

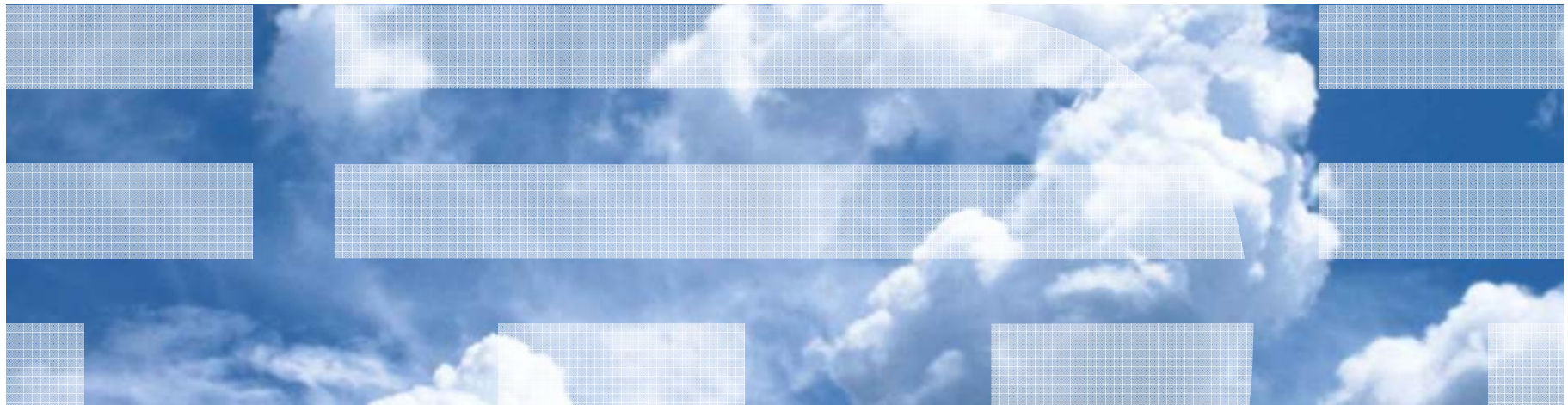
# Leveraging Predictive Analytics for Business Insights

*25 November 2010*

*Alvin Chua*

*Predictive Analytics Solutions Architect*

*IBM Software Group, Asean*



# AGENDA

- **Predictive Analytics Defined**
- Realizing New Value from Predictive Analytics
  - Enterprise-class Delivery
  - Real-time Analytics
  - Decision Management
- Business Successes

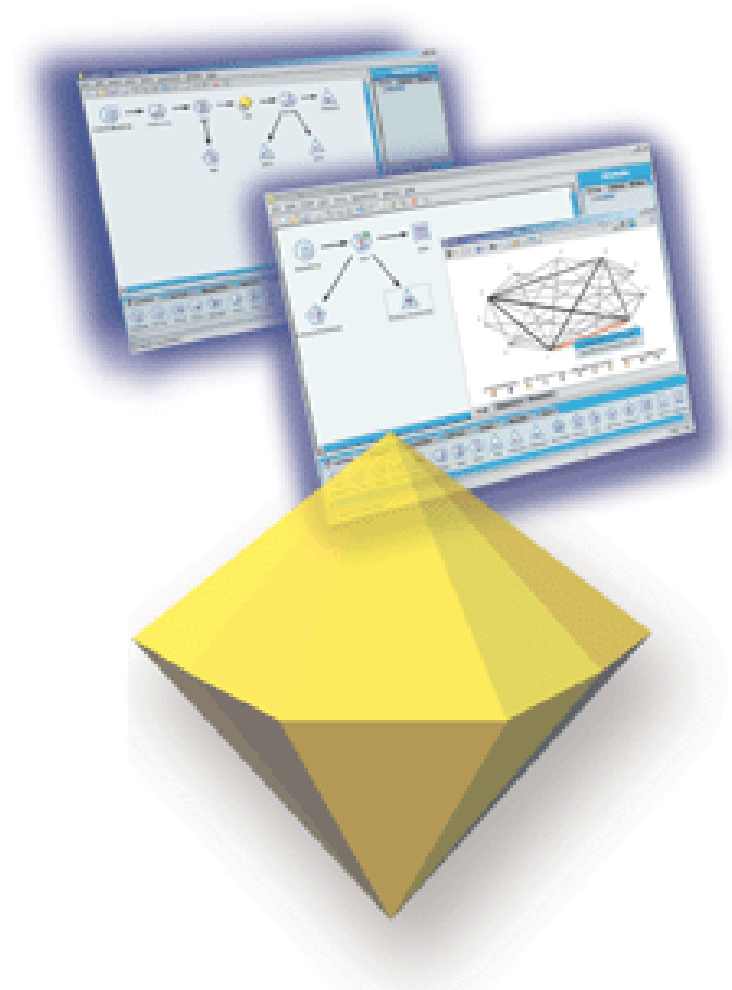
## *Predictive Analytics*

- Data driven approach to problem solving
- Leverages organizational data
- Uncovers patterns using statistical and computational techniques
- Uses results to help improve organizational performance



