

Transforming Your Business with BIG Data

Noel Garry, European Insurance Big Data Leader



Analytics is driving peak performance



Arthur Ashe Stadium - Men's Singles - Final

	N. Djokovic	2	6	4	1	
MATCH COMPLETED		1	2	3	4	5
	R. Nadal	✓ 6	3	6	6	
Elapsed Time by Set:		42	58	61	40	



MATCH STATISTICS

OVERALL MATCH STATS		SERVE STATS	RETURN STATS	RALLY STATS	DIRECT. SERVE STATS
Novak Djokovic	Stats	Rafael Nadal			
6	Aces	1			
2	Double faults	1			
69/102 (68%)	1st serves in	78/121 (64%)			
40/69 (58%)	1st serve points won	51/78 (65%)			
16/33 (48%)	2nd serve points won	24/43 (56%)			
127 MPH	Fastest serve	125 MPH			
112 MPH	Average 1st serve speed	110 MPH			
88 MPH	Average 2nd serve speed	85 MPH			
22/36 (61%)	Net points won	17/23 (74%)			
3/11 (27%)	Break points won	7/12 (58%)			
46/121 (38%)	Receiving points won	46/102 (45%)			
46	Winners	27			
53	Unforced errors	20			
102	Total points won	121			

KEYS TO THE MATCH

Novak Djokovic	Rafael Nadal
1. Win more than 57% of 4 to 9 shot rallies. ❌	1. Win more than 48% of 4 to 9 shot rallies. ✅
2. Win more than 39% of first serve return points. ❌	2. Win more than 63% of points on first serve. ✅
3. Win between 63 and 73 of winners on the forehand side. ✅	3. Average less than 6.5 points per game serving. ❌





Approximately 200 monitors on every car



30 TB of data generated by each car in each race

IBM Smarter Business 2013



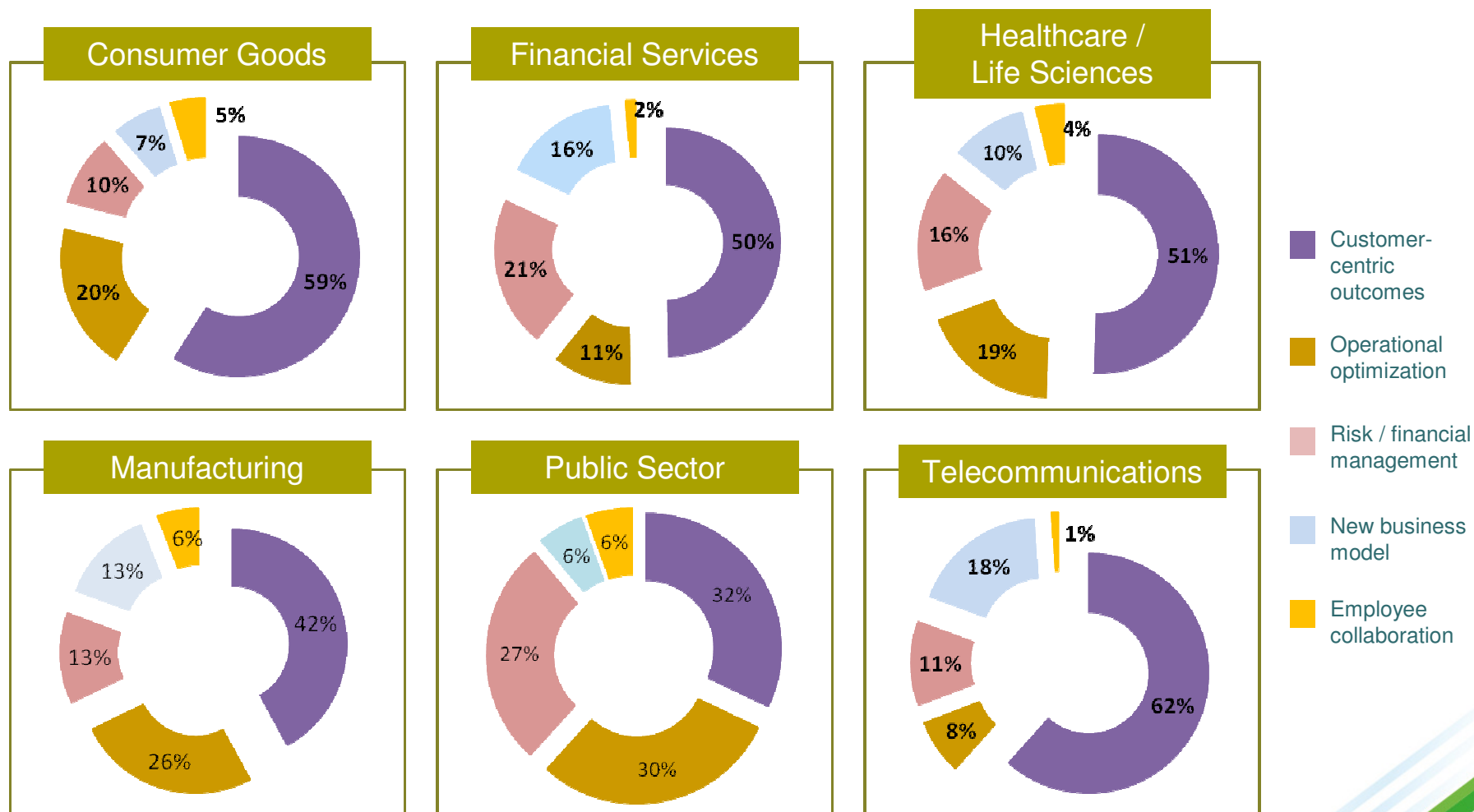
Every Industry can Leverage Big Data and Analytics

