Advanced Analytics Data to Smart Decisions

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INFORMATION-LED TRANSFORMATION **IBM** Information

THE MA

ON Demand 2010

Agenda

Overview of Advanced Analytics

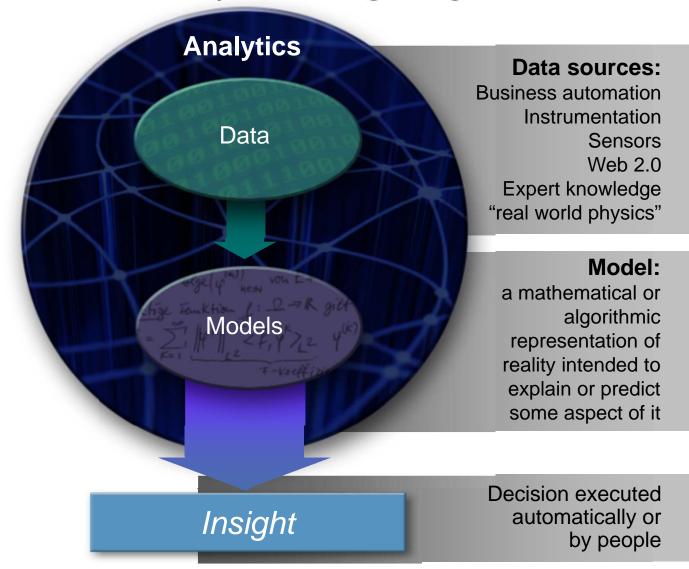
The Importance of Advanced Analytics Today

- →IBM's Approach
 - Healthcare
 - Supply Chain
 - System Risk Modeling

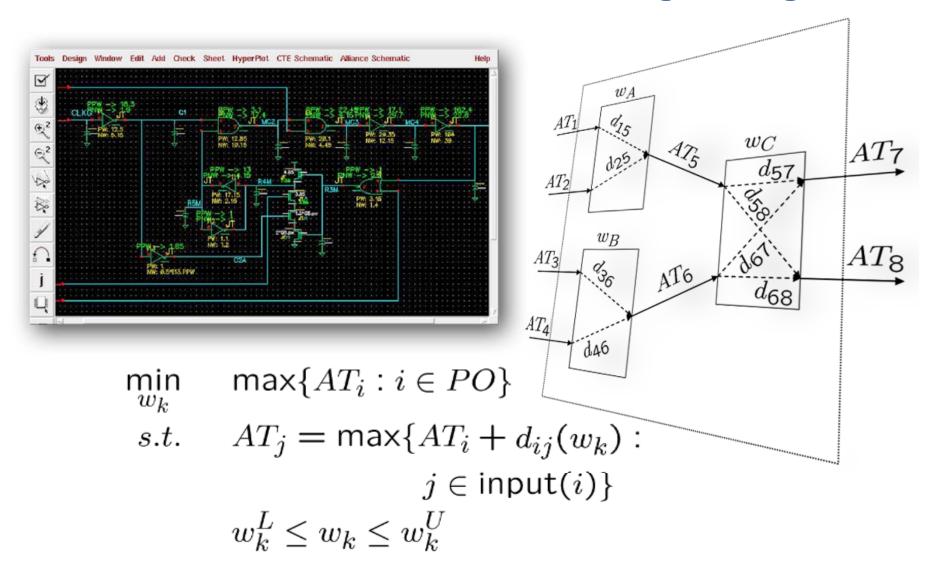


Advanced Analytics

is the use of data and models to provide insight to guide decisions



Models Have Been Used for Decades in Engineering



Some Instances of Advanced Analytics Have Become Mainstream

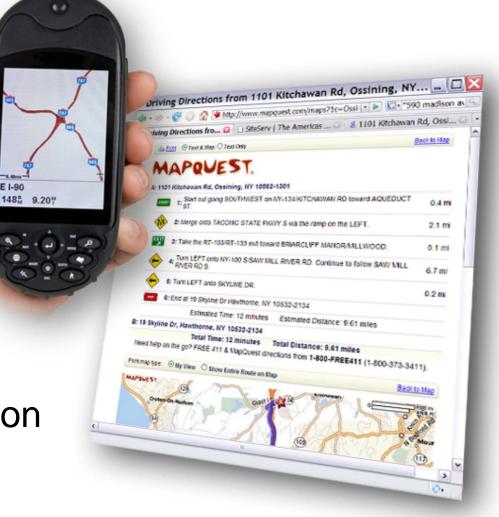
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Digital Maps