## *What type of problems does Predictive Analytics address?*

- Predict & Diagnose
  - Class membership
  - Numeric Value
- Segment / Find Outliers
  - Cluster things together based on their characteristics/attributes
- Associate
  - Find events that occur together
  - Find events that occur in a sequence / time frame



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# 5 stages of analytics competence

Stages of analytical competence



- Organization is flying blind
- Reactive with poor quality data
- Poorly integrated systems

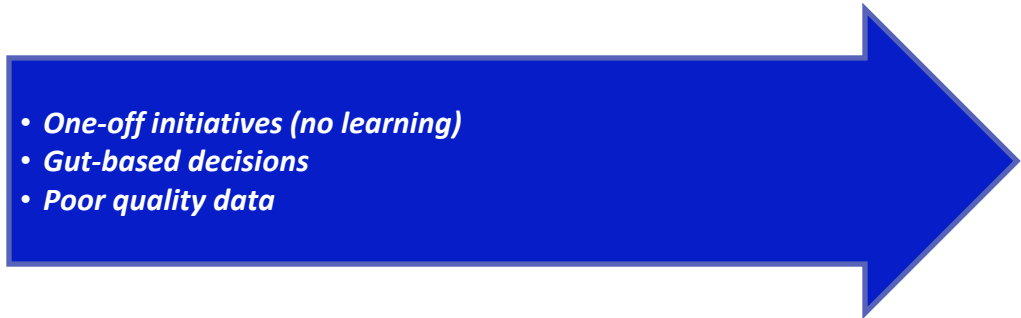
- Analytics efforts isolated, opportunistic & limited to specific functions like marketing.
- Activities have produced *some* economic benefits.

- ✓ More benefits seen at individual LOB level.
- ✓ Executives make a commitment to broader use of analytics but yet to realize benefits at an enterprise level.

- ✓ Organization develops an enterprise-wide analytics capability
- ✓ Analytics is a corporate priority. Cross LOB benefits begin to kick in.

- ✓ Organization is routinely reaping big benefits from analytics
- ✓ Focus is on making analytics business advantage renewable.

Maturity of Capabilities



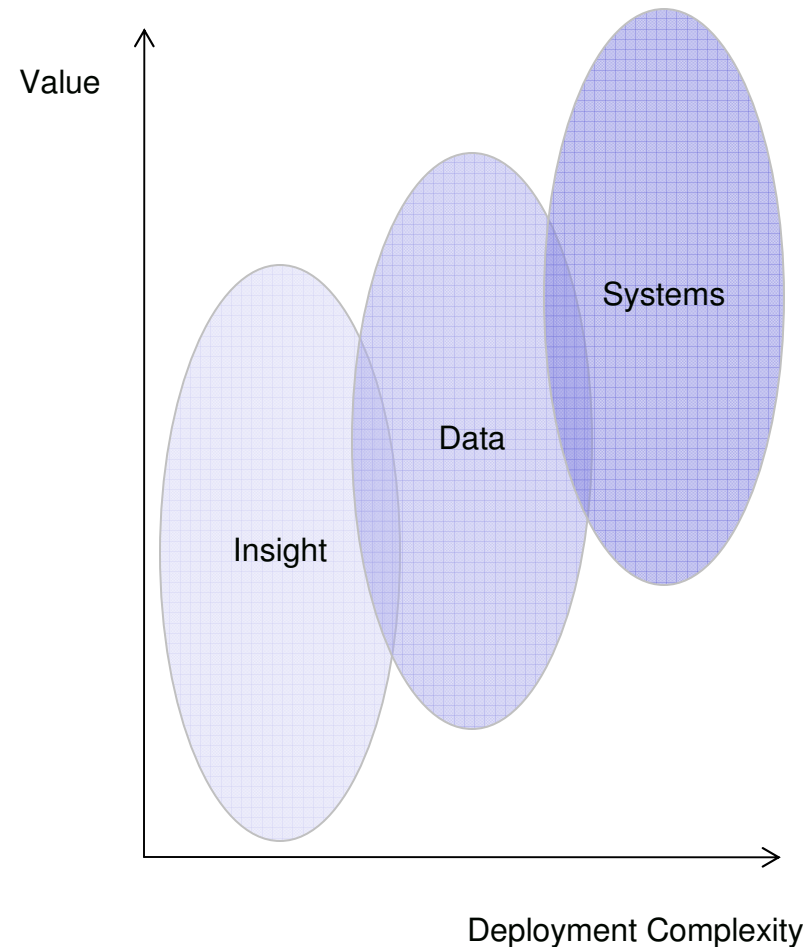
- *One-off initiatives (no learning)*
- *Gut-based decisions*
- *Poor quality data*