 <p>Banking</p> <ul style="list-style-type: none"> • Optimize Offers and Cross Sell • Contact Center Efficiency and Problem Resolution • Payment Fraud Detection & Investigation • Counterparty Credit Risk Management 	 <p>Insurance</p> <ul style="list-style-type: none"> • Claims Fraud • Customer Retention • Catastrophe Modeling • Telematics • Producer Effectiveness 	 <p>Telco</p> <ul style="list-style-type: none"> • Pro-active Call Center • Network Analytics • Location Based Services • IT/Network Infrastructure Transformation • Smarter Campaigns 	 <p>Energy & Utilities</p> <ul style="list-style-type: none"> • Smart Meter Analytics • Distribution Load Forecasting/Scheduling • Condition Based Maintenance • Create & Target Customer Offerings 	 <p>Media & Entertainment</p> <ul style="list-style-type: none"> • Business process transformation • Audience & Marketing Optimization • Multi-Channel Enablement • Digital commerce optimization
 <p>Retail</p> <ul style="list-style-type: none"> • Actionable Customer Insight • Merchandise Optimization Playbook • Dynamic Pricing 	 <p>Travel & Transport</p> <ul style="list-style-type: none"> • Customer Analytics & Loyalty Marketing • Capacity & Pricing Optimization • Predictive Maintenance Analytics 	 <p>Consumer Products</p> <ul style="list-style-type: none"> • Optimized Promotions Effectiveness • Micro-Market Campaign Management • Real Time Demand Forecast 	 <p>Government</p> <ul style="list-style-type: none"> • Threat Prediction and Prevention • Health and human services fraud, waste & abuse • Tax compliance - fraud and abuse • Crime prevention and prediction 	 <p>Healthcare</p> <ul style="list-style-type: none"> • Measure & Act on Population Health • Engage Consumers in their Healthcare
 <p>Automotive</p> <ul style="list-style-type: none"> • Data Warehouse Optimization • Predictive Asset Optimization (PAO) • Actionable Customer Intelligence • Connected vehicle 	 <p>Chemical & Petroleum</p> <ul style="list-style-type: none"> • EDW Smart Consolidation & Augmentation • Operational Surveillance, Analysis & Optimization • Engineering & Operational Data Exploration & Mining 	 <p>Aerospace & Defense</p> <ul style="list-style-type: none"> • Uniform Information Access Platform • Data Warehouse Optimization • Predictive Asset Optimization (PAO) 	 <p>Electronics / Industrial Products</p> <ul style="list-style-type: none"> • Channel Driven Customer Analytics (CDCA) • Predictive Asset Optimization (PAO) 	 <p>Life Sciences</p> <ul style="list-style-type: none"> • Increase visibility into drug safety and effectiveness





Customer-centric analytics is the primary functional objective across macro industry groups