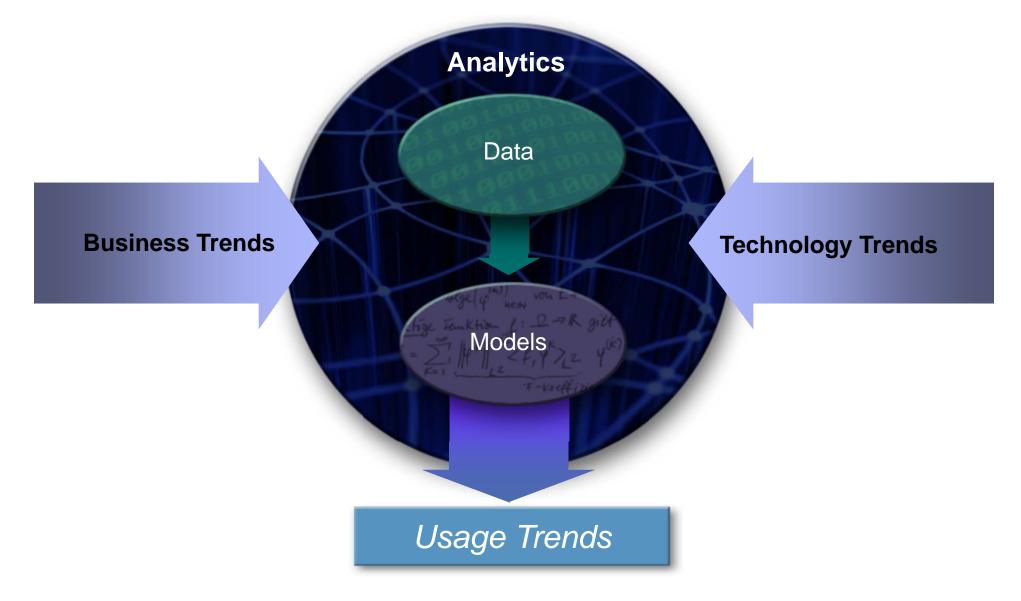
→User interface

Robust Algorithm

Sufficient computation power



Why Are Advanced Analytics Important Now?



Advanced Analytics Provide Competitive Advantage

Sales Analytics for Claims analytics saved SSA over \$2 billion and reduced the average approval time by 70 days Collection **Optimization will**

Customer Relationship **Analytics for MTN** reduces customer churn

IBM increases

revenue by

over \$1B

Optimized generation saves Red Eléctrica de España €50,000 per day

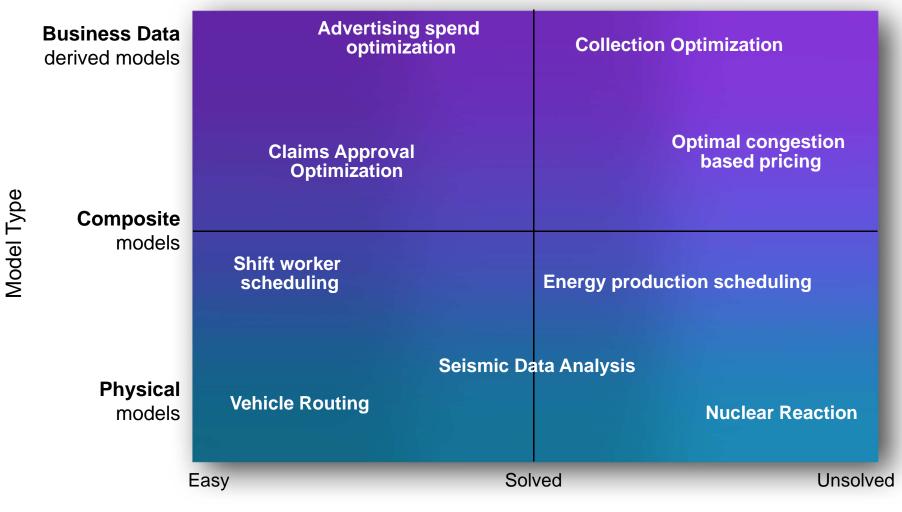
increase NY revenue by \$100M over 3 years

