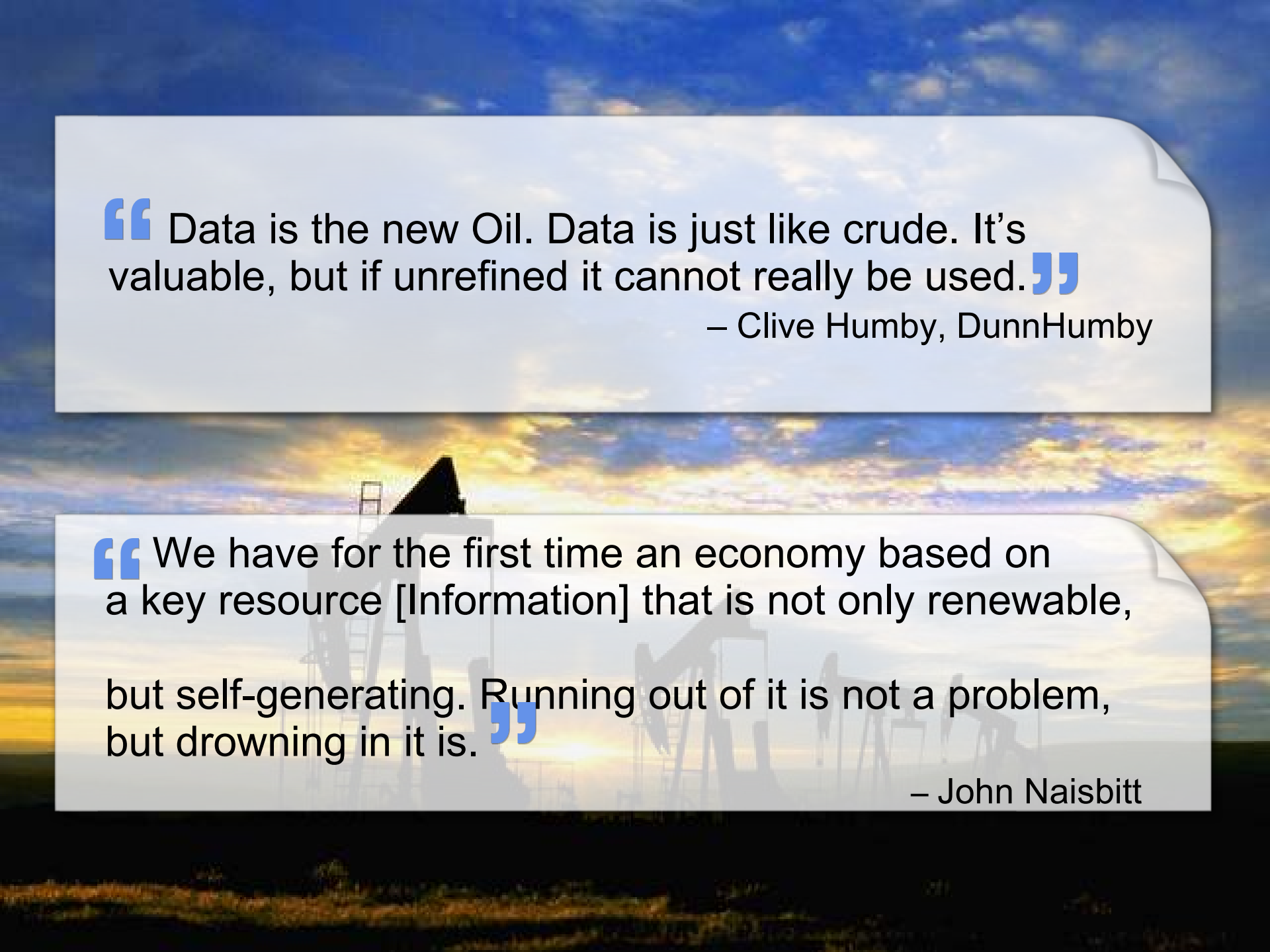
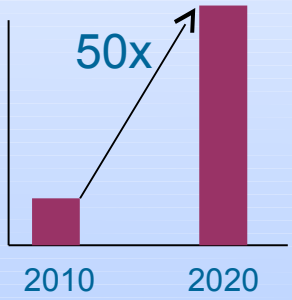
The 5 Game Changing Big Data Use Cases