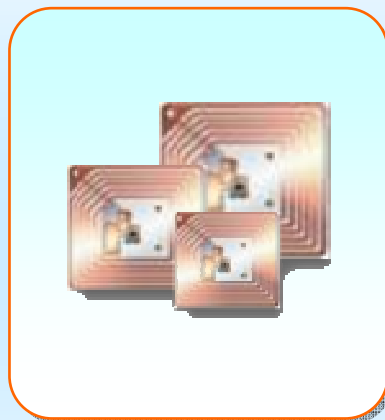
Big Data is All Data and All Paradigms

Transactional & Application Data



- Volume
- Structured
- Throughput

Machine Data



- Velocity
- Semi-structured
- Ingestion

Social Data



- Variety
- Highly unstructured
- Veracity

Enterprise Content



- Variety
- Highly unstructured
- Volume





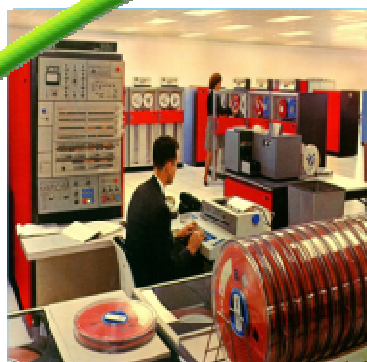
We are entering a new era of computing

Computer Intelligence

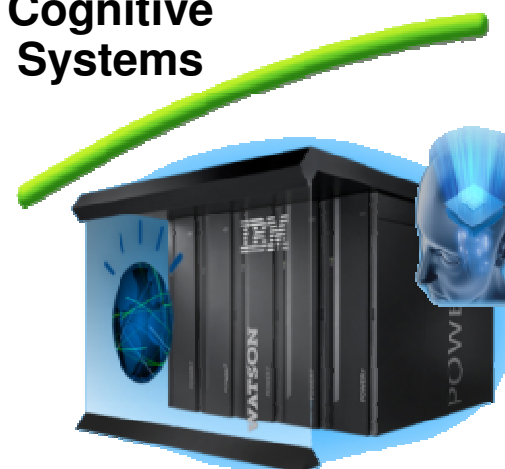
Tabulating Systems



Programmable Systems



Cognitive Systems



Problem Solving
Smarter, Connected
Autonomous Systems

Mass
Production

Process
Automation

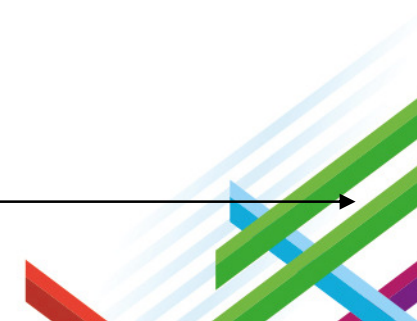
Counting and
Tracking
Systems

Operational
Systems

Customer Centric,
Data Driven

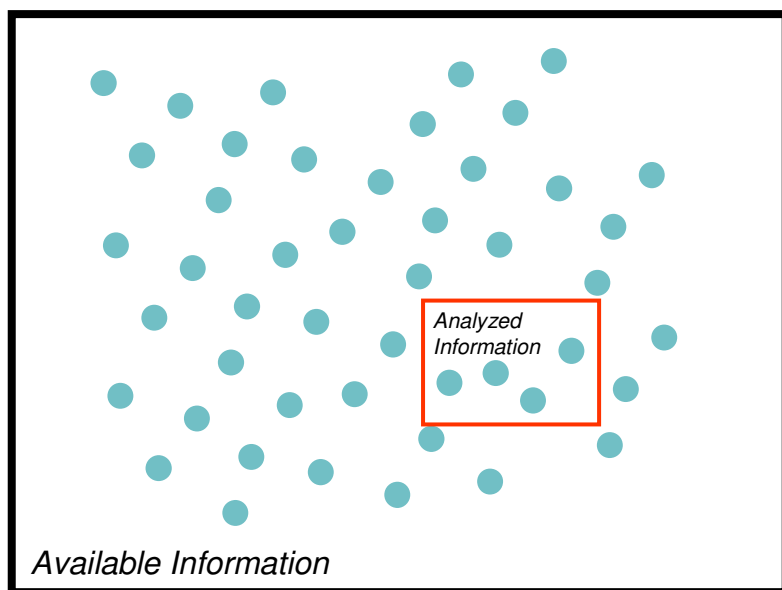
Product Centric, Process Driven

Time



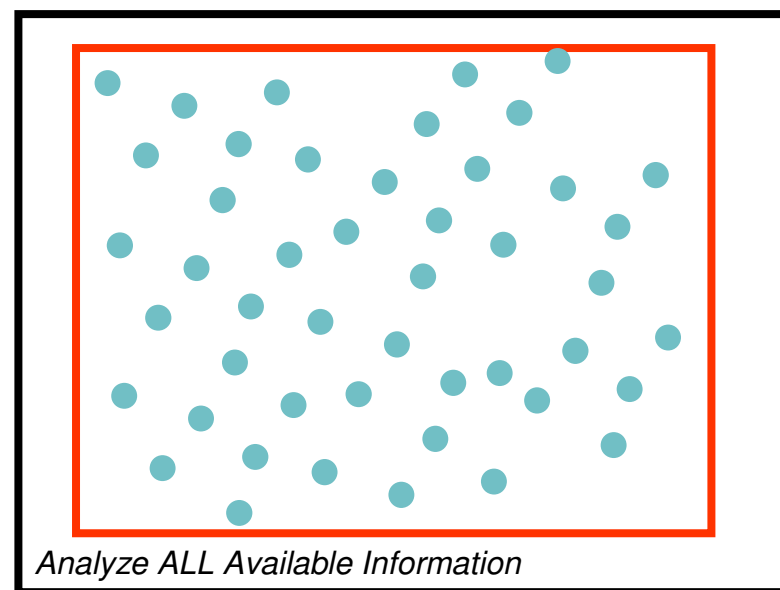
Paradigm Shifts Enabled by Big Data

Traditional Approach



Analyze Small Subsets of Information

Big Data Approach



Analyze All Information

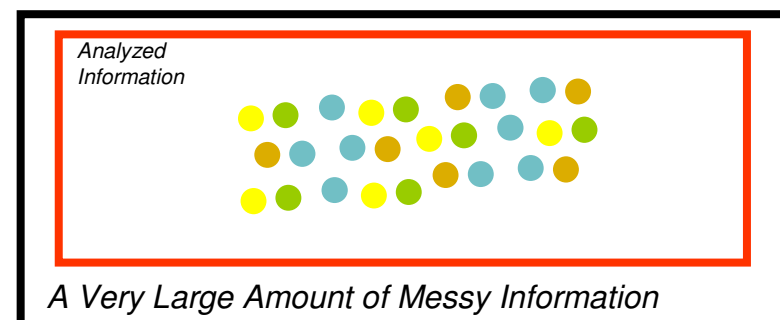
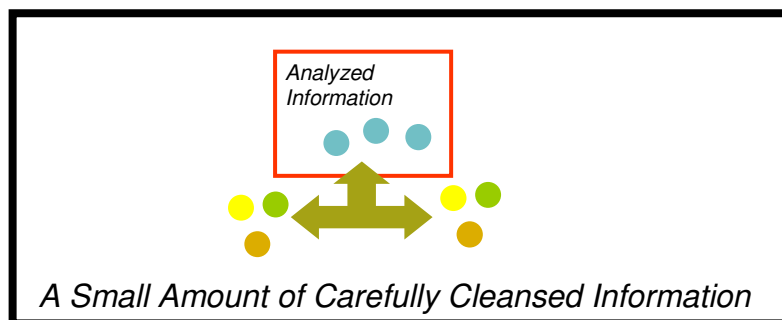
Leverage more of the data being captured



