more: [sas.com/academics](https://sas.com/academics)



Product Brief  
SAS® OnDemand for Academics  
[▶ Download Now](#)

**SAS® Analytics U is a global academic initiative that includes:**

- Free SAS software.
- Free e-learning courses and tutorials.
- University partnerships.
- Engaging user communities.
- Opportunities to connect companies with analytic talent.

Learn more at [sas.com/analyticsu](https://sas.com/analyticsu).



For the next generation  
of analytics leaders.

## RESOURCES FOR:

Professors

Students

Researchers

## OPTIONS FOR SAS AND JMP

### SAS Global Academic Program

- Free Tutorials
- SAS Online Resource for Statistical Education
- Generation SAS (blog)
- SAS Student Ambassador Program
- SAS Student Network
- Certification (global)



- Academic Webcasts
- Interactive Learning Modules
- JMP Learning Library
- JMP Case Study Library
  - Medical Malpractice
  - Priority Assessment
  - Lost Sales



**THANK YOU**

**JOS.VAN.DER.VELDEN@SAS.COM**



**THE  
POWER  
TO KNOW<sup>®</sup>**