“ Data is the new Oil. Data is just like crude. It’s valuable, but if unrefined it cannot really be used.”
– Clive Humby, DunnHumby
“ We have for the first time an economy based on a key resource [Information] that is not only renewable,
but self-generating. Running out of it is not a problem, but drowning in it is.”
– John Naisbitt

The Characteristics of Big Data

Cost efficiently processing the growing **Volume**



35 ZB

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

In Order to Realize New Opportunities, You Need to Think Beyond Traditional Sources of Data

Transactional and Application Data

- Volume
- Structured
- Throughput

Machine Data

- Velocity
- Semi-structured
- Ingestion

Social Data

- Variety
- Highly unstructured
- Veracity

Enterprise Content

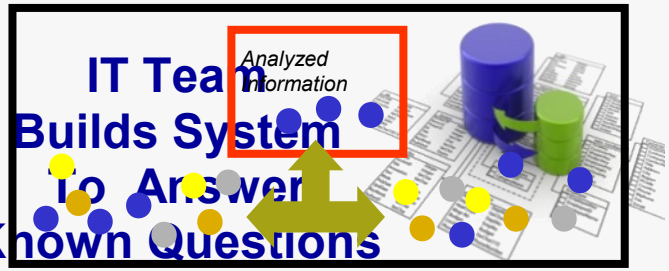
- Variety
- Highly unstructured
- Volume

The Big Data Approach to Analytics is Different

Traditional Analytics

Structured & Repeatable
Structure built to store data

Capacity constrained down sampling of available information



Carefully cleanse a small information before any analysis

Big Data Analytics

Iterative & Exploratory
Data is the structure

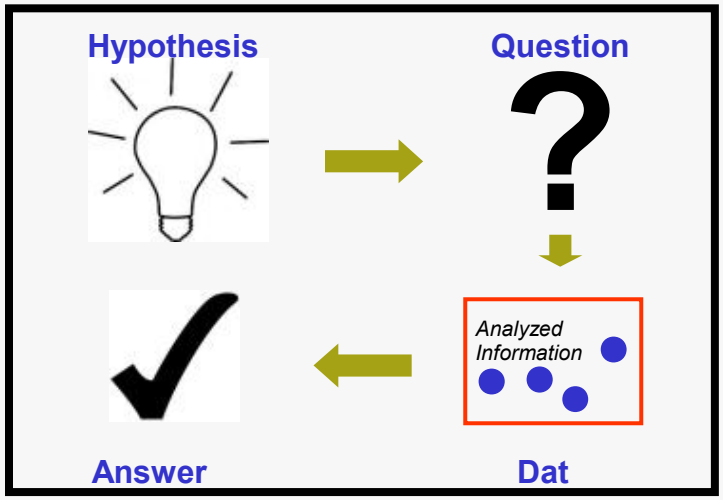
Whole population analytics connects the dots

Analyze information as is & cleanse as needed & existing repeatable

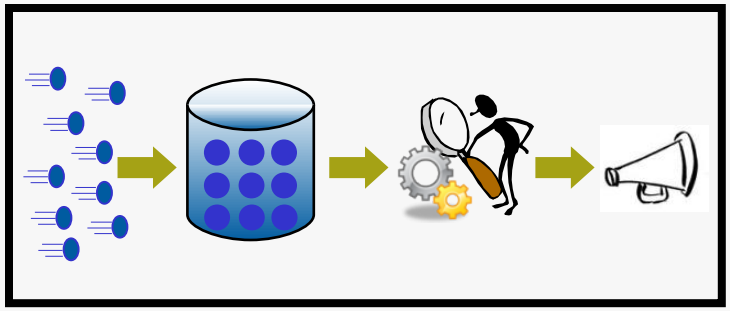
The Big Data Approach to Analytics is Different