Analytics Landscape

Competitive Advantage	Stochastic Optimization	How can we achieve the best outcome including the effects of variability?	Prescriptive	
	Optimization	How can we achieve the best outcome?	-	
	Predictive modeling	What will happen next if ?		
	Forecasting	What if these trends continue?	Predictive	
	Simulation •	What could happen?	Fredictive	
	Alerts	What actions are needed?		
	Query/drill down	What exactly is the problem?		
	Ad hoc reporting	How many, how often, where?	Descriptive	
	Standard Reporting	What happened?		
Degree of Complexity				

Based on: Competing on Analytics, Davenport and Harris, 2007

Analytics Opportunity Framework



Computational Complexity

IBM Approach

Business Data derived models

Business Consulting and Customized Applications

→New GBS Service Line

Model Type

models		
	IBM HW/SW Products	Cross IBM
	Nate question Duois etc.	Collaboration
	Integration Projects	→IBM product Lab Services
Physical	→Solution Assets	Super computing

Vendor Partners

Physical models

Composite

Cloud computing

research

Research Frontier

→First of a kind projects

University Collaborations

→Government sponsored

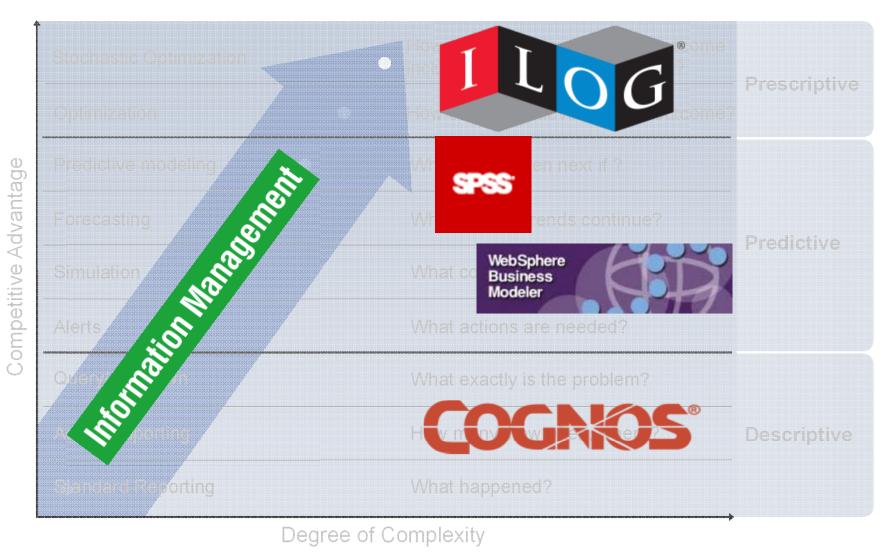
Easy

Solved

Unsolved

Computational Complexity





Based on: Competing on Analytics, Davenport and Harris, 2007

New Analytics Workload Optimized Systems

Custom Solutions

IBM Servers, Storage, Software and Services

A wide ranging portfolio for assembling a customized Analytics environment.

IBM Smart Analytics System

Optimized Analytics Solutions

Powerful and flexible system with a growing spectrum of analytics capabilities to simplify deployment, optimize performance and.. speed better business results..

Fast, Flexible, Affordable



...

Analytics solutions for any client need

InfoSphere Balanced Warehouse with Solid State Disk storage

Optimized 1.8TB Datamart

IBM Smart Analytics Optimizer Technology Preview

Optimize existing Data systems

Integrates into your existing environment to optimize analytic query performance, without replicating data across the enterprise.

Technology preview on System z



Today's News...

Analytics workload optimized systems

Healthcare Analytics: Selected Activities and Opportunities



Clinical

EuResists improves prediction of patient response to therapy to 76%

Timely alerts prevent sepsis

Opportunities:

Comparative Effectiveness Research, Detecting drug interactions, Prognosis Prediction

Operational

Fraud and Abuse Management reduces improper payments by 40%.