Paradigm Shifts Enabled by Big Data

Traditional Approach

Big Data Approach



**Carefully Cleanse Information
Before Analysis**

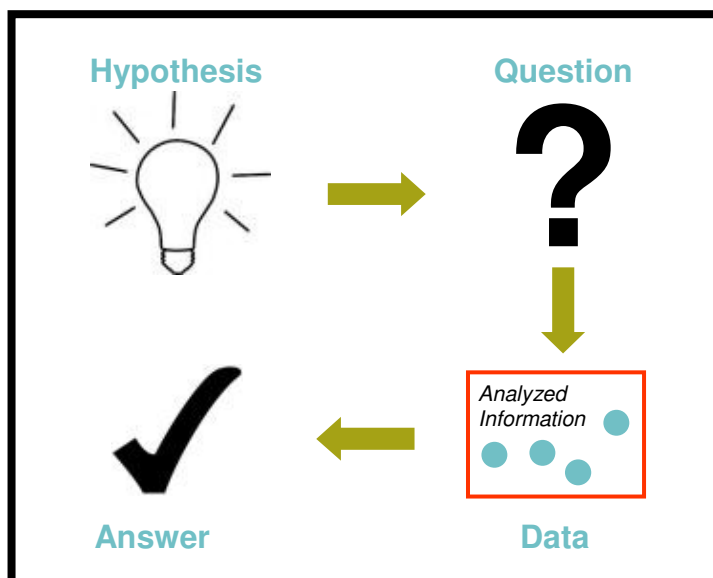
Analyze All Information As Is

Reduce effort required to leverage data



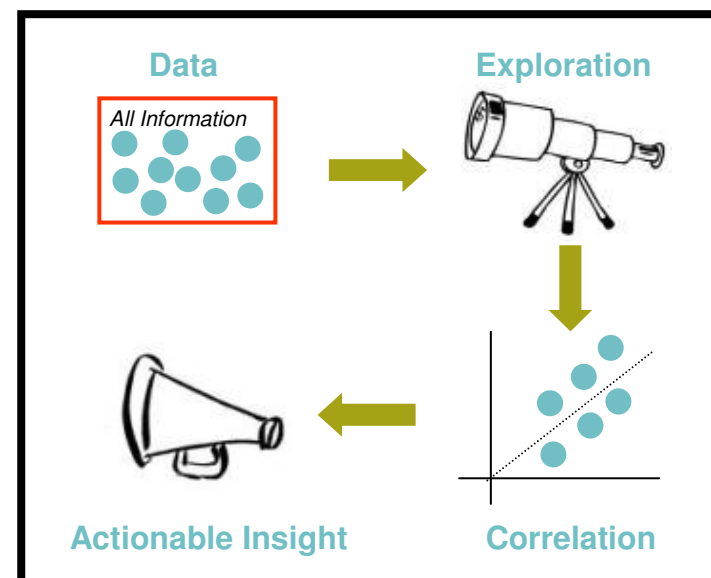
Paradigm Shifts Enabled by Big Data

Traditional Approach



**Start with Hypothesis,
Test Against Selected Data**

Big Data Approach



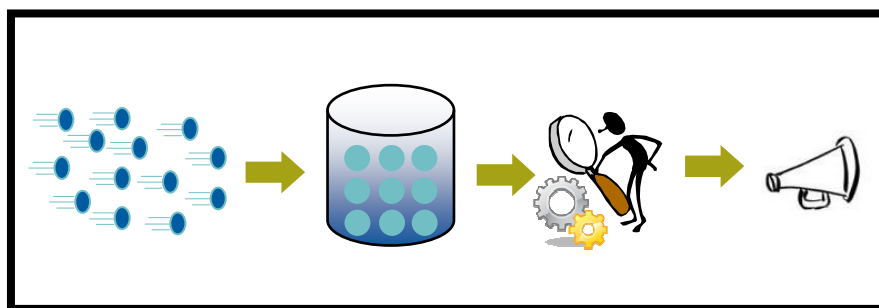
**Explore ALL Data,
Identify Correlations**

**Data leads the way... and sometimes correlations
are good enough**



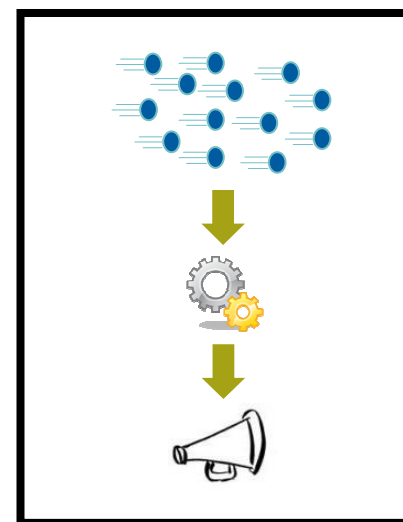
Paradigm Shifts Enabled by Big Data

Traditional Approach



Analyze data **AFTER** it has been processed and landed in a Warehouse or Mart

Big Data Approach



Analyze data **IN MOTION** as it is generated, in real-time

Leverage data as it is captured



Big Data & Analytics Use Cases





Dublin City Centre

Citywide traffic awareness system improves performance and customer experience

Need

- Improve traffic awareness system; Monitor 600 buses across 150 routes daily
- Model & generate smarter transportation routes and stop locations
- Improve accuracy and consistency of bus arrival time

Benefits

- Analyzes 50 bus location updates per second ,
- Collects, processes, and visualizes location data of all public transportation vehicles
- Improved customer experience; assist commuters in trip planning

British highway to become internet-connected 'network of sensors' over 50-mile stretch

By **Mat Smith** posted Oct 3rd, 2013 at 7:34 AM

27 



In a team-up between the UK's Department of Transport, BT and Cambridge start-up Neul, the A14 (which connects Felixstowe to Birmingham) will be transformed into the country's first internet-connected road, with the aim of preparing the country for future tech from wireless toll chargers to automated cars. The smart road will include a network of sensors across a 50-mile segment, with

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FEATURED STORIES

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ZTE Open review: Firefox OS gets off to a modest but promising start

OCTOBER 3, 2013

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Google will launch a native Google



Automated Pricing Decisions

U.S. Airline speeds pricing decisions with analysis of historical fares across all markets

Need

- Capture and analyze more historical pricing data for all markets quickly and cost effectively
- Smarter intra-day pricing actions relative to competition

Benefits

- Improved predictive pricing models with more data and more business rules
- Automated pricing decisions with greater speed and confidence

Analyze Power Usage to Optimize Capacity and Avoid Outages

Operational Efficiency and Business Model Innovation

- Analyze real-time data about power consumption
- Provide two-way communication between distributed generation, storage and demand assets and existing grid infrastructure
- Enable system self-monitoring and feedback
- Engage consumers to enable new delivery business models and optimize power utilization

