

IBM Business Connect

Business Without Limits.

July 18 | Sandton Convention Centre, Johannesburg

IBM Big Data Platform

Turning big data into smarter decisions

Simon Jeggo

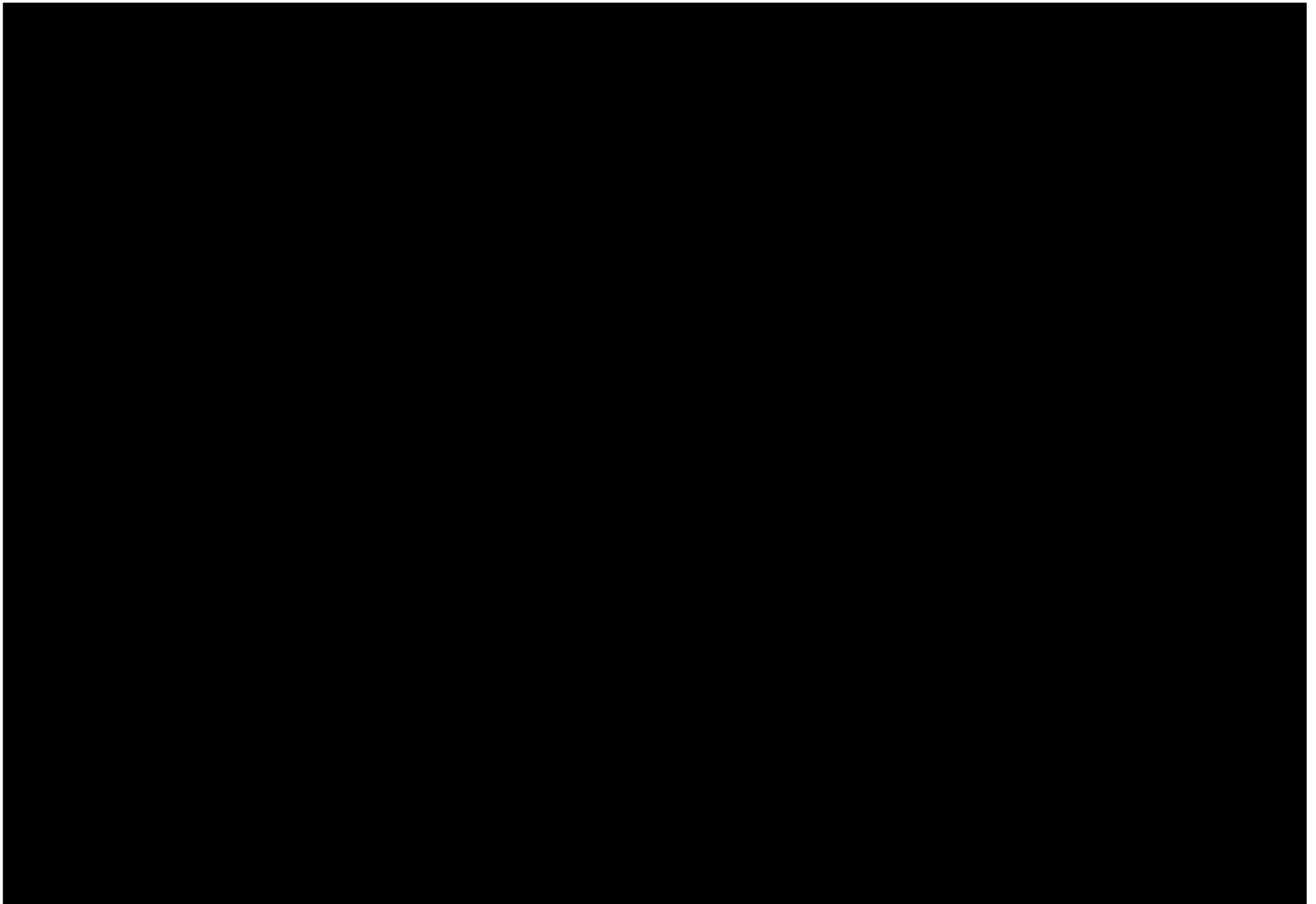


<https://www.facebook.com/IBMSouthAfrica/events>



#IBMBC2013





“Data is the new Oil.”

In its raw form, oil has little value. Once processed & refined, it helps power the world.



Forbes
.com

“Big Data has arrived at Seton Health Care Family, fortunately **accompanied by an analytics tool that will help deal with the complexity of more than two million patient contacts a year...**”

The New York Times

“At the World Economic Forum last month in Davos, Switzerland, Big Data was a marquee topic. A report by the forum, “Big Data, Big Impact,” declared **data a new class of economic asset, like currency or gold.**”

FT FINANCIAL TIMES
World business newspaper

“**Increasingly, businesses are applying analytics to social media such as Facebook and Twitter, as well as to product review websites, to try to “understand where customers are, what makes them tick and what they want”,** says Deepak Advani, who heads IBM’s predictive analytics group.”

THE WALL STREET JOURNAL

“**Companies are being inundated with data**—from information on customer-buying habits to supply-chain efficiency. But many managers struggle to make sense of the numbers.”

Forbes
.com

“...now **Watson is being put to work digesting millions of pages of research,** incorporating the best clinical practices and monitoring the outcomes to assist physicians in treating cancer patients.”

Los Angeles Times

The Oscar Senti-meter — a tool developed by the L.A. Times, IBM and the USC Annenberg Innovation Lab — **analyzes opinions about the Academy Awards race shared in millions of public messages on Twitter.**”



“**Data is the new oil.**”
Clive Humby

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Imagine the Possibilities of Harnessing *your* Data Resources

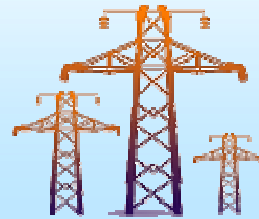


Big data challenges exist in every business today

Government cuts acoustic analysis from hours to **70 Milliseconds**



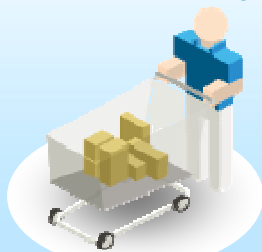
Utility avoids power failures by analyzing **10 PB** of data in minutes



Hospital analyzes streaming vitals to intervene **24 hours earlier**



Retailer reduces time to run queries by **80%** to optimize inventory



Stock Exchange cuts queries from 26 hours to **2 minutes** on **2 PB**

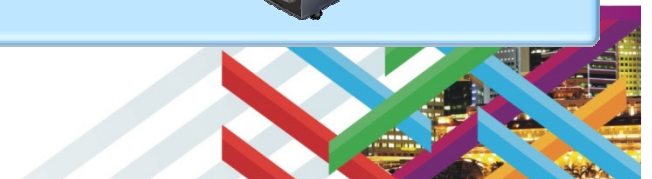


Telco analyses streaming network data to reduce hardware costs by **90%**



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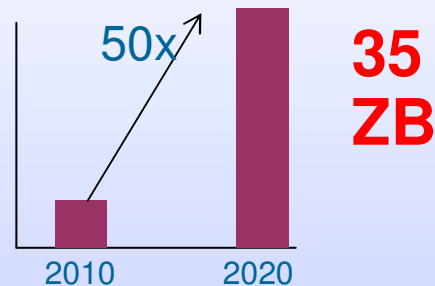
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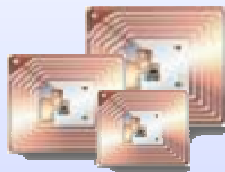
The characteristics of big data



Cost efficiently processing the growing **Volume**

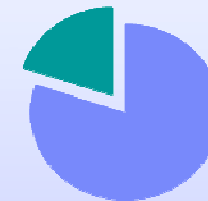


Responding to the increasing **Velocity**



30 Billion
RFID sensors
and counting

Collectively Analyzing the broadening **Variety**



80% of the
world's data is
unstructured



Establishing the **Veracity** of big data sources

1 in 3 business leaders don't trust the information they use to make decisions

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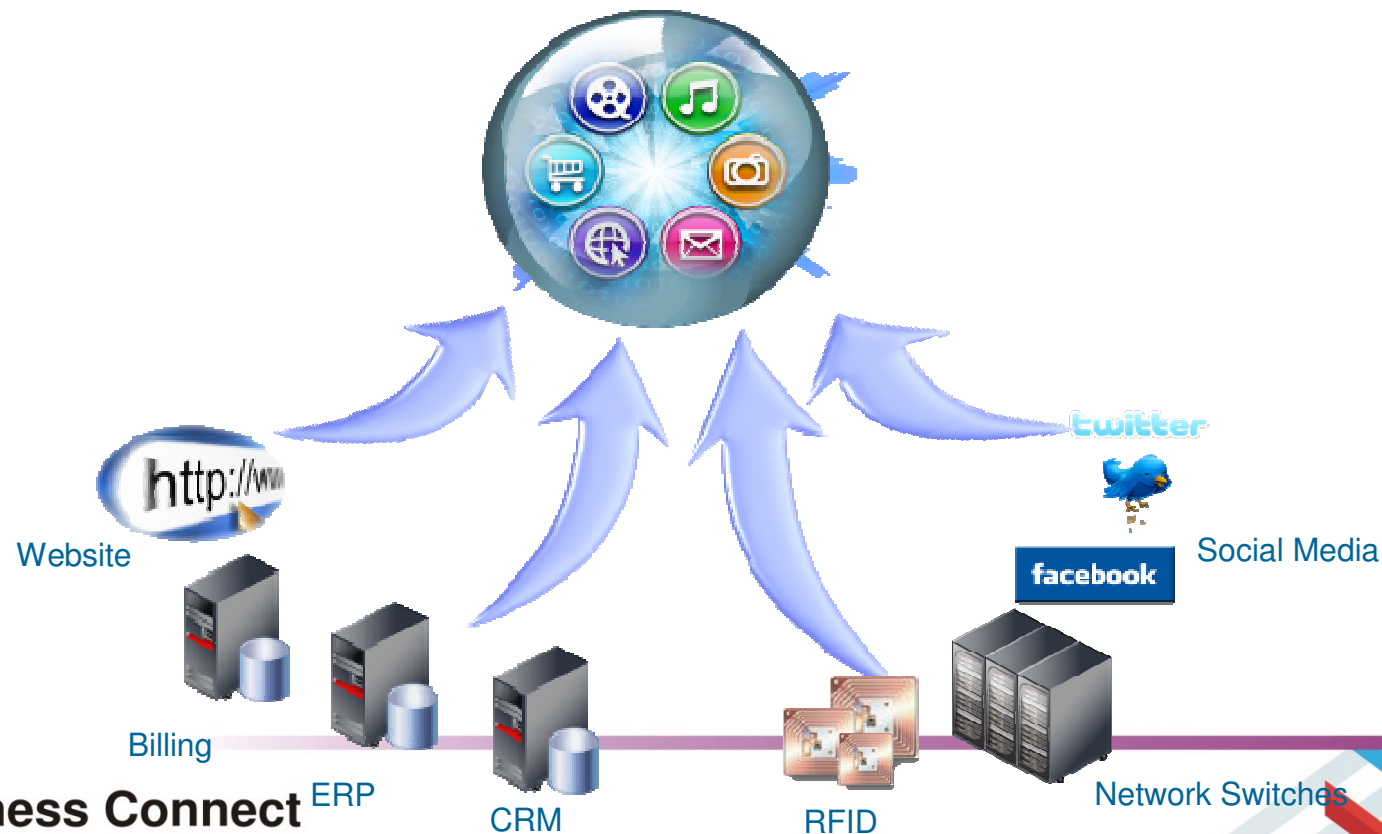
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Big data is a hot topic because technology makes it possible to analyze *ALL* available data



Cost effectively manage and analyze *all available data*,
in its native form – unstructured, structured, streaming



IBM Business Connect ERP

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In order to realize new opportunities, you need to think beyond traditional sources of data