Traditional Analytics

Structured & Repeatable
Structure built to store data



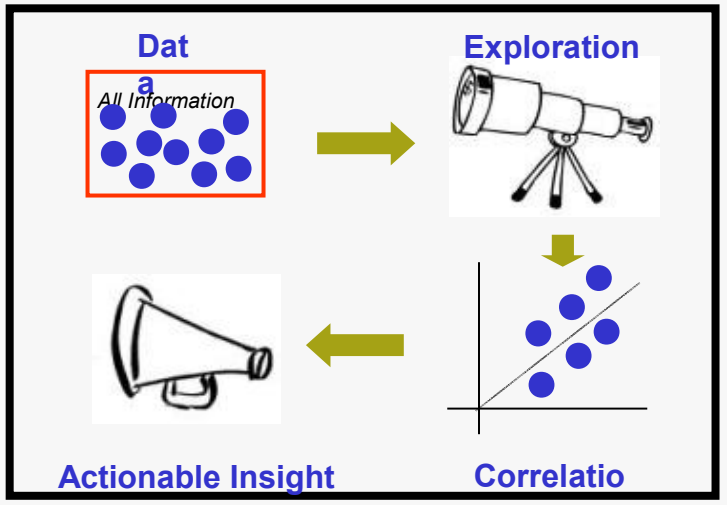
Start with hypothesis
Test against selected data



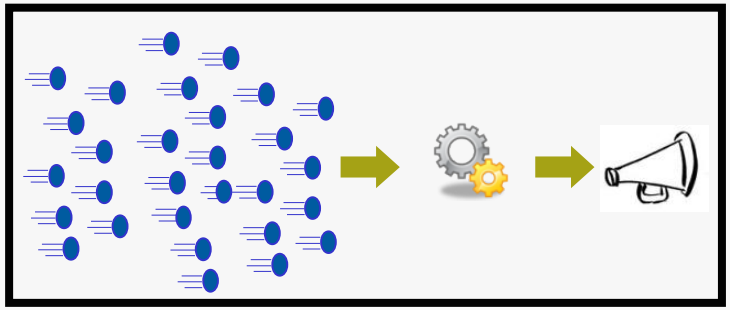
Analyze after landing…

Big Data Analytics

Iterative & Exploratory
Data is the structure



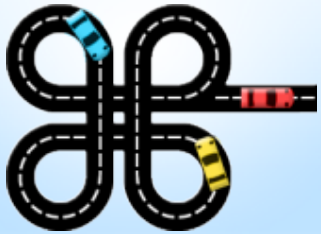
Data leads the way
Explore *all* data, identify correlations



Analyze in motion…

Imagine the Possibilities of Analyzing *All* Available Data

Real-time Traffic Flow Optimization

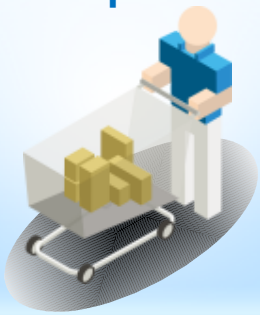


Fraud & risk detection

Understand and act on customer sentiment

Accurate and timely threat detection

Predict and act on intent to purchase



Low-latency network analysis

Imagine the Possibilities of Harnessing *Your* Data Resources

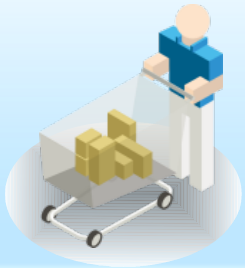
Big data challenges exist in every organization today

Government cuts acoustic analysis from hours to 70 Milliseconds

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

Hospital analyses streaming vitals to detect illness 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%

The 5 Key Use Cases

Big Data Exploration

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

Enhanced 360º View of the Customer

Extend existing customer views by incorporating additional internal and external information 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

1. Big Data Exploration: Needs

Explore and mine big data to find what is interesting and relevant to the business for better decision making

Requirements

Explore new data sources for potential value

Mine for what is relevant for a business imperative

Assess the business value of unstructured content

Uncover patterns with visualization and algorithms

Prevent exposure of sensitive information

Industry Examples

- Customer service knowledge portal
- Insurance catastrophe modeling
- Automotive features and pricing optimization
- Chemicals and Petroleum conditioned base maintenance
- Life Sciences drug effectiveness
- …