Increase Grid Efficiency and Reliability

“One town avoided a potential power outage by using a two-way advanced meter system to shut off home water heaters during peak periods”



Major Italian Bank leverages unstructured client data to improve customer retention

Need

- Drive customer retention activities based on behaviors instead of only transactions
- Leverage branch teller notes, call center notes and client emails to identify changing client behaviors
- Track social media sentiment analysis to measure impact of targeted campaigns

Targeted Benefits

- Reduce attrition from 6% to 3%
- Optimize offers and cross sell to increase average products per customer from 1.4 to 2.2
- Improve client advocacy (NPS)

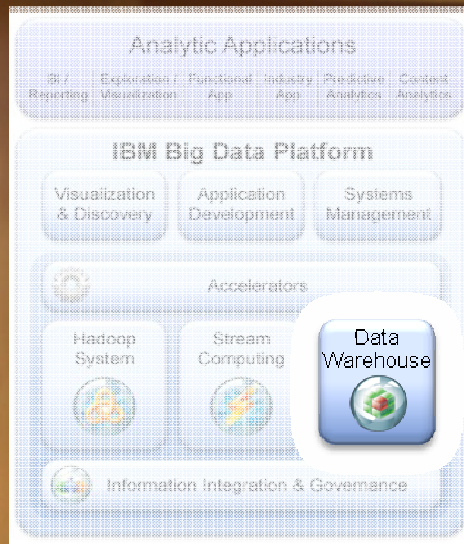
Barnes & Noble helps suppliers track sales and inventory in real time

Need

- Publishers absorb the losses on returns when they print too many books, and have stock-outs when they print too few
- To provide publishers with the ability to get real-time insight into sales and view inventory trends over time

Benefits

- Decreased time to run queries from weeks to seconds and enabled an 80% reduction in time to run compared to its previous system
- Reduced inventory levels and inventory carrying costs



BARNES & NOBLE
BOOKSELLERS

Live Video Streams, Social Media and Internet Traffic Used for Rapid Response to Criminal and Terrorist Activity



Protect High Value Targets

Real-time video surveillance and analysis to detect, classify, locate, track and verify threats to high value targets such as power plants and research labs

Municipality and Event Security

Rapid detection and response to potential criminal activities based on real-time analysis of video feeds and social media

Monitor Internet to Identify Illegal Activities

Filter and analyze foreign web traffic, e-mails and social media to identify potential drug & sex traffickers, illegal immigrants, terrorists and other civil/border activity

Analyzes 42TB of streaming data per day

Reduces time to capture and analyze 275Mbit of acoustic data from hours to 70 milliseconds