- *Fact-based and test-and-learn culture*
- *Analytical processes integrated across organization*
- *Insights driven by strategic objectives*
- *Enterprise-wide infrastructure*

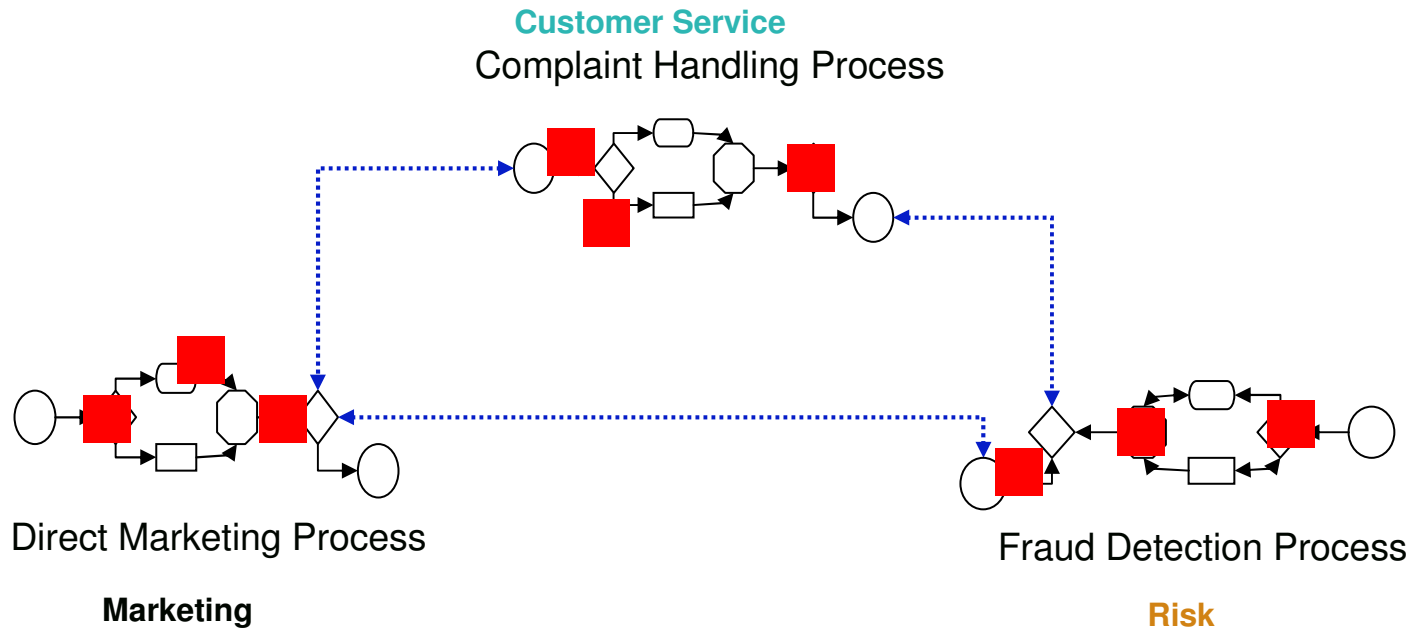
Source: Analytics Competency Framework from 'Competing on Analytics' by Thomas H. Davenport.

## Deployment Approaches

- Three deployment approaches
  - Deployment through Insight
  - Deployment through Data Integration
  - Deployment through System Integration



# Enhanced Business Processes



*Using predictive analytic results...*  
*... to enhance business processes*

 Predictive Intelligence



# *Enabling the Analytic Enterprise requires more than statistical algorithms...*

## Enablers for Analytics-led Capability

PEOPLE & SKILL SETS



**Analytic Enablers**



INFRASTRUCTURE &  
TOOLS

PROCESS

## *Predictive Analytics Tools That Want To Deliver True Enterprise Analytic Processes need to address...*

### PEOPLE



- Requires power analysts, not just statisticians, empowered by easy-to-use, powerful analytic toolkits
- Include consumers during development, not just analytic professionals. Infrastructure to facilitate collaboration between analytic players
- Ease administrative overheads, automation capabilities allows analytic professionals to focus on building good models rather than managing models.