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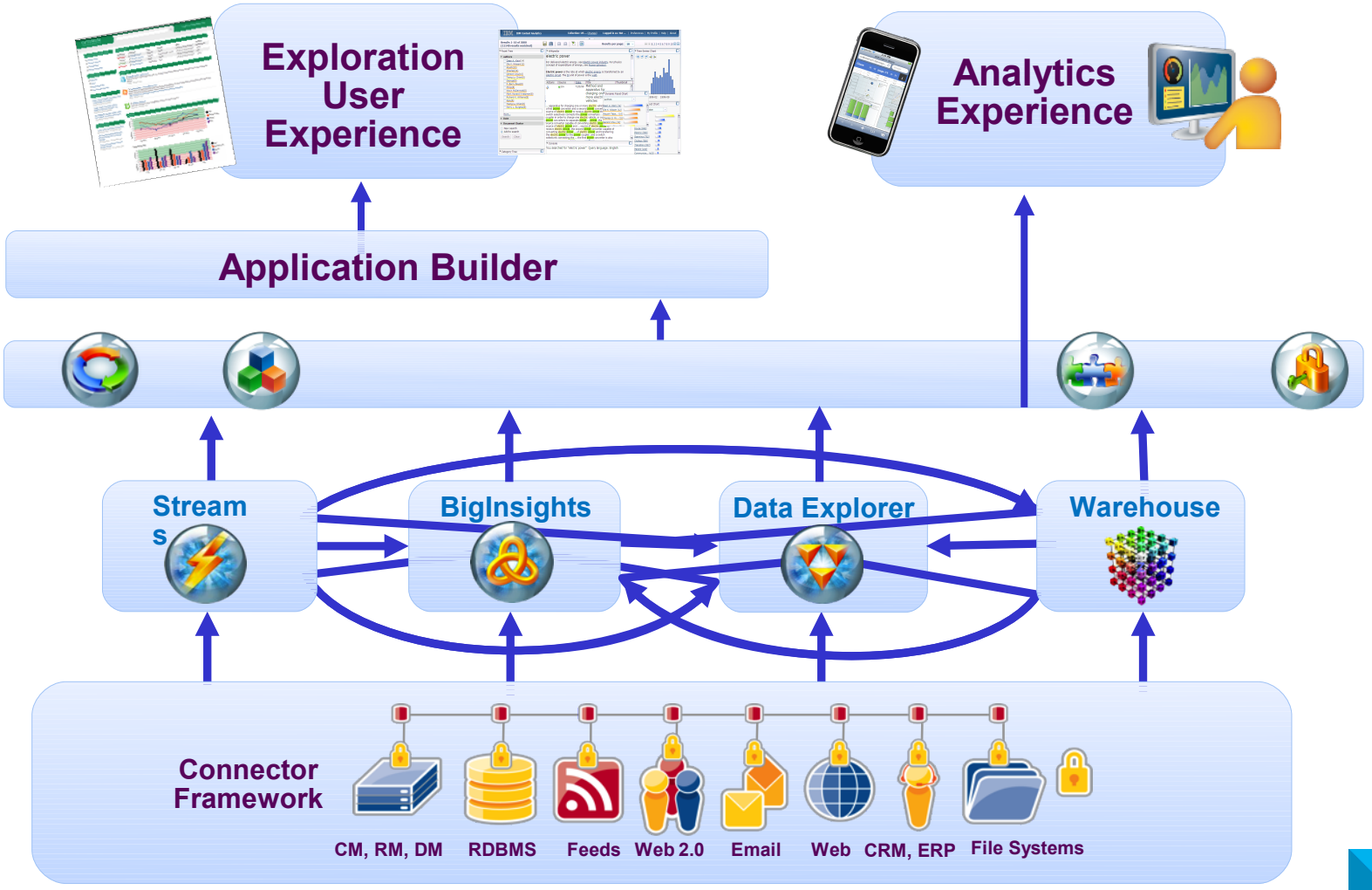
1. Big Data Exploration: Diagram



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)