Opportunities: Forecasting Workforce management



Scheduling

Policy/Strategy

KAISER PERMANENTE®

Mining huge collection

of treatment and

diagnosis data

Public health modeling

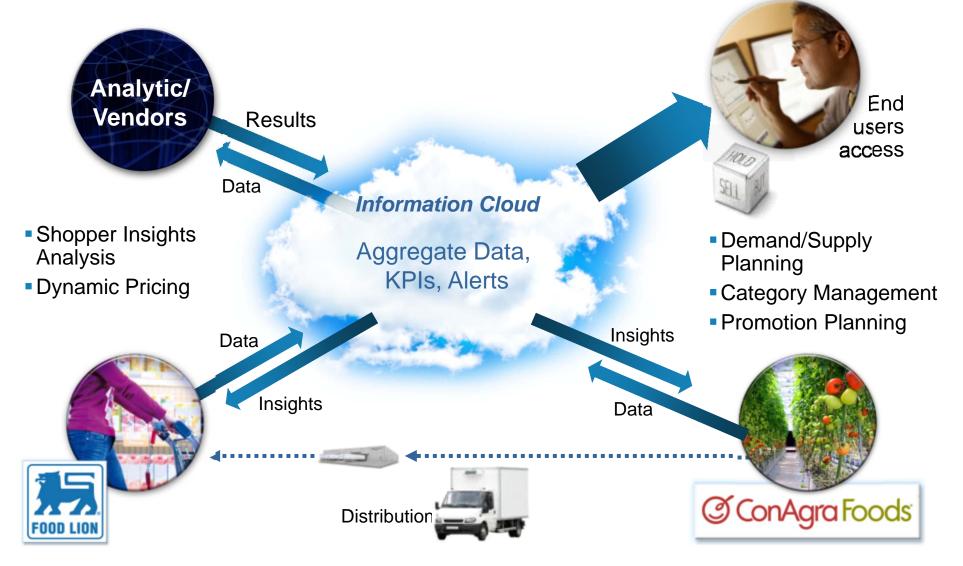


Opportunities:

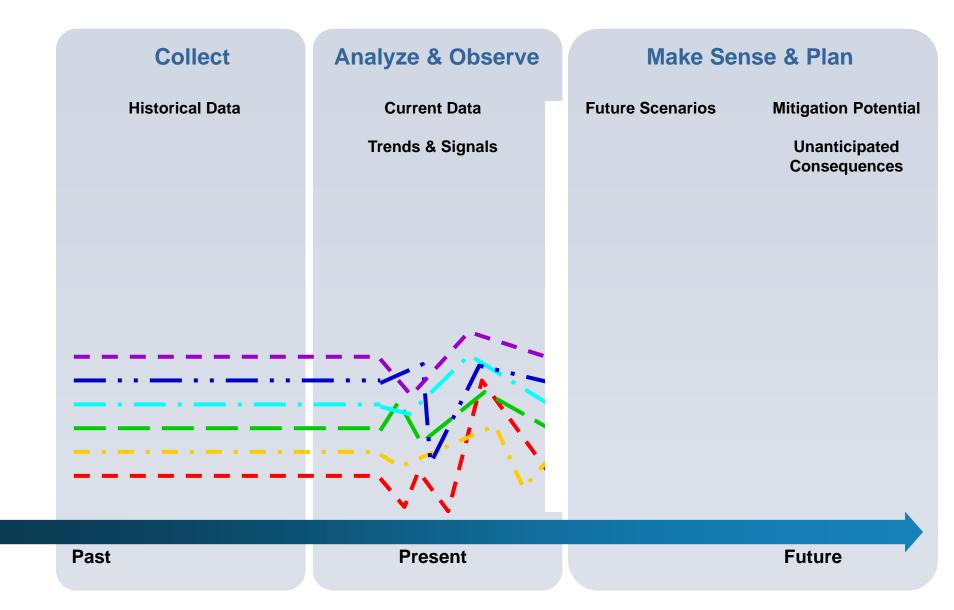
Outcome-based reimbursement Policy analysis