### PROCESS



- Enables enterprise processes, not just standalone insights. Open architecture extends analytic output to existing systems
- End-to-end capabilities for data capture, insight mining, campaign ideation, development and execution and tracking, consistent across all analytic touch points
- Process to manage and maintain analytics models to assess effectiveness and need for recalibration

### INFRASTRUCTURE



- Integrated real-time business execution leveraging both predictive intelligence and business expertise and rules
- Authorization and Authentication capabilities that integrate with the enterprise security infrastructure
- Auditing functionality to ensure integrity of business-critical analytical assets
- Scalable architecture that adapts to changing business needs

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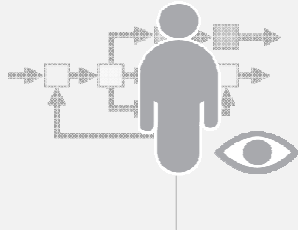
# Imagine if you could...

*...predict infection in premature newborns 24 hours earlier*

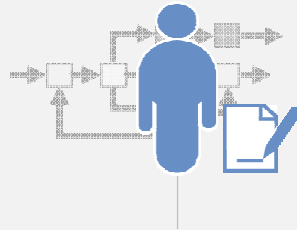
*...predict response based on context and cues during the call*

*...adjust credit lines as transactions are occurring to account for risk fluctuations*

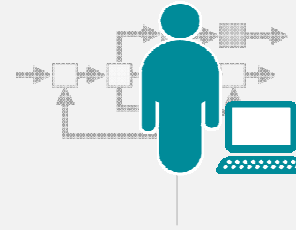
*...determine who to offer discounts at time of sale instead of offering to all*



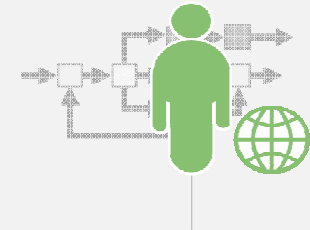
*Physician*



*Call Center Rep*



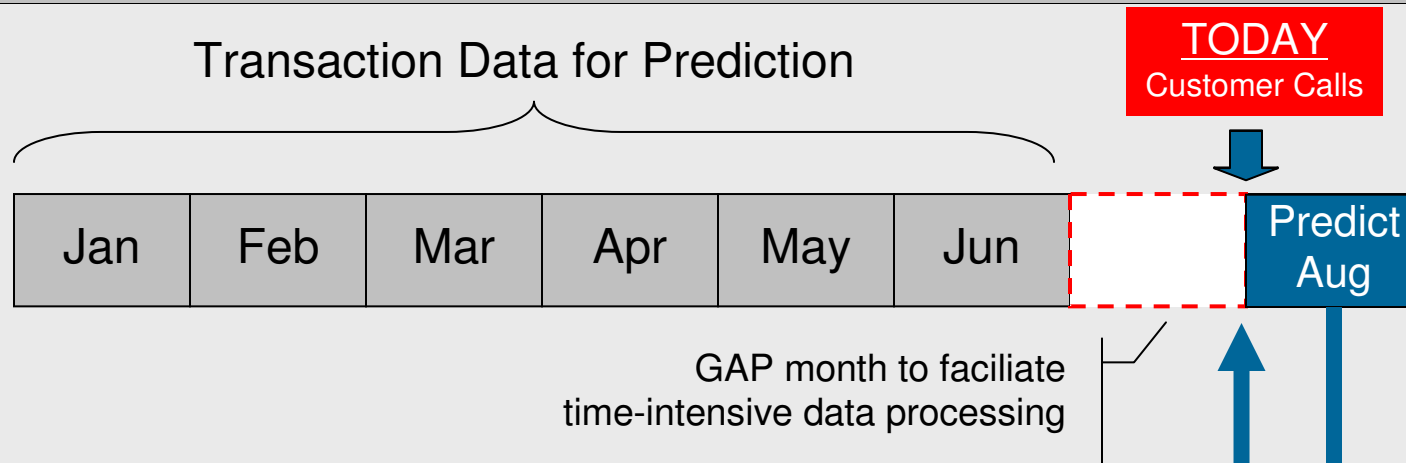
*Loan Officer*



*Retail Sales Associate*

# Real-time Scoring Enhances Predictive Performance

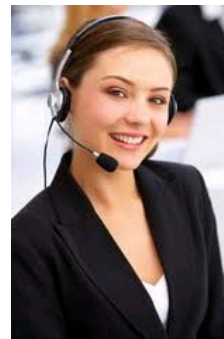
## Traditional Batch Scoring Environment