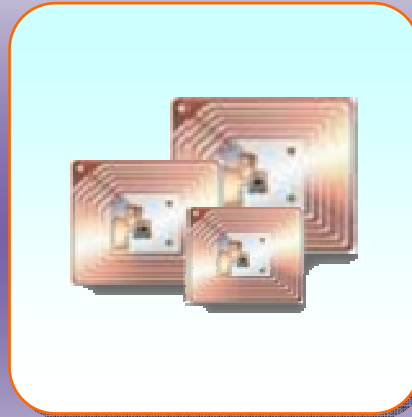


Transactional & Application Data



- Volume
- Structured
- Throughput

Machine Data



- Velocity
- Semi-structured
- Ingestion

Social Data



- Variety
- Highly unstructured
- Veracity

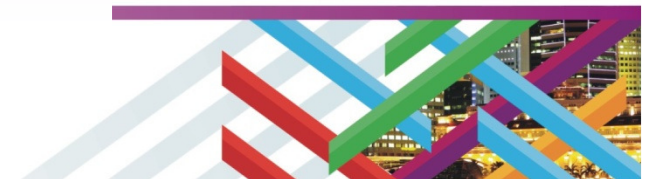
Enterprise Content



- Variety
- Highly unstructured
- Volume

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Analysis expanding from enterprise data to big data, creating new cost-effective opportunities for competitive advantage

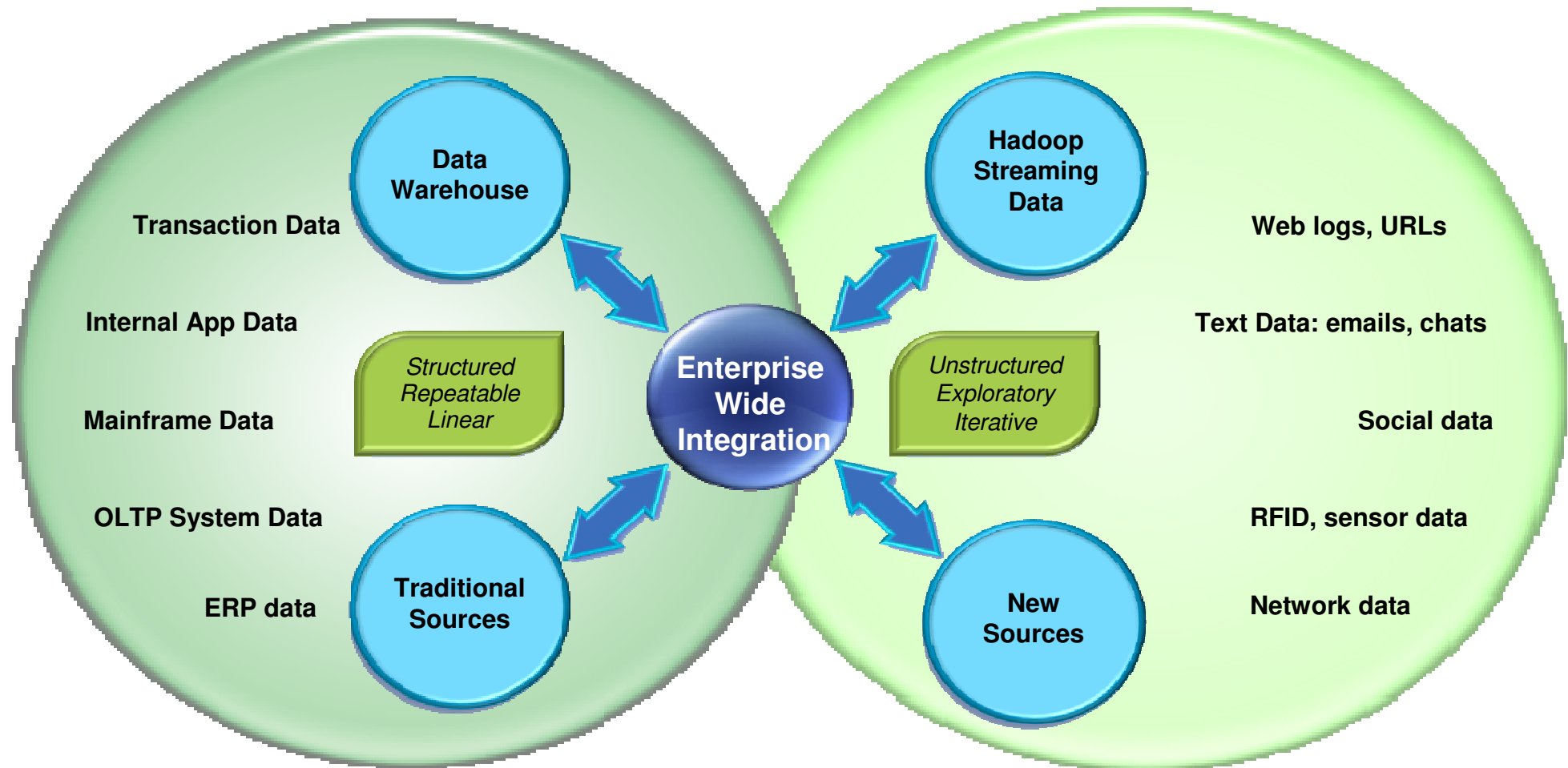


Traditional Approach

Structured, analytical, logical

New Approach

Creative, holistic thought, intuition

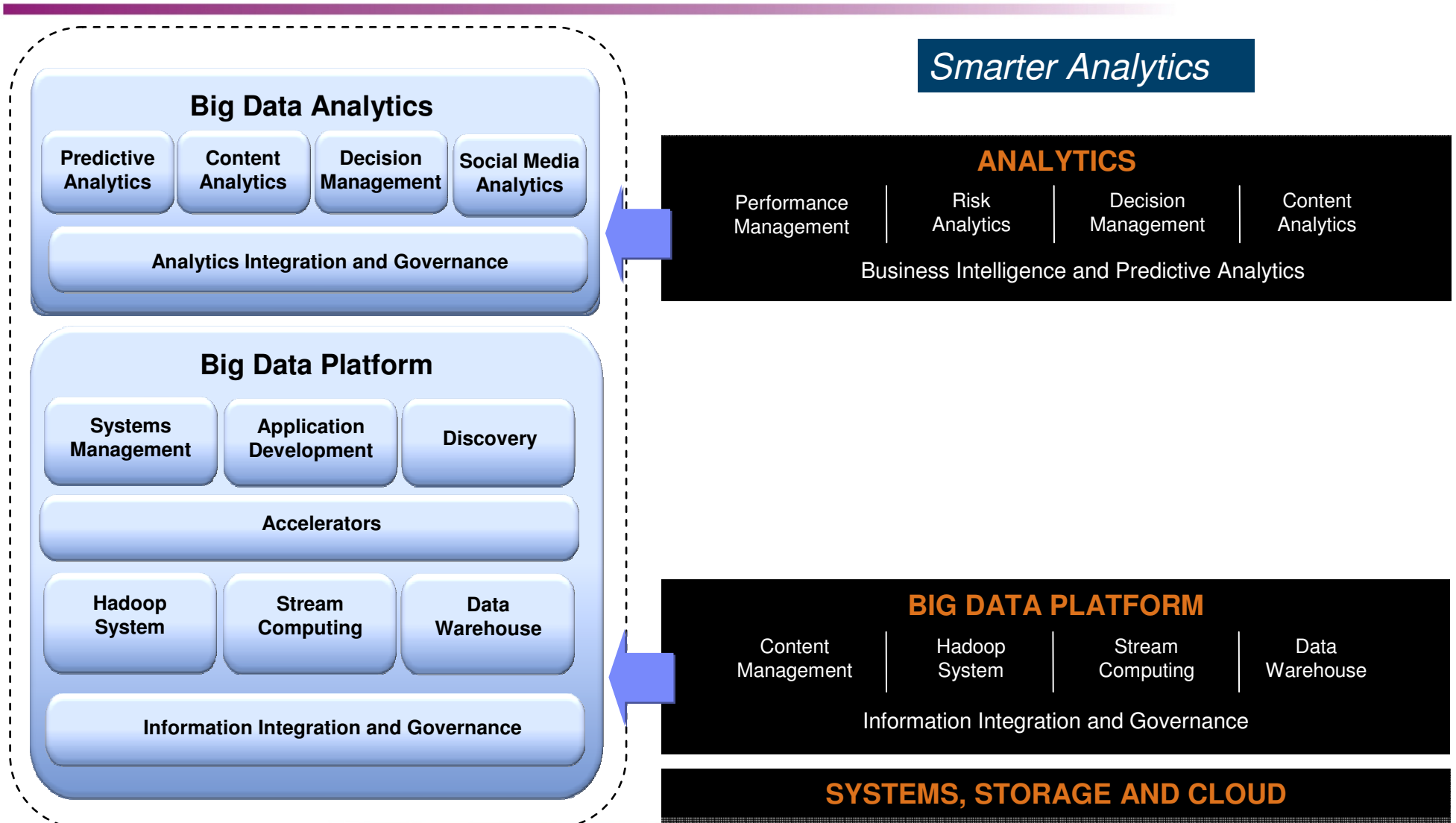


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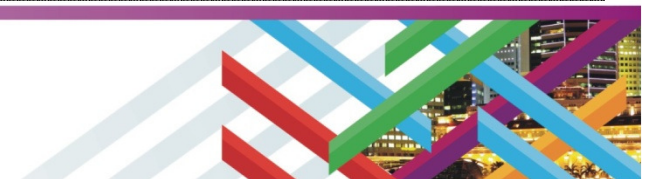


IBM provides a holistic and integrated approach to big data and analytics



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The 5 High Value Big Data Use Cases



Big Data Exploration

Find, visualize, understand all big data to improve business knowledge



Enhanced 360° View of the Customer

Achieve a true unified view, incorporating internal and external sources



Security/Intelligence Extension

Lower risk, detect fraud and monitor cyber security in real-time



Operations Analysis

Analyze a variety of machine data for improved business results



Data Warehouse Augmentation

Integrate big data and data warehouse capabilities to increase operational efficiency

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Big Data Exploration: Needs



Find, visualize, understand all big data to improve decision making



Struggling to manage and extract value from the growing 3 V's of data in the enterprise; need to unify information across federated sources



Inability to relate "raw" data collected from system logs, sensors, clickstreams, etc., with customer and line-of-business data managed in enterprise systems



Risk of exposing unsecure personally identifiable information (PII) and/or privileged data due to lack of information awareness

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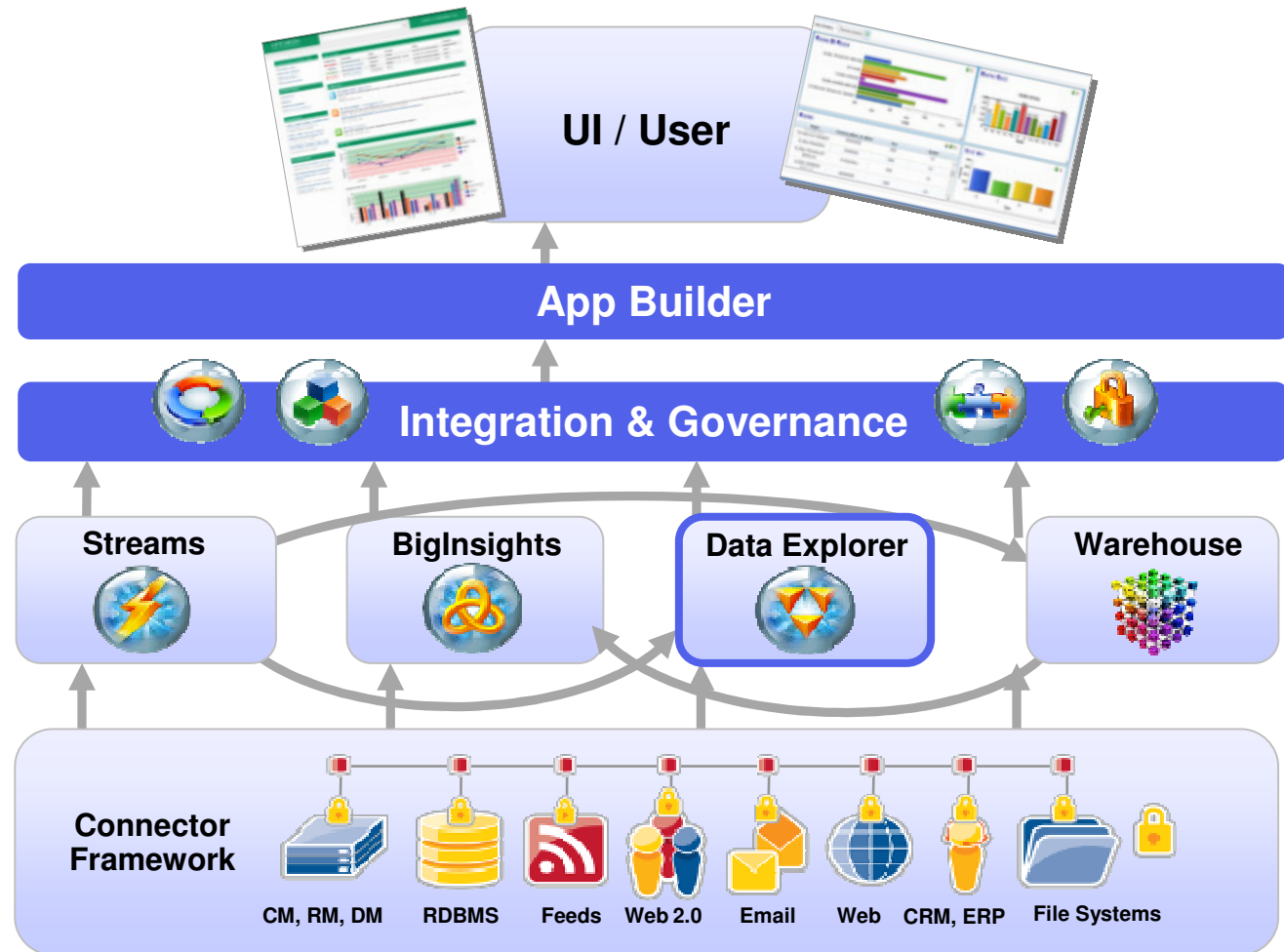