2. Enhanced 360º View of the Customer: Needs

Optimize every customer interaction
by knowing everything about them

Requirements

Create a connected picture of the customer

Mine all existing and new sources of information

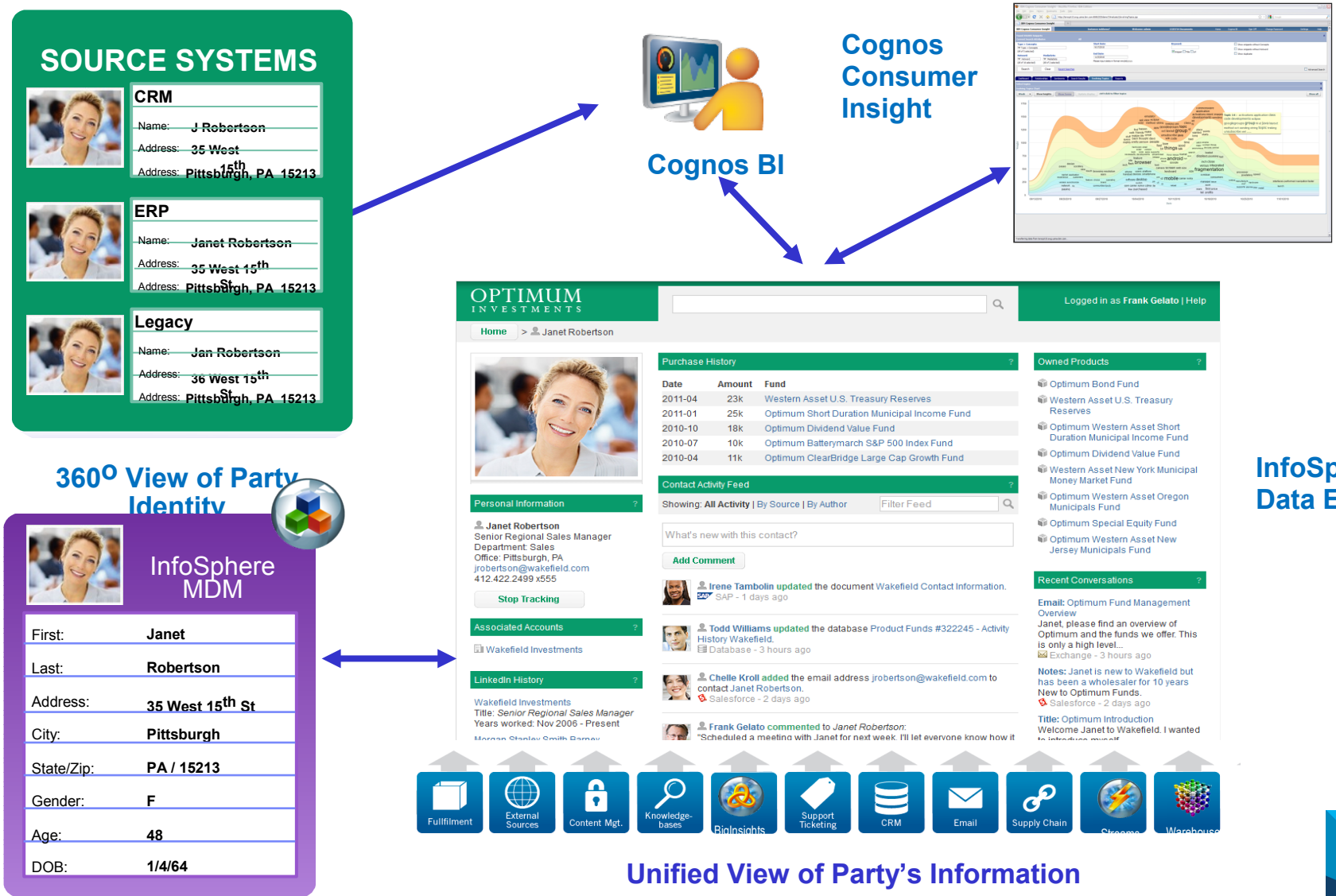
Analyze social media to uncover sentiment about products