Providing Technology to Address Big Data Requirements

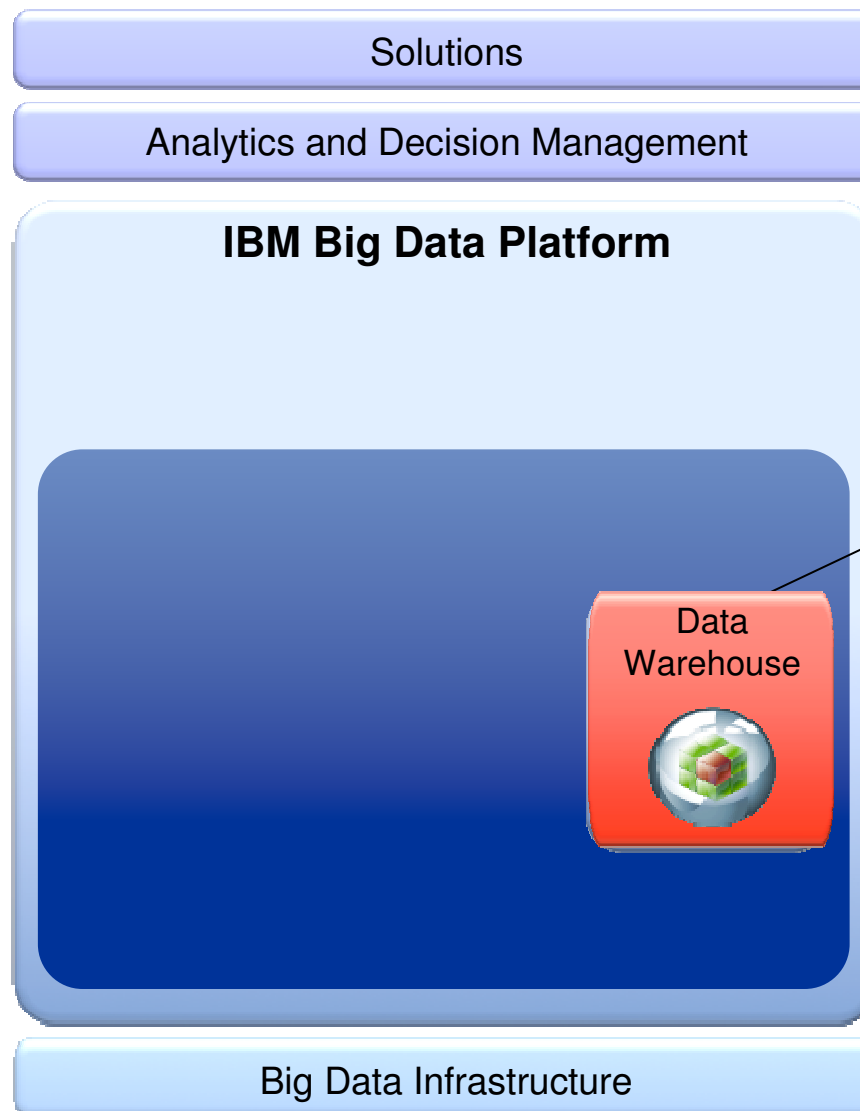
IBM BIG DATA PRODUCTS

IBM Smarter Business 2013





The IBM Big Data Products

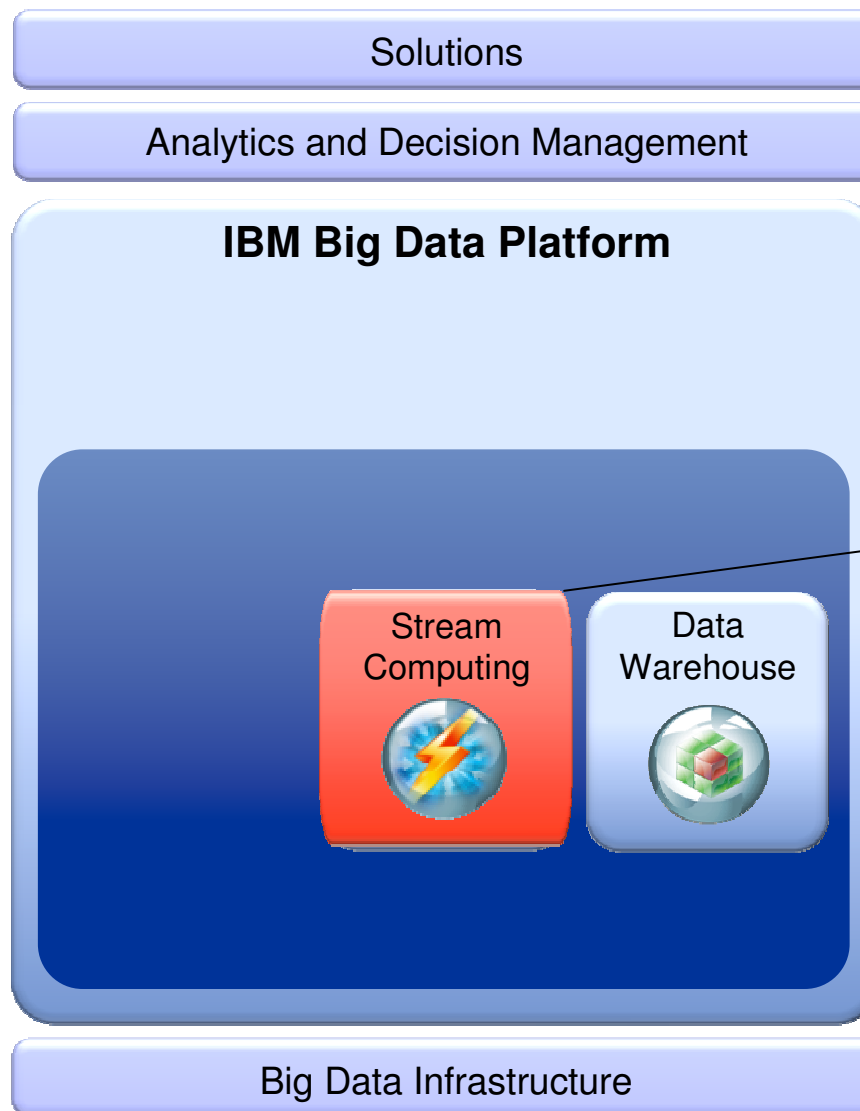


Delivers deep insight with advanced in-database analytics & operational analytics

- **PureData System** – expert integrated systems to make deep and operational analytics faster & simpler
- **InfoSphere Warehouse** -- data warehouse software to access operational info in real time



The IBM Big Data Products



Analyze streaming data and large data bursts for real-time insights

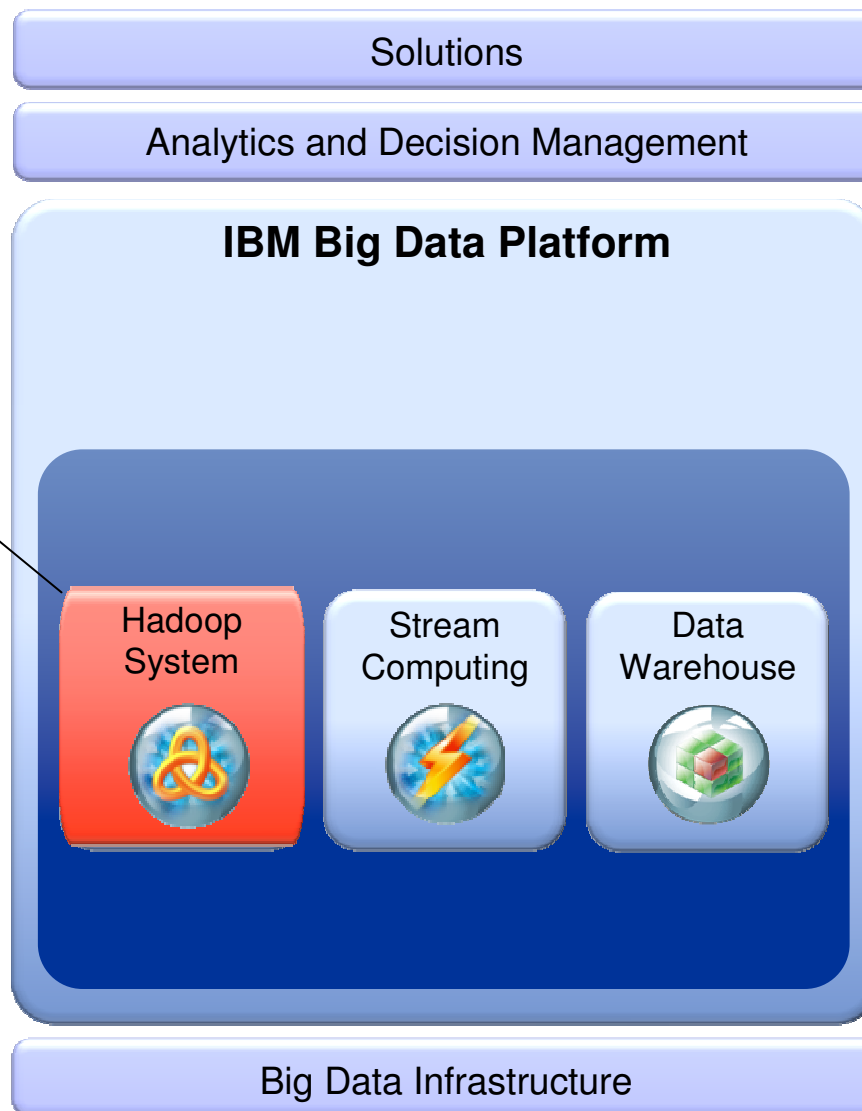
- **InfoSphere Streams**
– software enabling continuous analysis of massive volumes of streaming data with sub-millisecond response times