Big Data Exploration: Illustrated



Find, visualize and understand all big data to improve business knowledge

- Greater efficiencies in business processes
- New insights from combining and analyzing data types in new ways
- Develop new business models with resulting increased market presence and revenue



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Global aerospace manufacturer increases knowledge worker efficiency and saves \$36M annually

Need

- Delays in fixing maintenance issues are expensive and potentially incur financial penalties for out-of-service equipment
- Increase the efficiency of its maintenance and support technicians, support staff and engineers

Benefits

- Supporting 5,000 service representatives
- Eliminated use of paper manuals that were previously used for research
- Placed more than 40 additional airplanes into service without adding more support staff
- Reduced call time by 70% (from 50 minutes to 15 minutes)

A global consulting company

Required better insight into staffing capabilities to provide best expertise for projects

Needed to cull emails, documents and other information for thousands of consultants to create composite profiles for each consultant

2. Enhanced 360° View of the Customer: Needs



Optimize every customer interaction by knowing everything about them

Requirements

- Create a connected picture of your customer by tying internal and external information together
- Relate and mine enterprise data, master data, calls logs, enterprise content and new sources for actionable insight
- Analyze social media and external sources to uncover how the customers feels about your products and the company
- Add value by optimizing every client interaction

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Industry Examples

- Smart meter analysis
- Telco data location monetization
- Retail marketing optimization
- Travel and Transport customer analytics and loyalty marketing
- Financial Services Next Best Action and customer retention
- Automotive warranty claims
- ...

Enhanced 360° View of the Customer: Illustrated



SOURCE SYSTEMS

CRM

Name: **J Robertson**

Address: **35 West 15th**

Address: **Pittsburgh, PA 15213**

ERP

Name: **Janet Robertson**

Address: **35 West 15th St.**

Address: **Pittsburgh, PA 15213**

Legacy

Name: **Jan Robertson**

Address: **36 West 15th St.**

Address: **Pittsburgh, PA 15213**

Master Data Management


360° View of Party Identity

First:	Janet
Last:	Robertson
Address:	35 West 15th St
City:	Pittsburgh
State/Zip:	PA / 15213
Gender:	F
Age:	48
DOB:	1/4/64

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OPTIMUM INVESTMENTS Logged in as Frank Gelato | Help

Home > Janet Robertson



Personal Information

Janet Robertson
Senior Regional Sales Manager
Department: Sales
Office: Pittsburgh, PA
jrobertson@wakefield.com
412.422.2499 x555

Stop Tracking

Associated Accounts

- Wakefield Investments

LinkedIn History

Wakefield Investments
Title: Senior Regional Sales Manager
Years worked: Nov 2006 - Present

Morgan Stanley Smith Barney
Title: Regional Sales Manager

Purchase History

Date	Amount	Fund
2011-04	23k	Western Asset U.S. Treasury Reserves
2011-01	25k	Optimum Short Duration Municipal Income Fund
2010-10	18k	Optimum Dividend Value Fund
2010-07	10k	Optimum Batterymarch S&P 500 Index Fund
2010-04	11k	Optimum ClearBridge Large Cap Growth Fund

Contact Activity Feed

Showing: All Activity | By Source | By Author

What's new with this contact?

Add Comment

Irene Tambolin updated the document Wakefield Contact Information.
SAP - 1 days ago

Todd Williams updated the database Product Funds #322245 - Activity History Wakefield.
Database - 3 hours ago

Chelle Kroll added the email address jrobertson@wakefield.com to contact Janet Robertson.
Salesforce - 2 days ago

Frank Gelato commented to Janet Robertson:
"Scheduled a meeting with Janet for next week. I'll let everyone know how it goes!"

Owned Products

- Optimum Bond Fund
- Western Asset U.S. Treasury Reserves
- Optimum Western Asset Short Duration Municipal Income Fund
- Optimum Dividend Value Fund
- Western Asset New York Municipal Money Market Fund
- Optimum Western Asset Oregon Municipals Fund
- Optimum Special Equity Fund
- Optimum Western Asset New Jersey Municipals Fund

Recent Conversations

Email: Optimum Fund Management Overview
Janet, please find an overview of Optimum and the funds we offer. This is only a high level...
Exchange - 3 hours ago

Notes: Janet is new to Wakefield but has been a wholesaler for 10 years New to Optimum Funds.
Salesforce - 2 days ago

Title: Optimum Introduction
Welcome Janet to Wakefield. I wanted to introduce myself...
Salesforce - 2 days ago

Fulfillment

External Sources

Content Mgt.

Knowledge-bases

BigInsights

Support Ticketing

CRM

Email

Supply Chain

Streams

Warehouse

Unified View of Party's Information



Consumer products company improves information access across 30 different repositories

Need

- Intuitive user interface for exploration and discovery across 30 different repositories
- Encompass all global offices and be deployed quickly for a lower total cost of ownership
- Provide secure search capabilities across sharepoint sites, intranet pages, wikis, blogs and databases

Benefits

- Able to identify experts across all global offices and 125,000 users worldwide
- Eliminated duplicate work and effort being performed across all employees
- Improved discovery and “findability” across global organization
- Provided internal knowledge and information that has led to improved decision making

5. Security and Intelligence Extension: Needs



Enhance traditional security solutions to prevent crime by analyzing all types and sources of big data

Requirements

Enhanced Intelligence and Surveillance Insight

Real-time Cyber Attack Prediction and Mitigation

Crime Prediction and Protection

Analyze data-in-motion and at rest to:

- Find associations
- Uncover patterns and facts
- Maintain currency of information

Analyze network traffic to:

- Discover new threats sooner
- Detect known complex threats
- Take action in real-time

Analyze telco and social data to:

- Gather criminal evidence
- Prevent criminal activities
- Proactively apprehend criminals

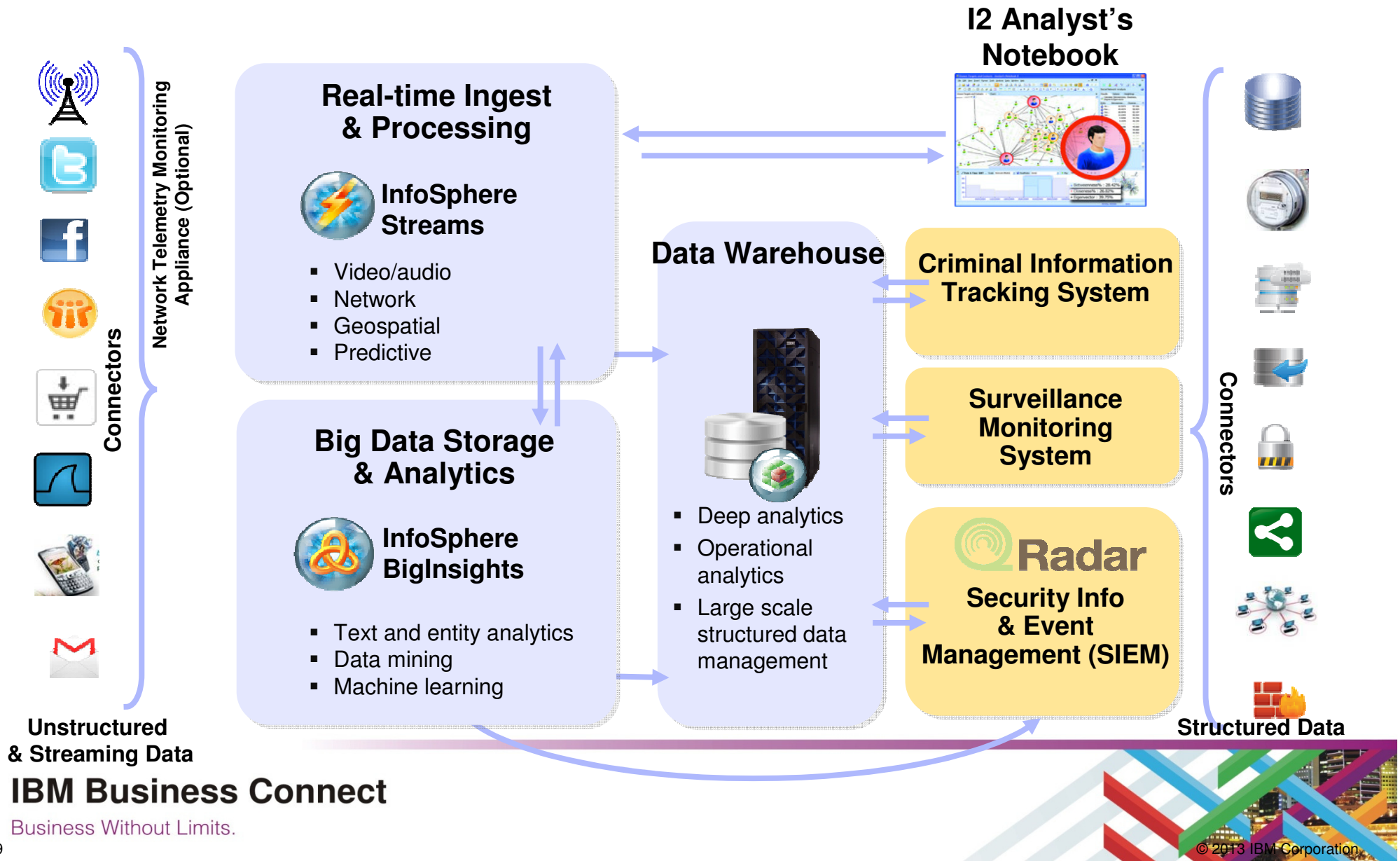
Industry Examples

- Government threat and crime prediction and prevention
- Insurance claims fraud
- ...

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5. Security/Intelligence Extension: Diagram





TerraEchos uses streaming data technology to support covert intelligence and surveillance sensor systems

Need

- Deployed security surveillance system to detect, classify, locate, and track potential threats at highly sensitive national laboratory

Benefits

- Reduced time to capture and analyze 275MB of acoustic data from hours to one-fourteenth of a second
- Enabled analysis of real-time data from different types of sensors and 1,024 individual channels to support extended perimeter security
- Enabled a faster and more intelligent response to any threat



Health Administrator South Africa



- Health Insurance company recovered R250m in fraudulent claims last year through advanced analytics and big data technologies.