## RealTime Scoring Environment



Customer Calls

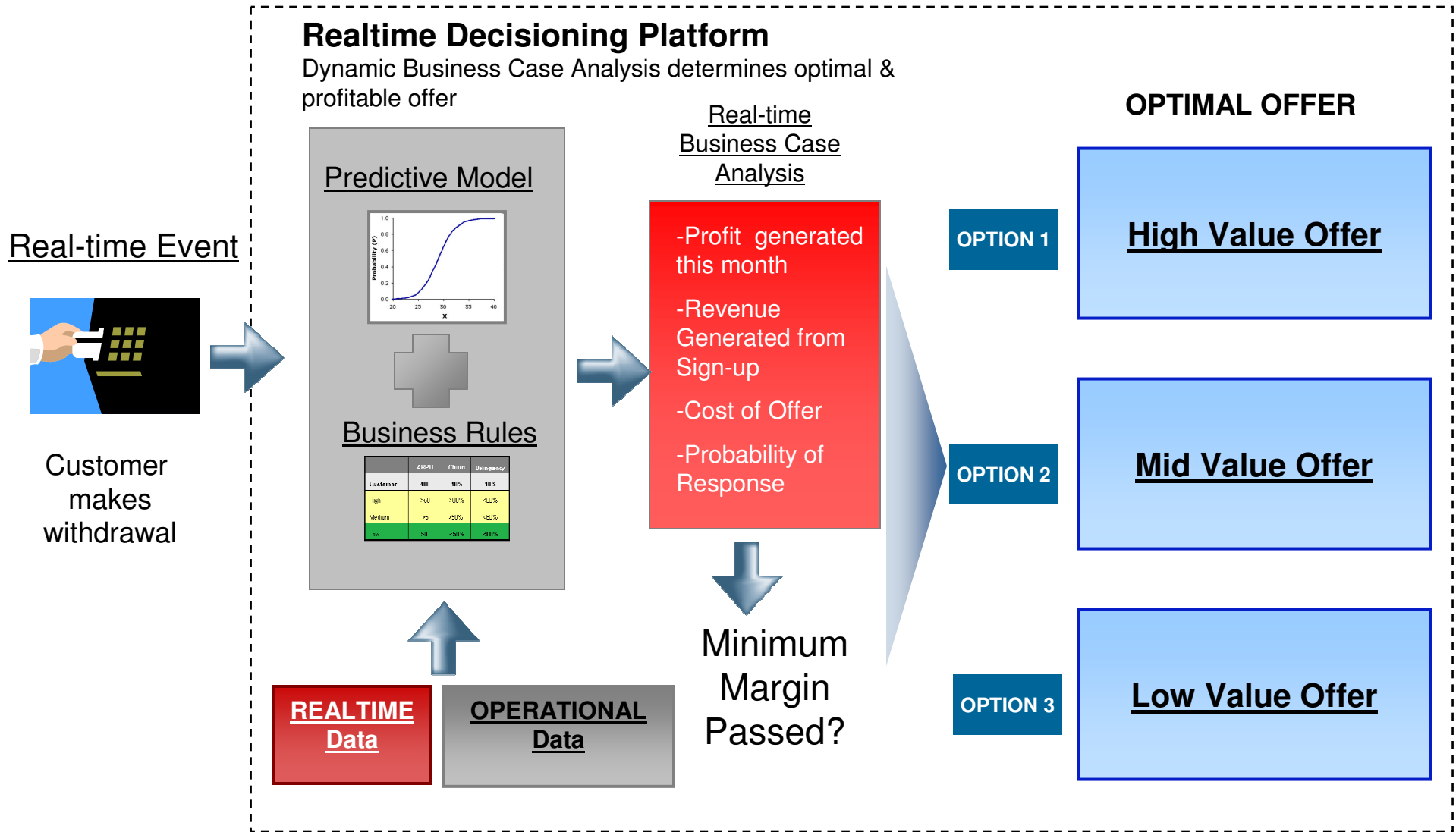


Service agent provides contextual feedback to model



Model triggers service agent script based on churn propensity

# Real-time Promotion - Revenue Assurance



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## *So How Does Enterprise Decision Management help?*

Leading Expert James Taylor says:

*“Decision management makes it possible, for the first time, to use predictive analytics as an integral part of a real-time decision process.”*

- It's not just rules...
- It's not just predictive scores...
- It's not just business intelligence...
  