Add value by optimizing every client interaction

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
- …

2. Enhanced 360º View of the Customer: Diagram



Big Data, Integration & Governance

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

3. Security and Intelligence Extension: Needs

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

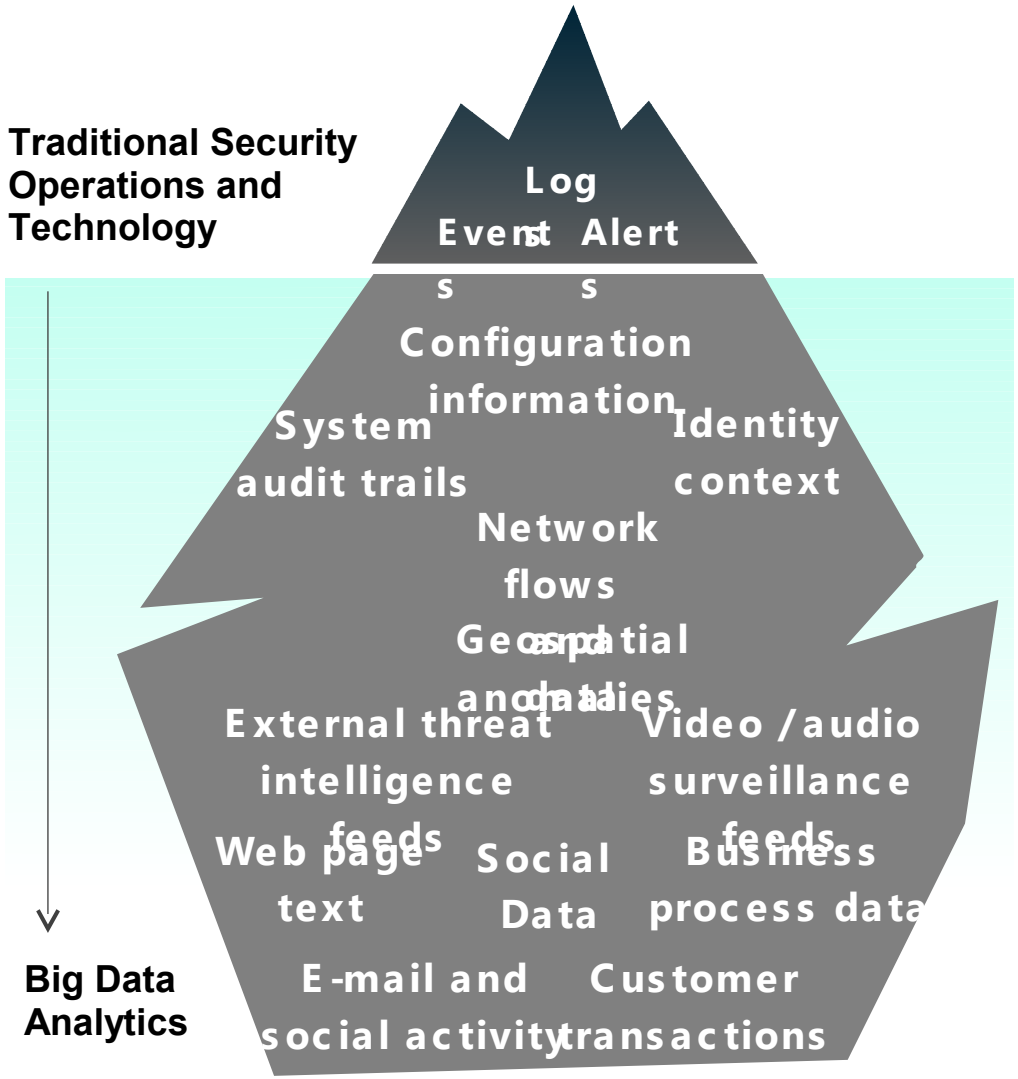
Requirements

Enhanced Intelligence and Surveillance Insight	Analyze data-in-motion and at rest to: • Find associations • Uncover patterns and facts • Maintain currency of information
Real-time Cyber Attack Prediction and Mitigation	Analyze network traffic to: • Discover new threats sooner • Detect known complex threats • Take action in real-time
Crime Prediction and Protection	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
- Utilities are terror targets, disrupt power and water
- Retailers vulnerable to internal and external threats due to PCI data

