TECHNOLOGY TRENDS FOR BIG DATA ANALYTICS
WHAT IF YOU COULD...

. . . predict the buying behavior and decision criteria of your prospects weeks before your competition

. . . gain first-mover advantage by introducing new products and services to micro market segments that haven't been identified by anyone

. . . evaluate the impact of your marketing campaigns hourly and make adjustments in real-time
SAS Analytics refers to features of SAS software that offer data-driven insight for better decisions.

SAS Analytics encompasses a range of techniques for collecting, analyzing, and interpreting data in order to reveal patterns, anomalies, key variables, and relationships.

We offer a comprehensive suite of analytics software to help you reduce uncertainty, to predict with precision, and to optimize performance.
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

ANALYTICS

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

INFORMATION MANAGEMENT

REPORTING

VISUALIZATION

STATISTICS
EXTERNAL VIEWPOINT
CHALLENGES IN ANALYTICS ADOPTION

Data, quality, integrity & consistency: 25%
Access to the right data: 23%
Departmental silos: 22%
Too many do not know how to use business analytics to make decisions: 20%
Lack of appropriate analytical staff: 19%

Source: The Current State of Business Analytics: Where Do We Go From Here?
Prepared by Bloomberg Businessweek Research Services, 2011
Big Data

When volume, velocity and variety of data exceeds an organization’s storage or compute capacity for accurate and timely decision-making
TRADITIONAL ARCHITECTURE

ENTERPRISE ARCHITECTURE APPROACH OFTEN NOT APPLIED TO ANALYTICS INFRASTRUCTURE
NEW ANALYTICS LIFECYCLE

BUSINESS MANAGER
Domain Expert
Makes Decisions
Evaluates Processes and ROI

DATA SCIENTIST
Data Exploration
Data Visualization
Report Creation

ANALYTICAL DBA
Model Validation
Model Deployment
Model Monitoring
Data Preparation

DATA MINER / STATISTICIAN
Exploratory Analysis
Descriptive Segmentation
Predictive Modeling

IDENTIFY / FORMULATE PROBLEM
DEPLOY MODEL
VALIDATE MODEL
BUILD MODEL
TRANSFORM & SELECT
DATA EXPLORATION
DATA PREPARATION
EVALUATE / MONITOR RESULTS
Technology Checklist for Big Data Analytics

- A flexible architecture that supports many data types and usage patterns
- Upstream use of analytics to optimize data relevance
- Real-time visualization and advanced analytics to accelerate understanding and action
- Collaborative approaches to align Business and IT executives
SAS BUSINESS ANALYTICS FRAMEWORK

Data Tier: Analytic Data Warehouse / Marts
Relational Data Store

Server Tier: SAS Compute Server
SAS Metadata Server

Metadata Tier: Web Application Server

Web Tier: SAS Web Reporting Clients

Client Tier: SAS Analyst's Desktops

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HIGH-PERFORMANCE ANALYTICS

KEY COMPONENTS

ANALYTICS INFRASTRUCTURE

SAS® HIGH-PERFORMANCE ANALYTICS

SAS® Grid Computing

SAS® In-Database

SAS® In-Memory Analytics

DEPLOYMENT FLEXIBILITY:

On-Premise  Cloud

ARCHITECTURE FLEXIBILITY:

SMP  MPP  Grid
SAS Enterprise Analytic Architecture

Business Value
- Highly accurate & decisive results
- Derive faster time-to-insights
- Expedite time-to-decision for competitive advantage

IT Value
- Superior performance and scalability
- Better data governance
- Optimal IT Resource usage
INFORMATION MANAGEMENT

STREAM IT, SCORE IT, STORE IT

ENTERPRISE

DECISIONS / ACTIONS / DATA

LOW COST STORAGE

RAW RELEVANT DATA
CUSTOMER CASE STUDY

TRADITIONAL ANALYTICS PROCESS

DATA EXPLORATION

MODEL DEVELOPMENT

MODEL DEPLOYMENT

3 HRS
### Past Approach
- Daily process begins with flat file creation at 6:30am – SLA delivered

### In-Database Approach
- Daily process begins at 4:00am with EDW load.

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#### Business Value

- Scope of customer analysis: 350K vs. 40M
- Monthly collections: $1M-$3M per month

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<thead>
<tr>
<th></th>
<th>Past Approach</th>
<th>In-Database Approach</th>
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<tbody>
<tr>
<td>Score</td>
<td>30 MINUTES TO SCORE ~350k customers</td>
<td>4 MINUTES TO SCORE ~40M customers</td>
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<tr>
<td>Analysis</td>
<td>done in database against ALL customer rows</td>
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</table>
Bottom-line Impact: Tens of Millions of Dollars
WHY DO WE CARE?

MARKET OPPORTUNITY

YOUR

COMPETITIVE

ADVANTAGE

Orient

Observe

Act

Decide

Act

Decide

Orient

Observe

YOU

00172

THEM

00125
Trusted, analytical-based decisions are needed across the organization.
SAS® HIGH-PERFORMANCE ANALYTICS

HIGHEST PRECISION

GREATEST DEPTH AND BREADTH

BEST BUSINESS OUTCOMES

UNRIVALED PERFORMANCE
CONCLUSION

Final Thoughts

- Big Data represents opportunity to enhance market leadership – how do we leverage this medium for timely decisioning?
- The analytical life cycle is accelerating – how do we help our customers keep pace?
  - High-Performance Analytics is THE enabling technology
- Business and IT alignment is critical to success – how do we facilitate the establishment of common objectives and priorities?