The fraud recovery was enabled by a new accelerated analytics landscape built by the company, in partnership with BITanium, an IBM business partner.

The system enables the company to run three years' worth of data through complex statistical models to deliver actionable insights in a matter of minutes.

- It allows for more accurate predictors for chronic conditions, helping initiate better preventative programmes, identifies possible “phantom drug” prescriptions by mining data from pharmacies and health providers, and cuts development time for predictive models.

Critically, the accelerated analytics system has significantly improved fraudulent claims recovery, enabling control of costs of services and ensures better healthcare for its members.



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3. Operations Analysis: Needs



Apply analytics to machine data for greater operational efficiency

Requirements

- Analyze mass volumes of machine data with sub-second latency to identify events of interest as they occur
- Apply predictive models and rules to identify potential anomalies or opportunities as they occur
- Understand service levels in real-time by combining operational and enterprise data
- Monitor systems to proactively increase operational efficiency and avoid service degradation or outages

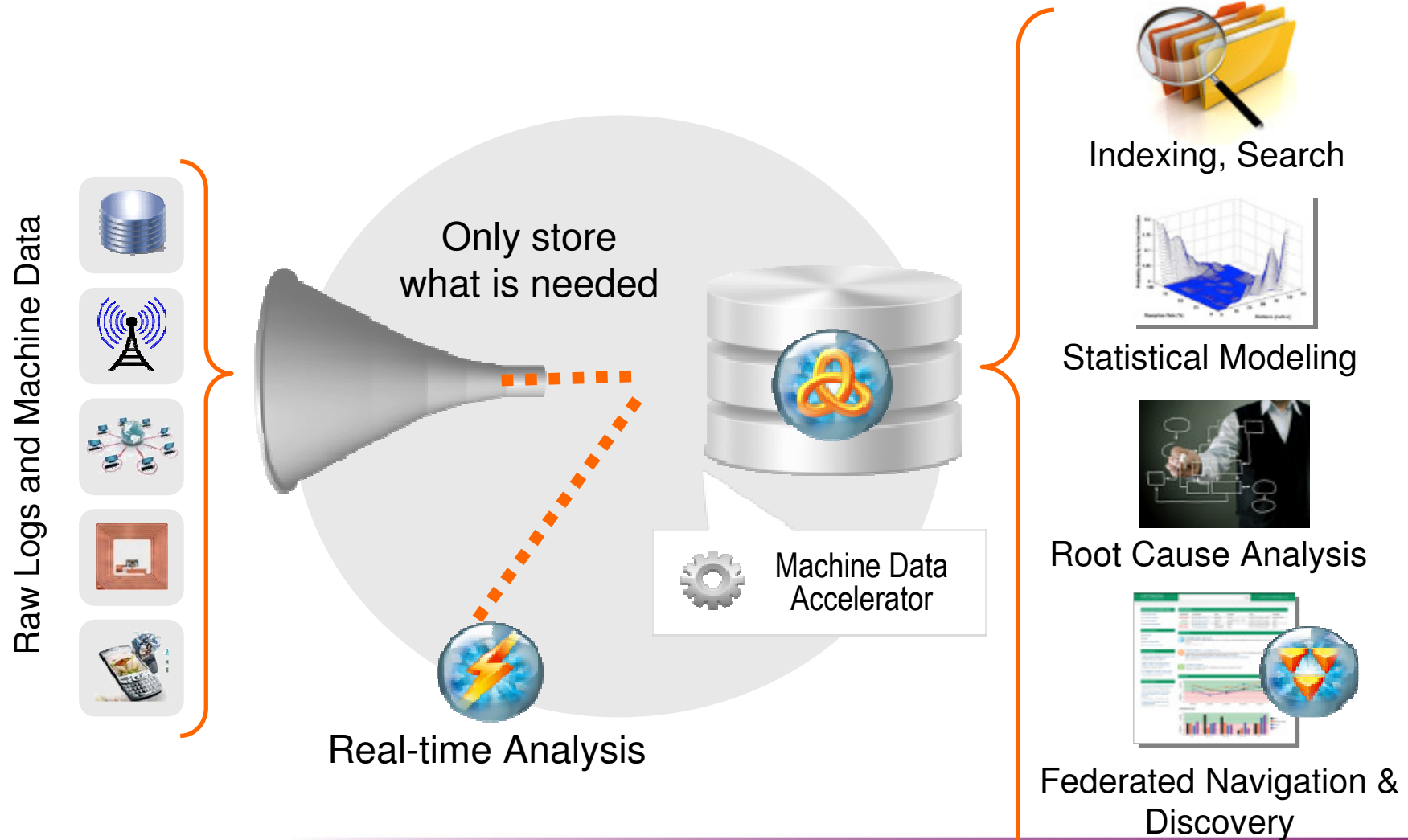
Industry Examples

- Automotive advanced condition monitoring
- Chemical and Petroleum condition-based Maintenance
- Energy and Utility condition-based maintenance
- Telco campaign management
- Travel and Transport real-time predictive maintenance
- ...

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Operations Analysis: Illustrated



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Ufone reduced churn and kept subscribers happy, helping ensure that campaigns are highly effective and timely

Need

- To ensure that its marketing campaigns targeted the right customers, before they left the network
- To keep its higher usage customers happy with campaigns offering services and plans that were right for them

Benefits

- Predictive analytics is expected to improve the campaign response rate from about 25% to at least 50%
- CDRs can be analyzed within 30 seconds, instead of requiring at least a day
- Expected to reduce churn by approximately 15-20%



Operations Analysis: Customer Example



- Intelligent Infrastructure Management: log analytics, energy bill forecasting, energy consumption optimization, anomalous energy usage detection, presence-aware energy management
- Optimized building energy consumption with centralized monitoring; Automated preventive and corrective maintenance
- Utilized InfoSphere Streams, InfoSphere BigInsights, IBM Cognos

Product Starting Point: InfoSphere BigInsights, InfoSphere Streams

4. Data Warehouse Augmentation: Needs



Exploit technology advances to deliver more value from an existing data warehouse investment while reducing cost

Requirements

- Add streaming and unstructured data sources to existing data warehouse investments
- Optimize data warehouse storage and provide query-able archive
- Rationalize data warehouse for greater simplicity and lower cost
- Provide better query performance to enable complex analytical applications
- Deliver insights to business operations for real-time decision-making
- Achieve performance and scale with predictive analytics and business intelligence

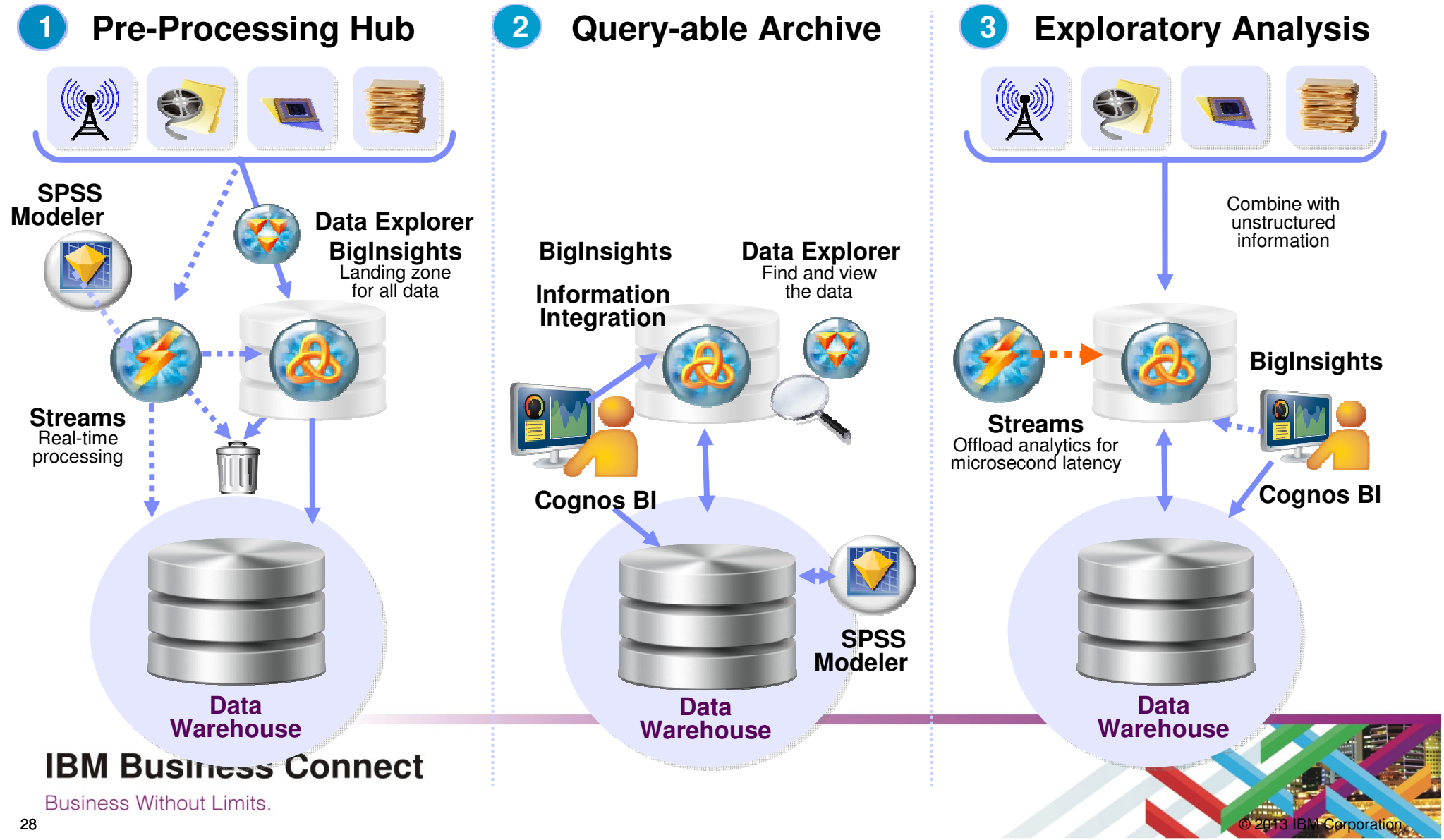
Examples

- Pre-Processing Hub
- Query-able Archive
- Exploratory Analysis
- Operational Reporting
- Real-time Scoring
- Segmentation and Modeling

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4. Data Warehouse Augmentation: Diagram





Automotive manufacturer to build out global data warehouse

Need

- Consolidate existing DW projects globally
- Deliver real-time operational reporting
- Gain new insights across all data sources