The Next Generation of Supply Chain Analytics

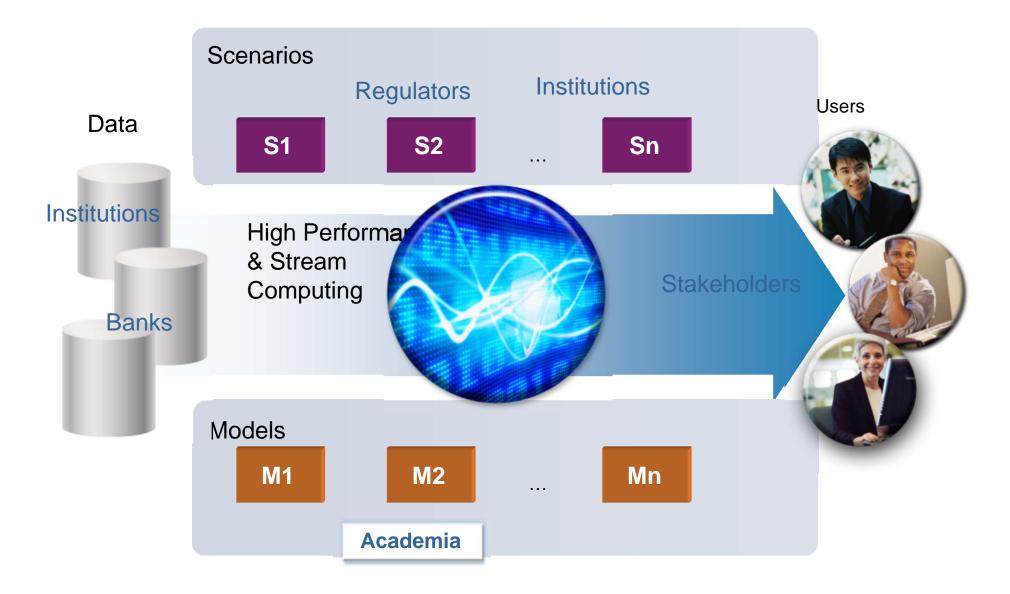
Requires Cross Enterprise Data Aggregation



Prototyping Capabilities Needed to Model Systemic Risk



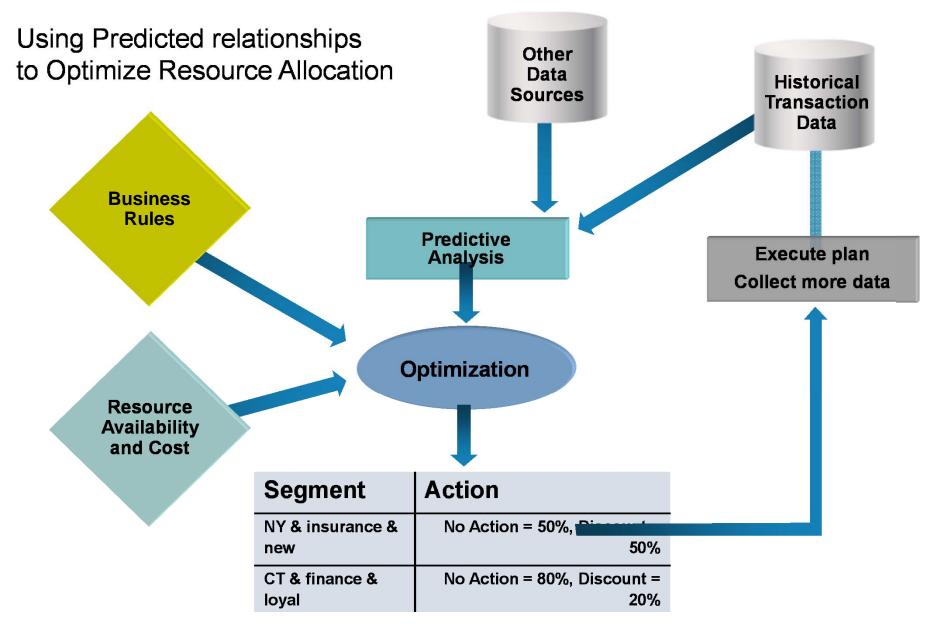
Prototyping Capabilities Needed to Model Systemic Risk



Research Frontiers

 Robust solvers for nonlinear models Computationally efficient methods to respond to new data Use of Predictive relationships generated from data 	Prescriptive
 Detecting non-linear predictive relationships New methods for massive data sets/Parallel Hardware Establishing methods for creating and utilizing meta-data to document assumptions and limitations of models and methods 	Predictive
 Analysis of streaming data from sensors Massive data sets from the "mobile web" Extensions of statistical techniques from Manufacturing to other domains 	Descriptive

Tax Revenue Collection Optimization



Summary

Advanced analytics extending from the domain of science & engineering to the world of business

- Fueled by the availability of data, computational power and the need to make better choices
- IBM is positioned for leadership in the new era of data-driven business management
- IBM's advanced analytics capability is a marketplace differentiator
- Our collaboration with clients is enabling discovery in new areas
- Significant research opportunity remains