- It is the best way for business people to take advantage of predictive analytics in solving decision making problems.
- [www.jtonedm.com](http://www.jtonedm.com)

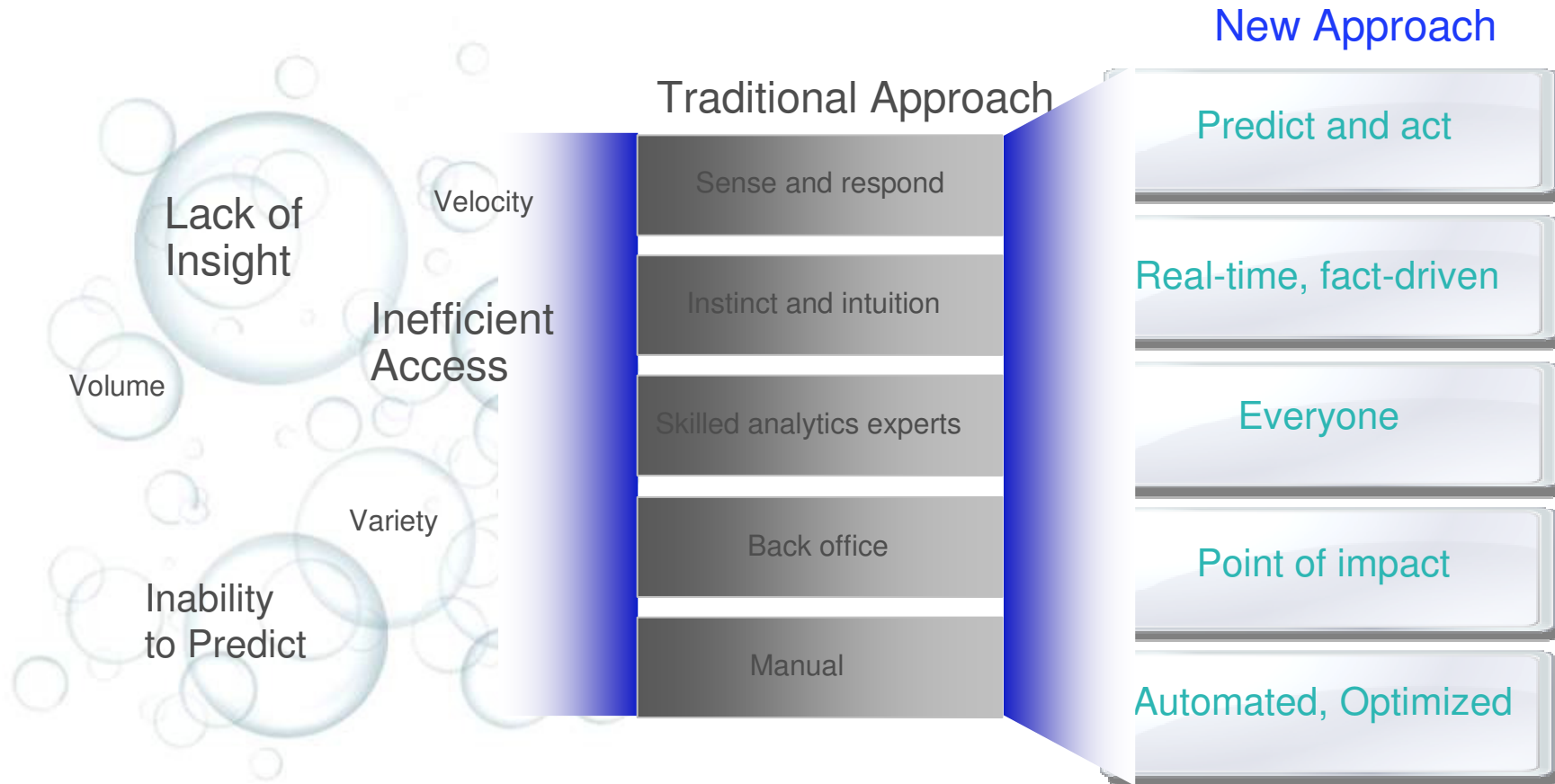


James Taylor is a leading expert in Decision Management and an independent consultant specializing in helping companies automate and improve critical decisions.

*Organizations must improve their ability to turn information - especially information generated in real time - into insight to optimize business performance*