The IBM Big Data Products

Cost-effectively analyze Petabytes of unstructured and structured data

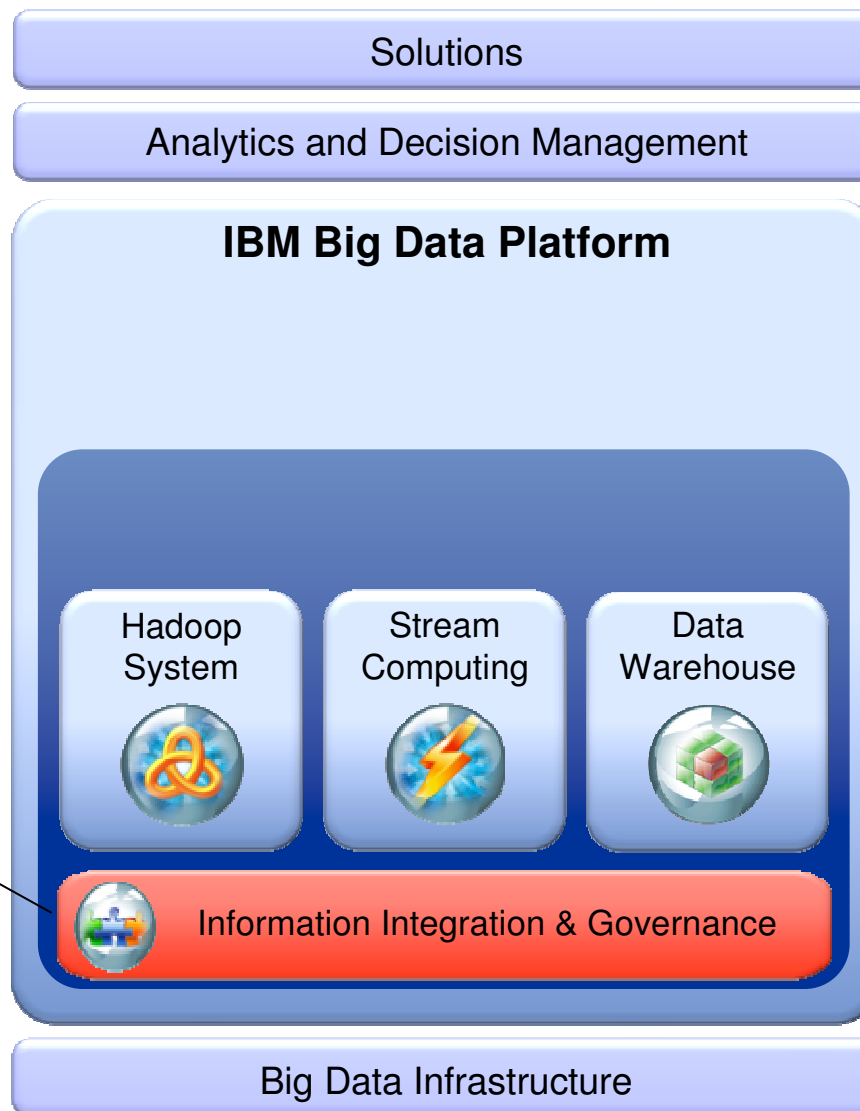
- **InfoSphere BigInsights** – enterprise-grade Hadoop system enhanced with advanced text analytics, data visualization, tools, & performance features for analyzing massive volumes of structured and unstructured data.