Benefits

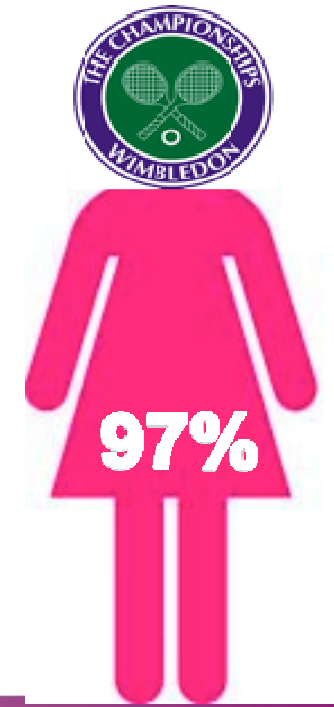
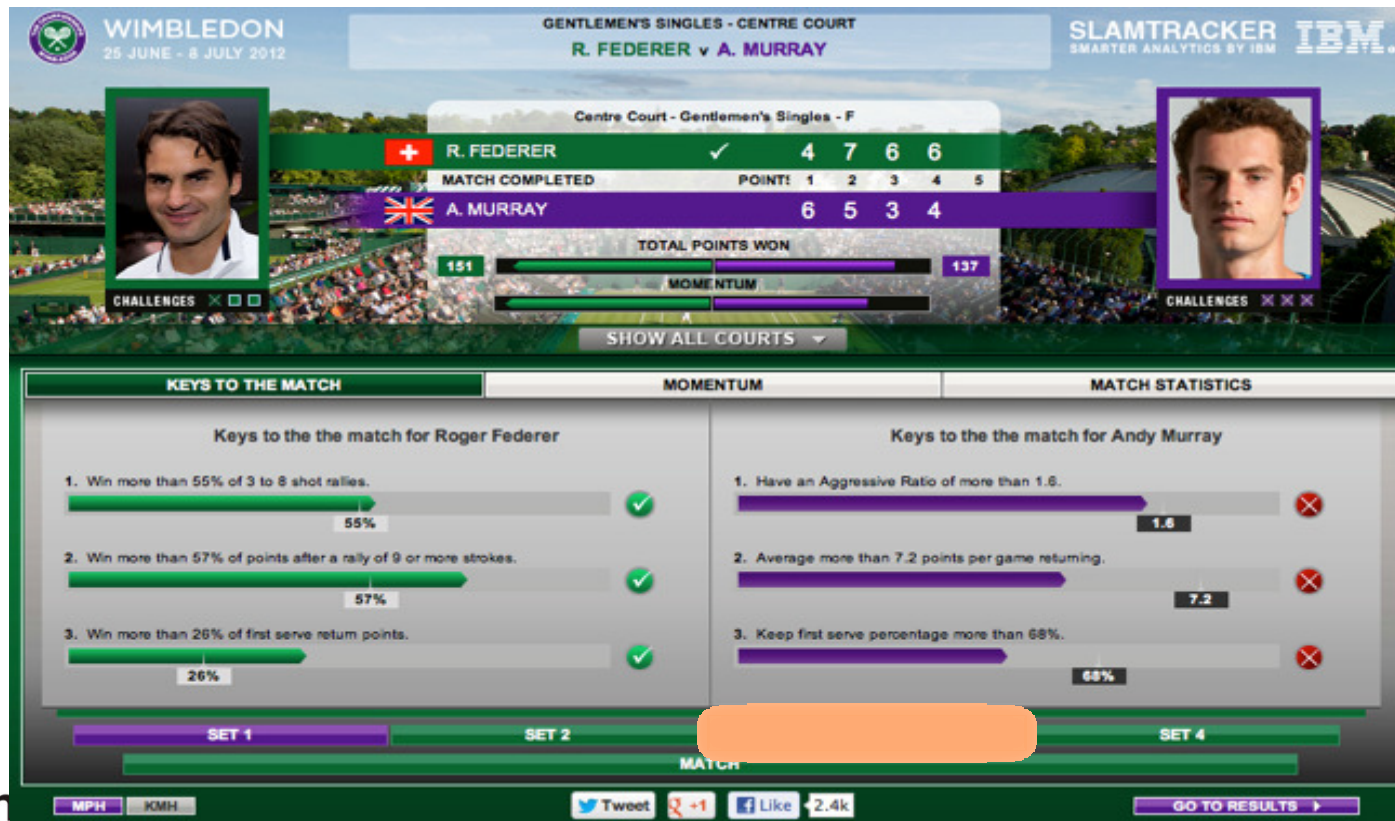
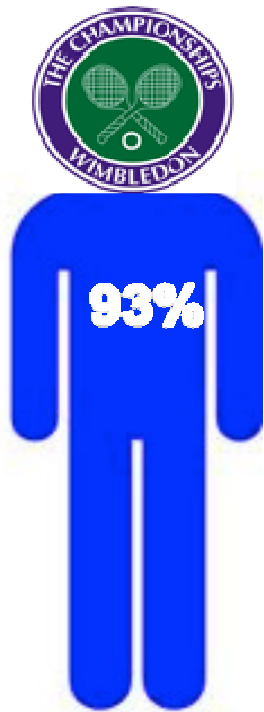
- Single infrastructure to consolidate structured, semi-structured and unstructured data
- Proven, enterprise-class capabilities that can be deployed quickly and are simpler to manage



SlamTracker at Wimbledon

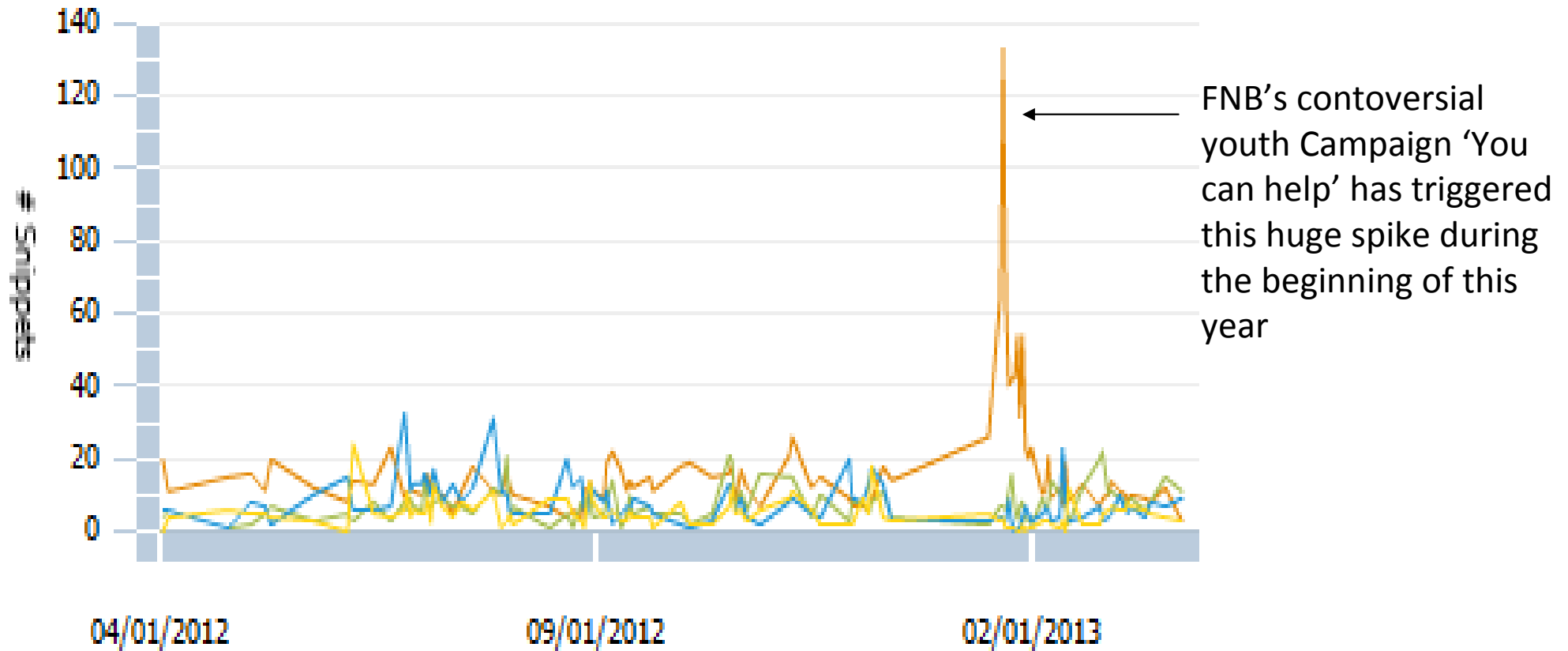


- Combines a corpus of data points made up of a player's historical winning performance, correlated with winning statistics of the last 5 grand slams, to create "Keys to the Match" win prediction engine



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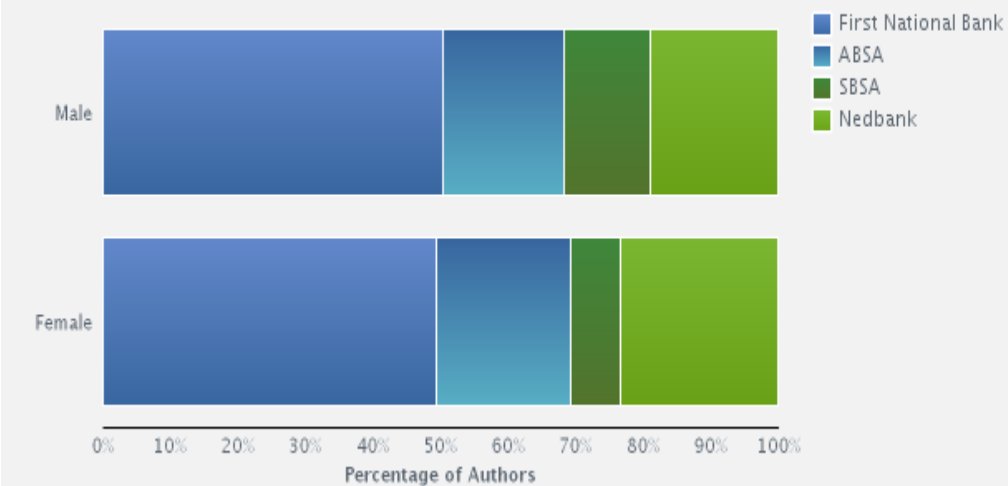
Competitive Landscape – Trends