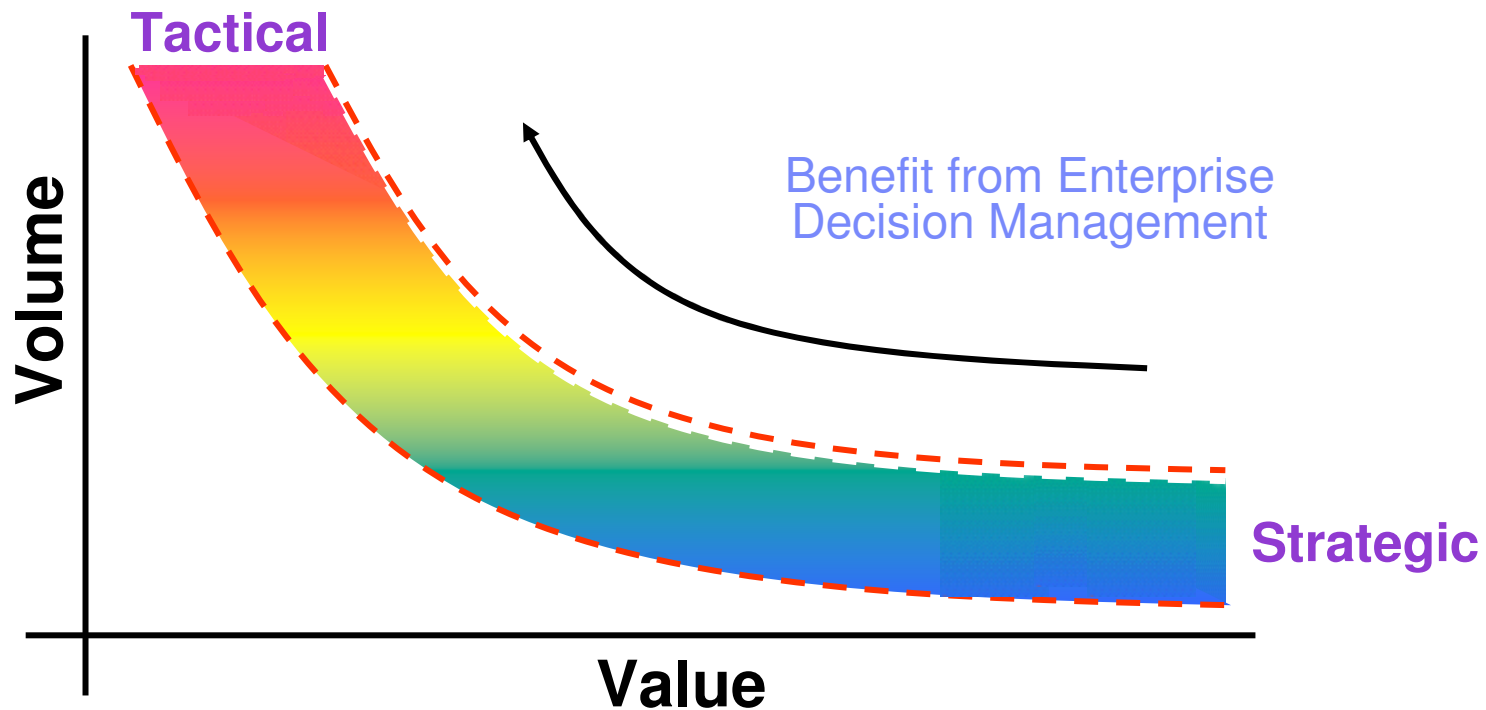
# *New Ways of Working to Optimize Decisions and Actions*



**Decision Management helps organizations optimize decisions for better results**

## When is Decision Management Beneficial? Decisions Vary in Scope & Quantity

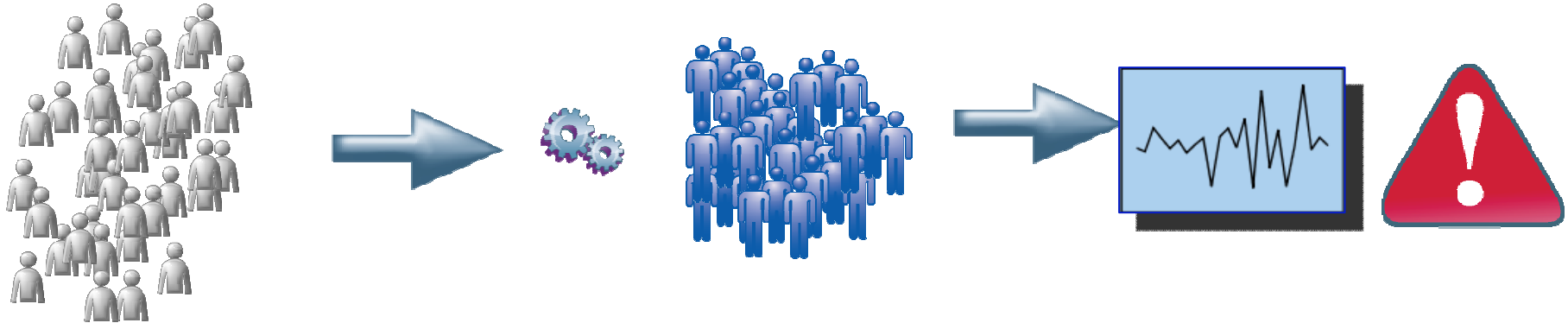
Type	Decision	Value	Frequency	Impact
Strategic	Support Contract?	\$500,000	1 /years	\$500,000
Tactical	Next Best Offer?	\$75	20,000 /week	\$5,200,000