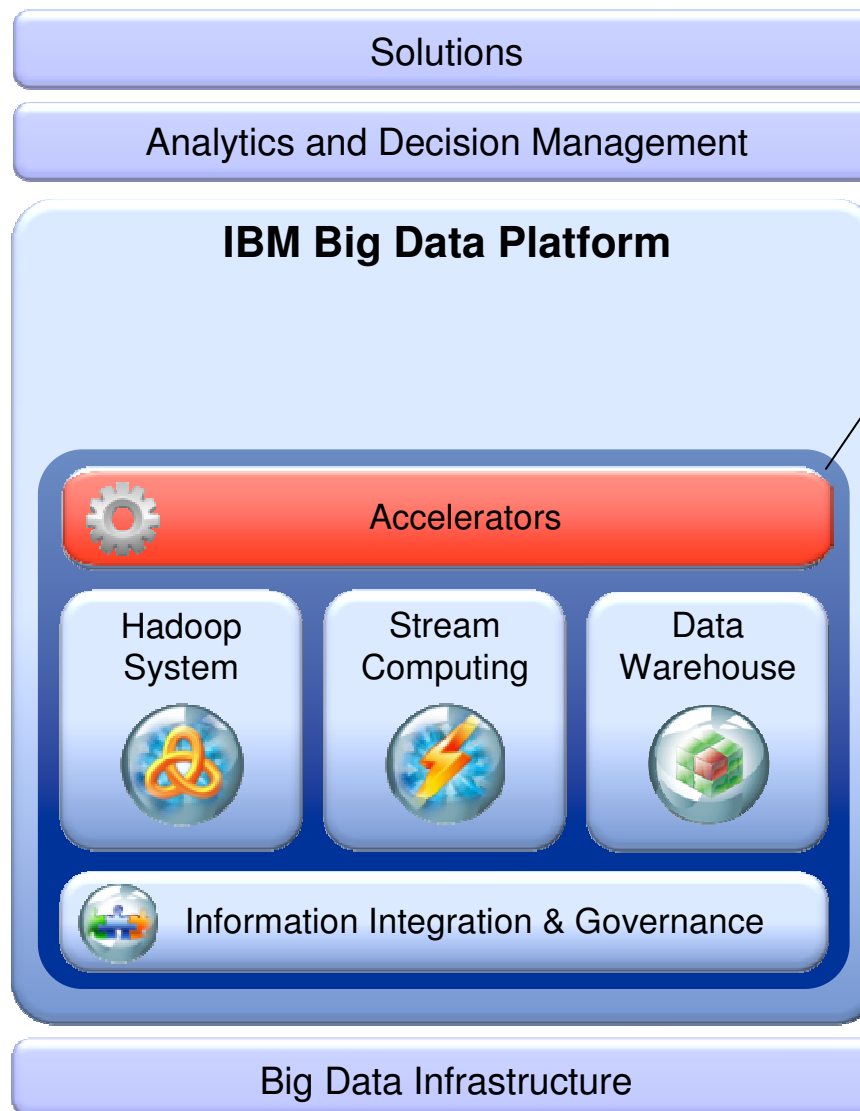
The IBM Big Data Products

Govern data quality and manage the information lifecycle

- **InfoSphere Information Server** –Cleanses data, monitors quality and integrates big data with existing systems
- **InfoSphere Optim** – manages business information throughout its lifecycle
- **InfoSphere Master Data Management** – manages and maintains trusted views of master and reference data
- **InfoSphere Guardium** – real-time database security and monitoring



The IBM Big Data Products



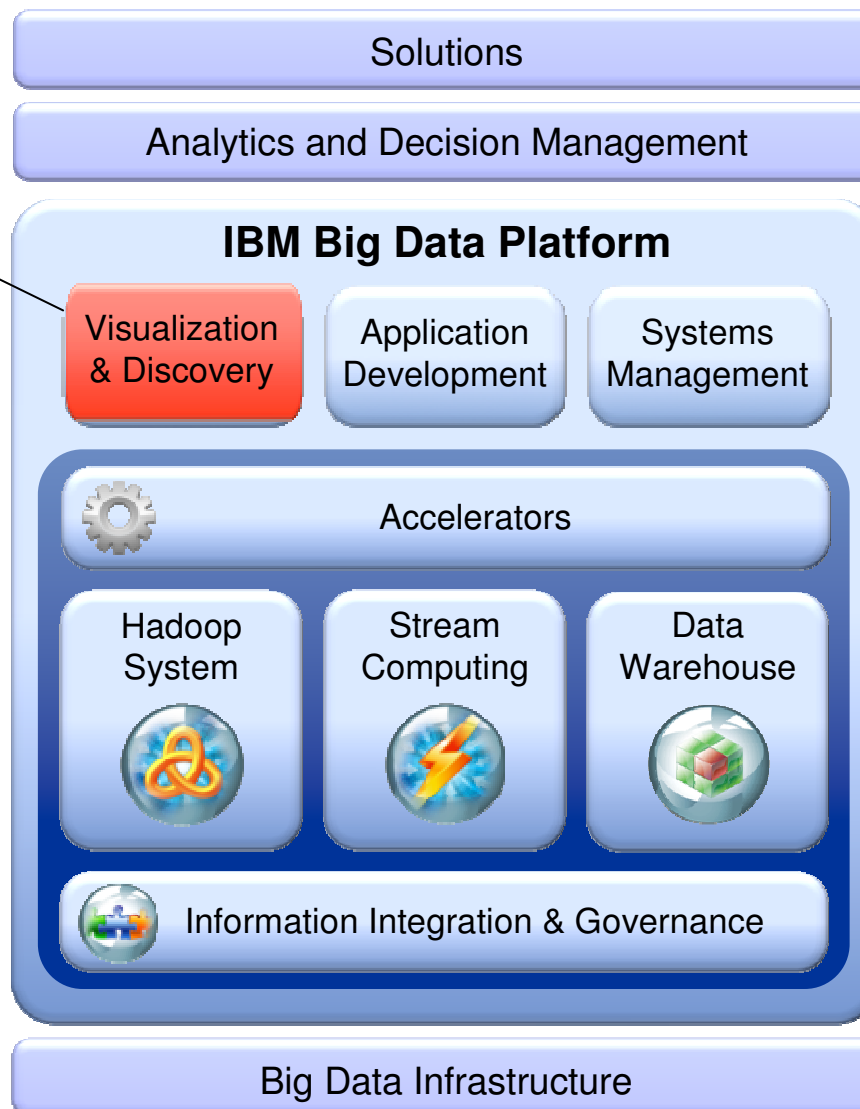
Speed time to value with analytic and application accelerators

- **Analytic Accelerators** – text analytics, geospatial, time-series, data mining
- **Application Accelerators** – financial services, machine data, social data, Telco event data
- **Industry Models** - comprehensive data models based on deep expertise and industry best practice

The IBM Big Data Products

Discover, understand, search, and navigate federated sources of big data

- **InfoSphere Data Explorer** – Discovery and navigation software that provides real-time access and fusion of big data with rich and varied data from enterprise applications for greater insight



The IBM Big Data Platform

- Process any type of data
 - Structured, unstructured, in-motion, at-rest
- Built-for-purpose engines
 - Designed to handle different requirements
- Analyze data in motion
- Manage and govern data in the ecosystem
- Enterprise data integration
- Grow and evolve on current infrastructure