Demographic Report

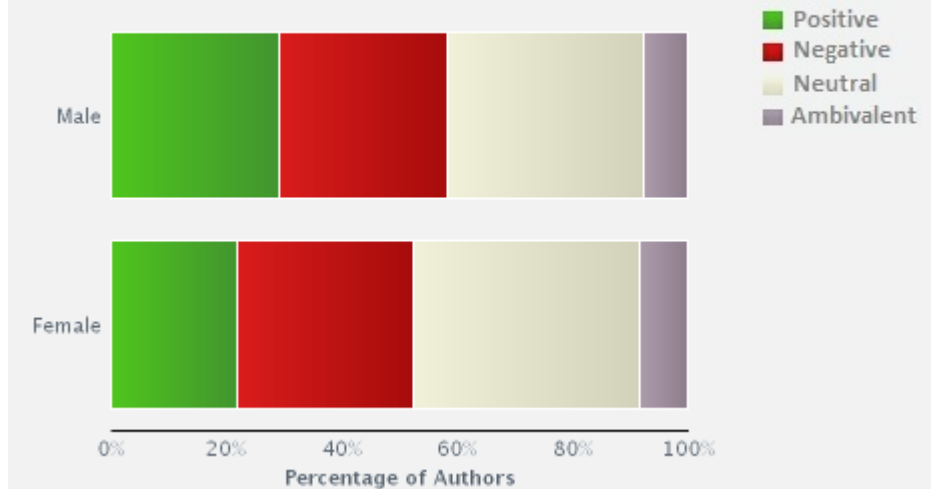
SHARE OF VOICE BY GENDER

Compare author distribution by gender within types and concepts



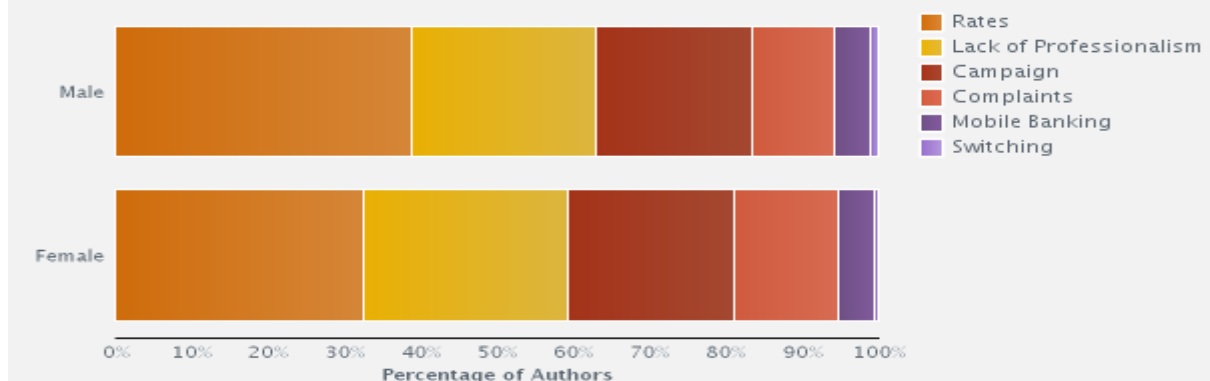
GENDER RELATIVE SENTIMENT

Compare sentiment distribution across authors by gender



HOTWORDS BY GENDER

Compare for author distribution by gender with hotwords

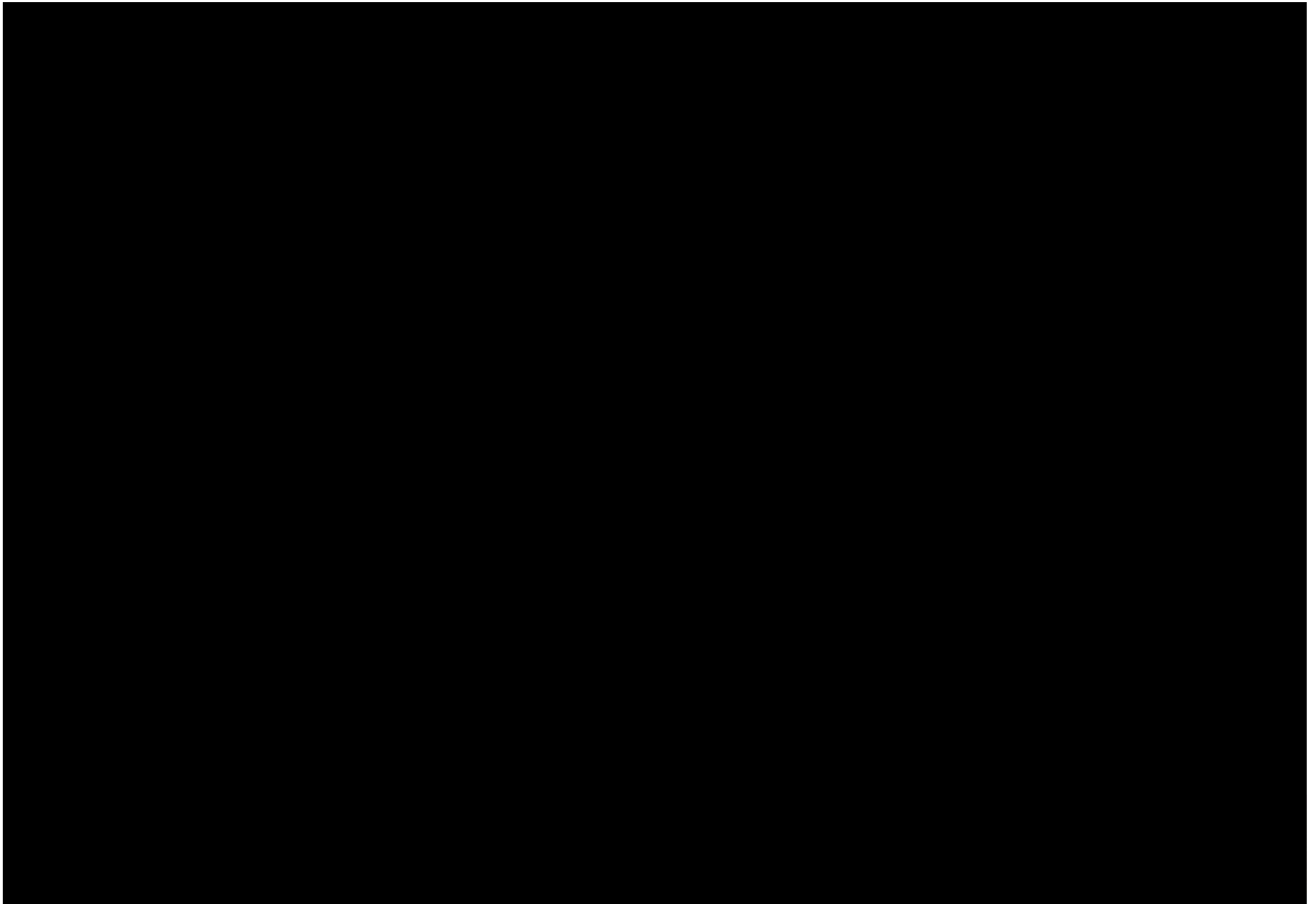


➤ Female population is creating a lot more Buzz on Nedbank than their male counterparts.

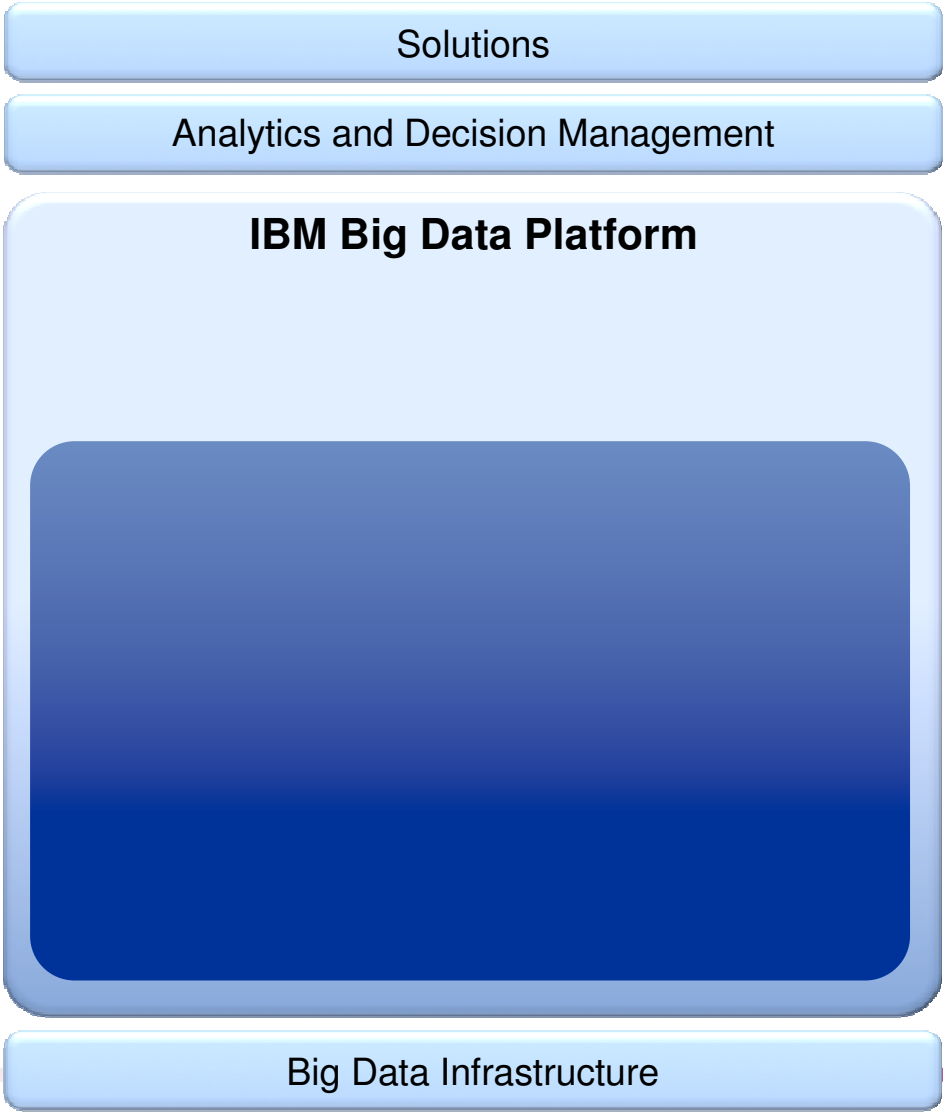
➤ Negative sentiments is marginally higher for Female Population

➤ Fees/Interest rates being the major concern for Males where the females focus on lack of professionalism and campaigns





The IBM Big Data Platform



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The IBM Big Data Platform



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

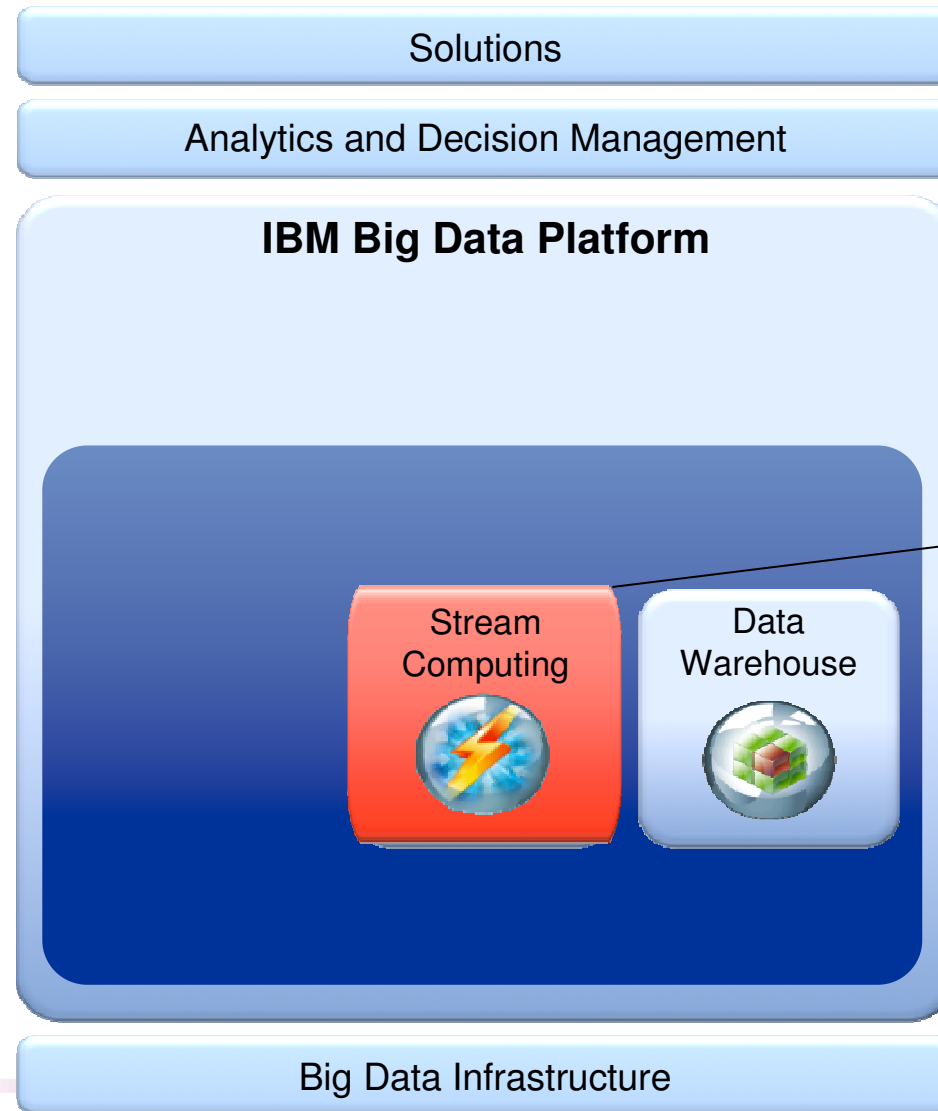
- **PureData System** – expert integrated systems to make deep and operational analytics faster & simpler
- **InfoSphere Warehouse** -- data warehouse software to access operational info in real time