# What is the Impact of Decision Management?

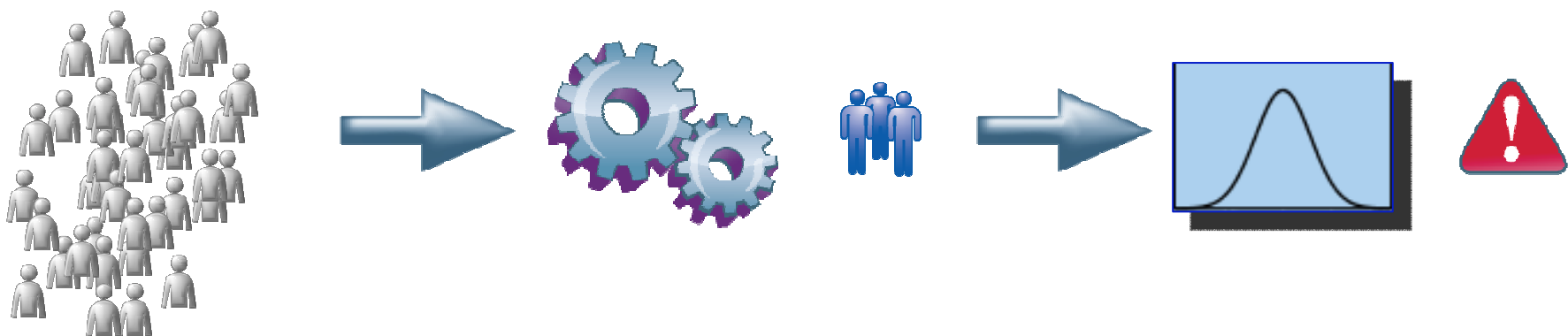
Before

Big complex projects with lots of dependencies and high levels of uncertainty are required



After

Simple projects with few dependencies and low levels of uncertainty are required



# User-friendly Interfaces That Facilitate Intelligent Decisions Deployment

**What If...** ? X

**Simulation Data Source:** 
**Simulation Date:**  15
**Claim Area:**

Combine matrix		Model actions			Results		
		Refer	Standard	Fast Track	Action	Count	Percent
Rules actions	Refer	Refer ▼	Refer ▼	Standard ▼	Fast Track	710	91.03%
	Standard	Standard ▼	Standard ▼	Standard ▼	Refer	3	0.38%
	Fast Track	Fast Track ▼	Fast Track ▼	Fast Track ▼	Standard	67	8.59%
						780	100%

Name:

---

Total Simulation Records: 975

Display  Number of runs retained: 2

Action	Run 1 ✖	Run 2 ✖	Distribution
Fast Track	680	710	
Refer	62	3	
Standard	38	67	
Total	780	780	

## *Examples of Decision Management Solutions*

- Customs & Border Protection

- Problem: I can't search every car that crosses the border.
- Question: Which car should I search?
- Expertise: Agents with latest intelligence adding knowledge
- Decision: Car with license IL 132 requires searching



- Infinity

- Problem: I can't investigate every claim for fraud.
- Question: Should I investigate this claim?
- Expertise: Investigators continually providing insight
- Decision: Low Risk Claim → Fast-track



- Cablecom

- Problem: I can't save every customer.
- Question: Is it worth trying to save this customer?
- Expertise: Fast paced CRM strategy managed my marketing
- Decision: High Value Customer → make retention offer



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# Predictive Analytics: Acting at the Point of Impact



**Center for Disease Control**  
*Improve Health Care and Patient Outcomes*

- Quickly capture and filter in real-time vast amounts of data on critical public health issues found through interviews, email and the Internet
- Better characterize diseases, identify risk factors and quickly assess medical needs of specific populations
- Plot the expected course of outbreaks and plan responses for improved public safety



**Cablecom GmbH**  
*Reducing Customer Churn*

- Identify early indicators of customer churn using data collection surveys and data and text mining, tailoring direct marketing efforts as a result
- 100% improvement in churn detection and an initial reduction in actual churn from 19% to 2%
- 53% of its dissatisfied customers became company promoters



**Richmond Police Department**  
*Predict and Prevent Criminal Activity*

- Identify and predict crime patterns through timely analysis of incident reports, tips and service calls
- 20-30 % decrease in violent crime and homicides in a 12-month period
- Pinpoint “hot spots” and place tactical units where they are needed most



**Infinity Property and Casualty Corporation**  
*Reducing Fraud*

- Real-time claims scoring to determine whether claims are legitimate
- Cut referral time from 14 days to less than 24 hours on Special Investigation claims
- Identified and addressed subrogation claims at twice the speed – from 26 to 10 days

END

Thanks for your attention!