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The IBM Big Data Platform



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

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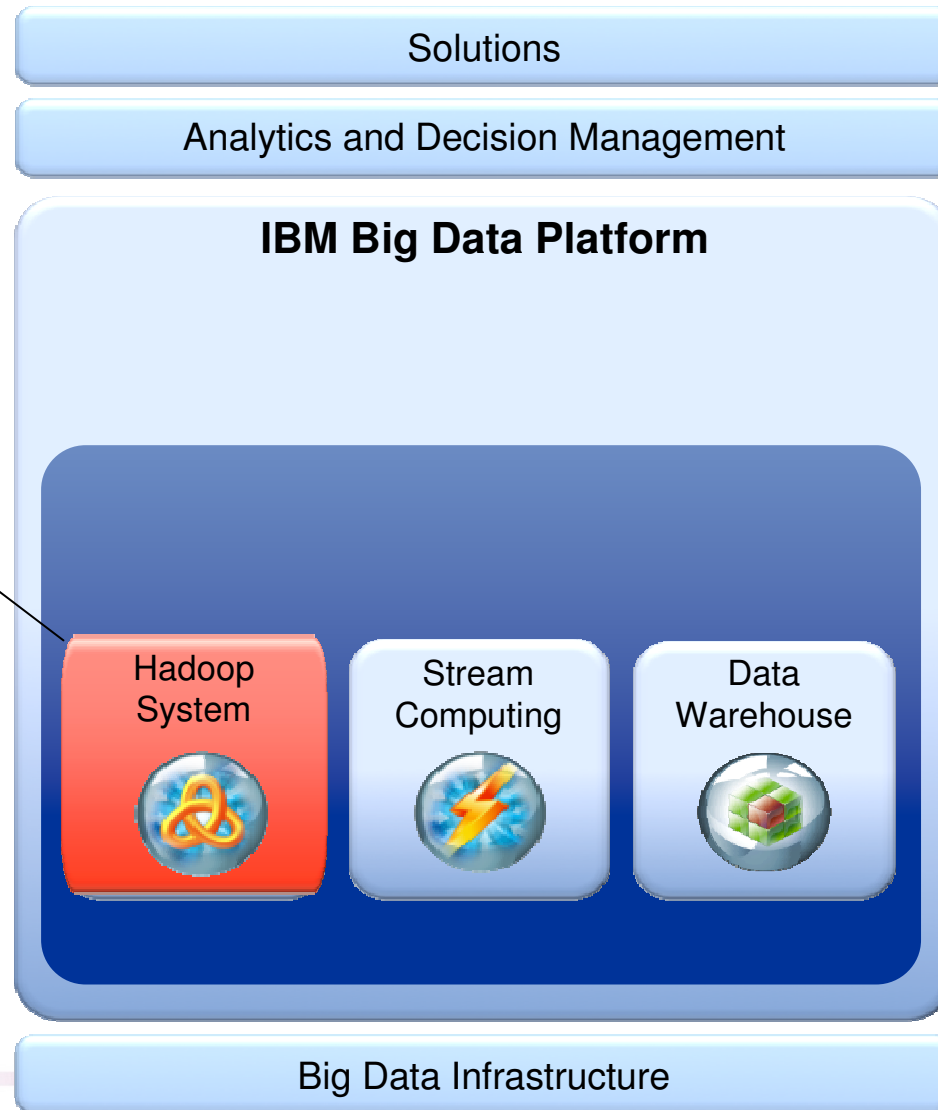


The IBM Big Data Platform



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.



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Big SQL Architecture and Feature Overview



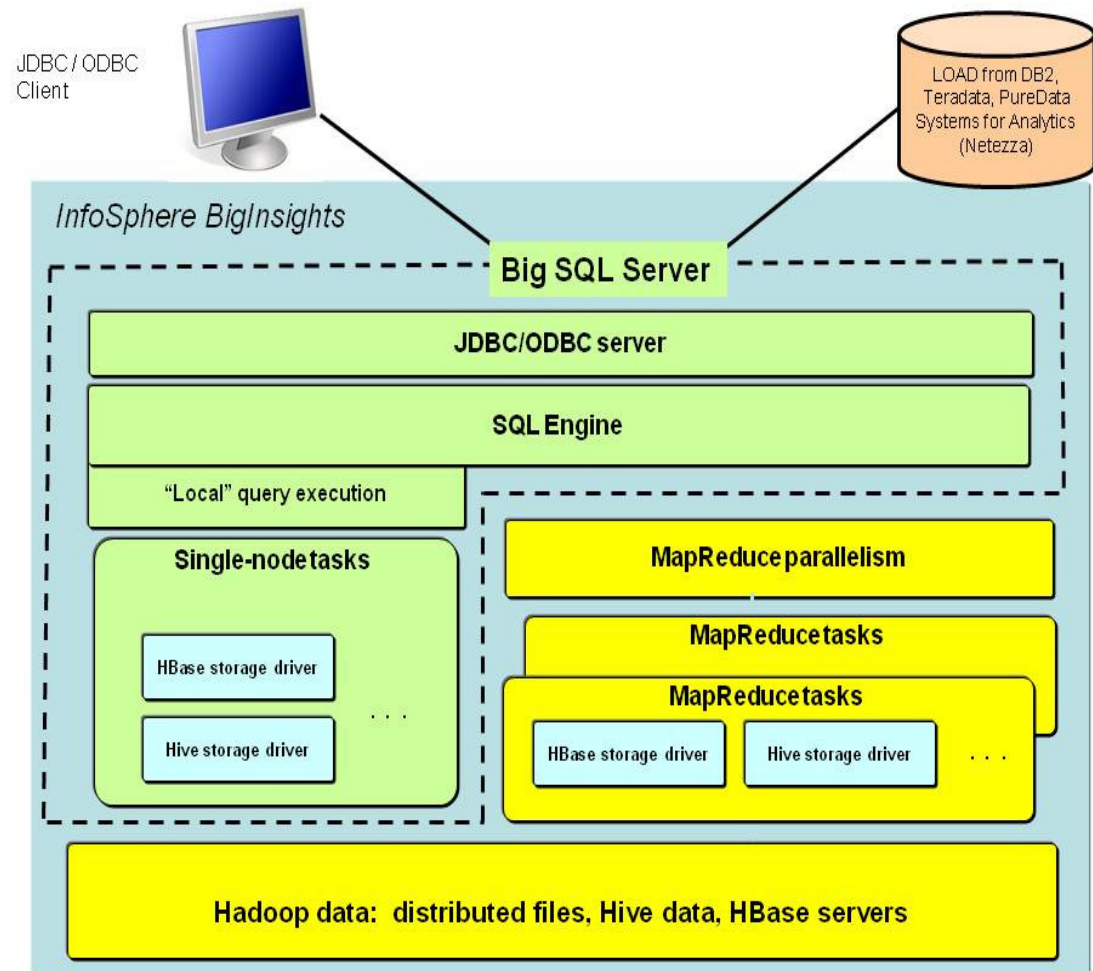
- Standard SQL syntax and data types
 - Joins, unions, aggregates . . .
 - VARCHAR, decimal, TIMESTAMP, . . .

- JDBC/ODBC drivers
 - Prepared statements
 - Cancel support
 - Database metadata API support
 - Secure socket connections (SSL)

- Optimization
 - MapReduce parallelism or...
 - “Local” access for low-latency queries

- Varied storage mechanisms appropriate for Hadoop ecosystem

- Integration
 - Eclipse tools
 - DB2, Netezza, Teradata (via LOAD)
 - Cognos Business Intelligence



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Spreadsheet-Style Data Visualization



- Ad-hoc analytics for LOB user
- Analyze a variety of data - unstructured and structured
- Browser-based
- Spreadsheet metaphor for exploring/visualizing data



Gather

Crawl – gather statistically
Adapter–gather dynamically

Extract

Document-level info
Cleanse, normalize

Explore

Analyze, annotate, filter
Visualize results

Iterate

Iterate through any prior
step

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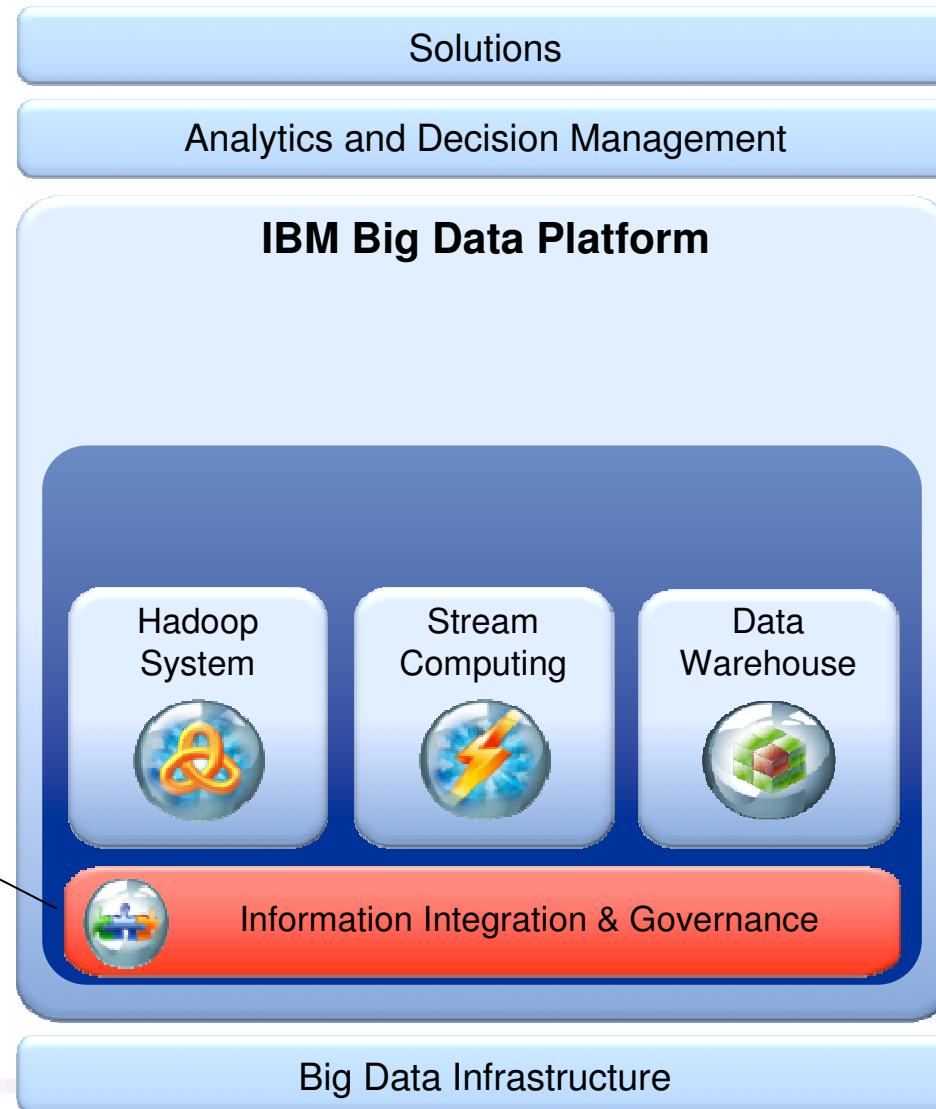


The IBM Big Data Platform



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

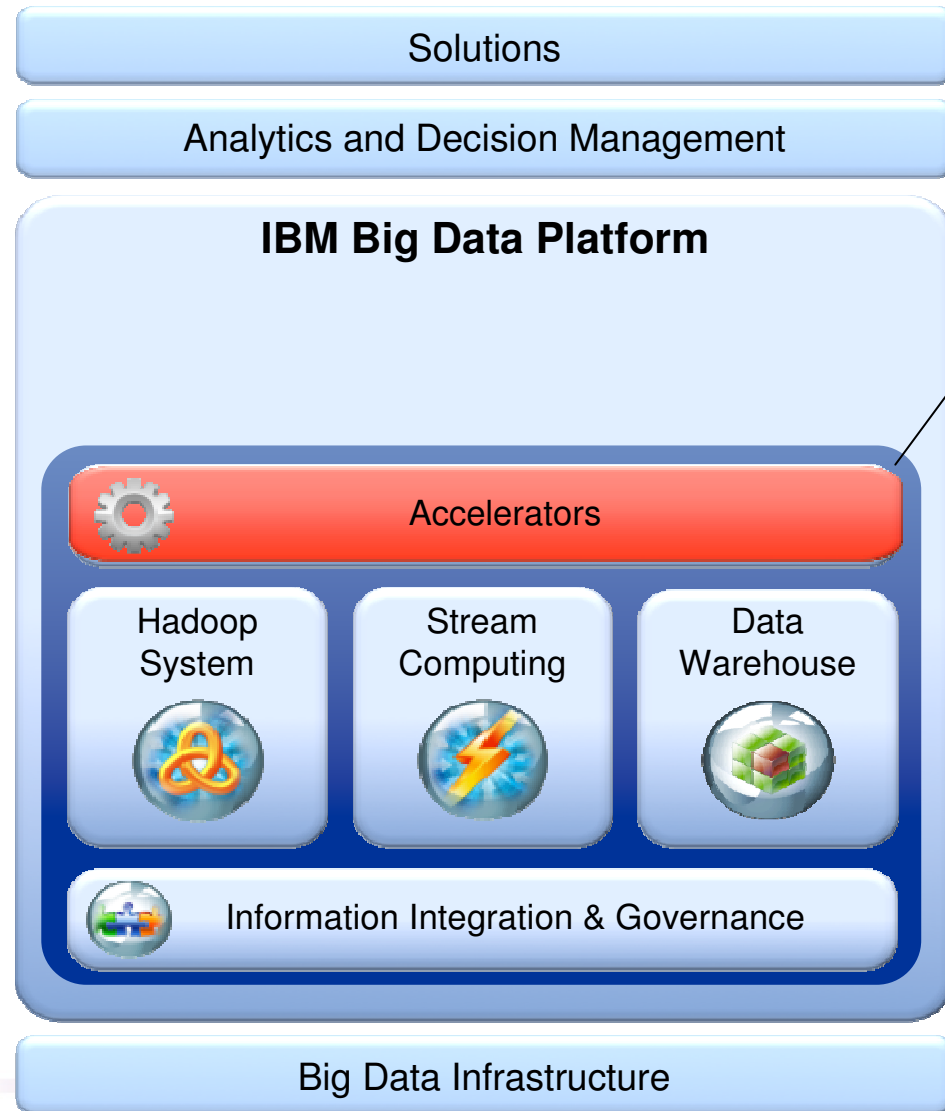


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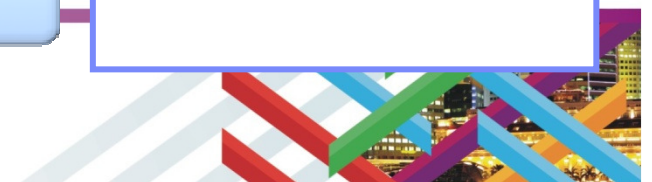


Speed time to value with analytic and application accelerators

- **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

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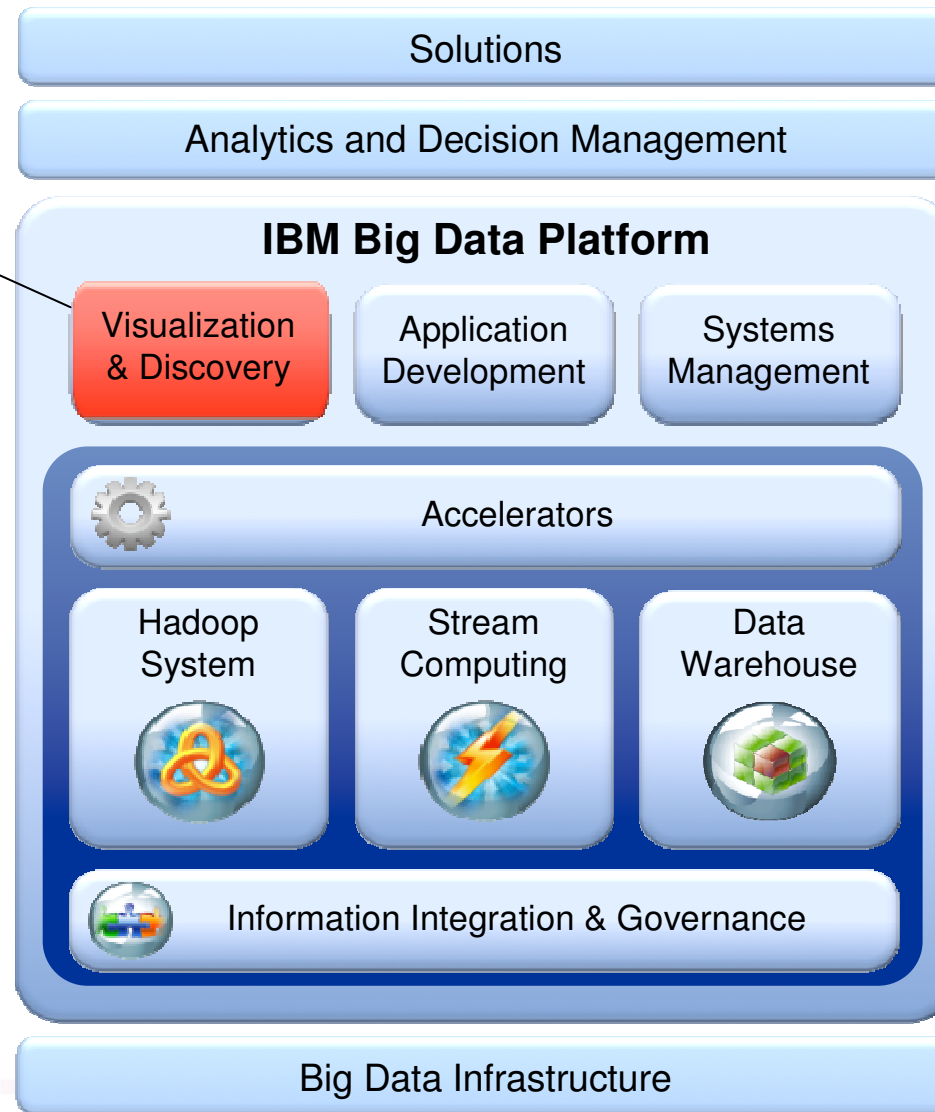


The IBM Big Data Platform



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



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The IBM Big Data Platform

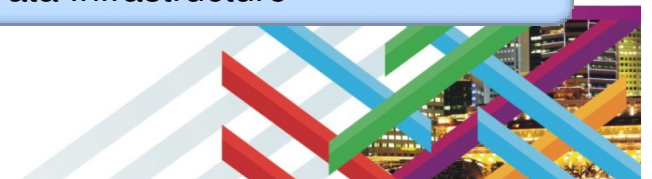


- Process any type of data
 - Structured, unstructured, in-motion, at-rest
- Built-for-purpose engines
 - Designed to handle different requirements
- Analyze data in motion
- Manage and govern data in the ecosystem
- Enterprise data integration
- Grow and evolve on current infrastructure



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Getting the Value from Big Data – Why a Platform?

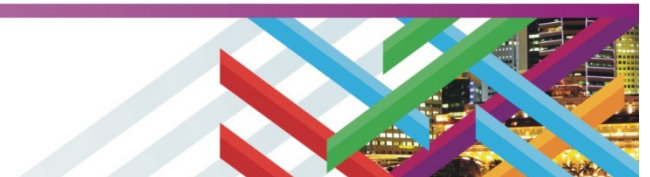


The Whole is Greater than the Sum of the Parts

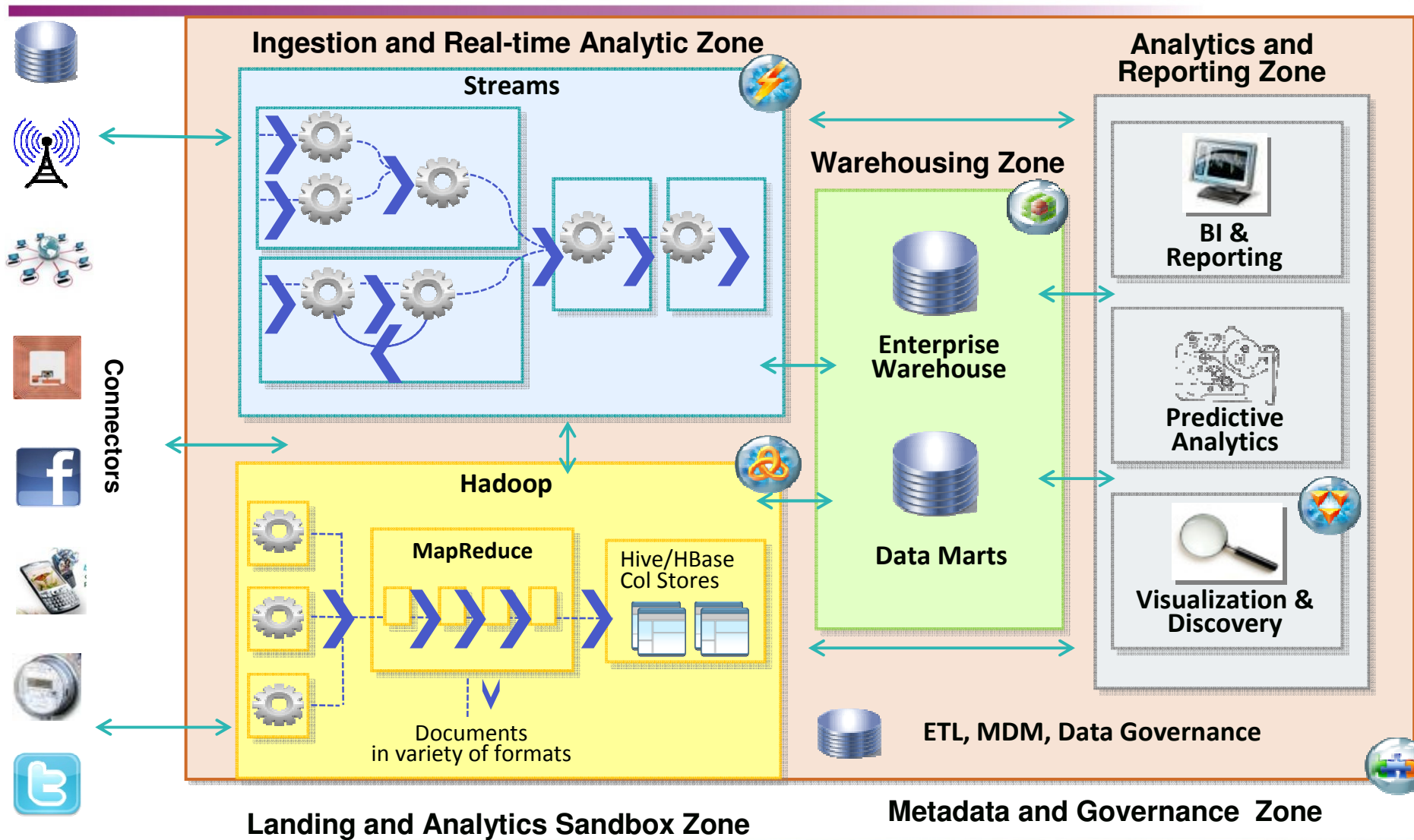
- Almost all big data use cases require an integrated set of big data technologies to address the business pain completely
- Reduce time and cost and provide quick ROI by leveraging pre-integrated components
- Provide both out of the box and standards-based services
- Start small with a single project and progress to others over your big data journey (*value is additive*)

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An example of the big data platform in practice



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Big Data and Information Integration / Governance



Integrate & Link Big Data

- High performance load and read from BigInsights
 - Integrate seamlessly w/existing enterprise
 - Data lineage & impact analysis across the data supply chain



Cleanse and Validate Big Data

- Accuracy and entity matching with social data and standardization of machine data
- Cleanse and match final results of big data analysis before reporting



Protect Big Data

- Active monitor trap any unexpected access and breaches
- Mask sensitive data to ensure data protection and industry compliance



Audit & Archive Big Data

- Create queryable archive for exploratory analysis of historical data
- Ensure compliance with Immutable archive and secure access to the data



Master Big Data

- BigInsights will be a supplier of data to MDM and consume MDM data in the analysis
- Link BigInsights and trusted golden records
- Entity resolution at extreme scale



IBM has built an extensive business partner ecosystem for Big Data and Analytics (Over 330 partners!)



Get Started on Your Big Data Journey Today



Get Educated

- IBM Big Data: ibm.com/bigdata
- IBMBigDataHub.com
- BigDataUniversity.com
- IBV study on big data
- Books / analyst papers

Schedule a Big Data Workshop

- Free of charge
- Best practices
- Industry use cases
- Business uses
- Business value assessment



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Introduction to InfoSphere BigInsights Quick Start Edition

Watch the video (00:02:22)

Download now!

- InfoSphere BigInsights Quick Start Edition Native Software Installation
- InfoSphere BigInsights Quick Start Edition VMware Image

There are 2 download options available. Choose the native software option to download Quick Start onto your machine. Choose the VMware image for a virtual machine option to get started with Quick Start even faster.

Blogs

- IBM developerWorks Big Data
- IBM developerWorks BigInsights
- ↔ IBM Big Data hub

Getting Started

- Guided learning with InfoSphere BigInsights Tutorials
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