3. Security/Intelligence Extension: Diagram



New Considerations

Collection, Storage and Processing

- Collection and integration
- Size and speed
- Enrichment and correlation

Analytics and Workflow

- Real time analysis
- Data in motion
- Unable to persist all data
- Visualization
- Unstructured analysis
- Learning and prediction
- Customization
- Sharing and export

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

TerraEchos

4. Operations Analysis: Needs

Apply analytics to machine data for greater operational efficiency

Requirements

Analyze machine data to identify events of interest

Apply predictive models to identify potential anomalies

Combine information to understand service levels

Monitor systems to avoid service degradation or outages

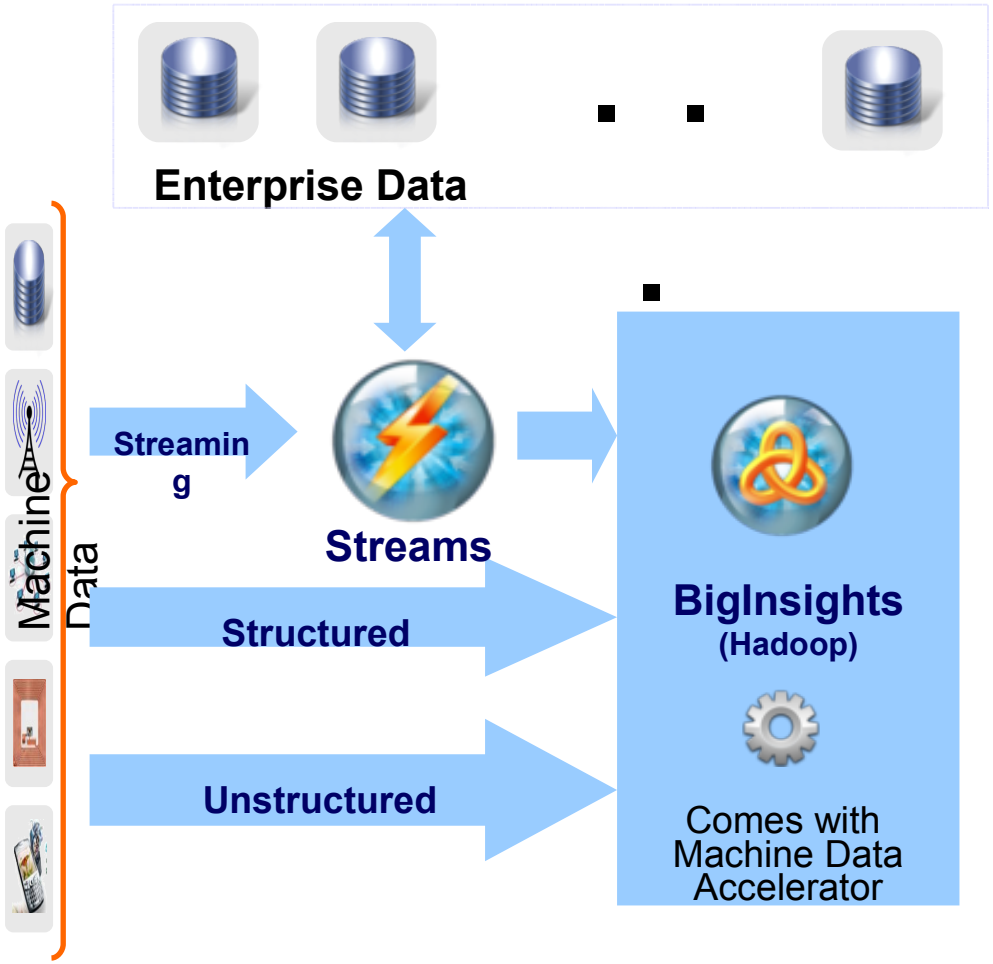
Gain real-time visibility into operations, customer experience, transactions and behavior

Industry Examples

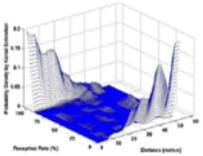
- Automotive advanced condition monitoring
- Chemical and Petroleum condition-based Maintenance
- Energy and Utility condition-based maintenance
- Telco campaign management
- Travel and Transport real-time predictive maintenance
- …

Proactively plan to increase operational efficiency

4. Operations Analysis: Diagram



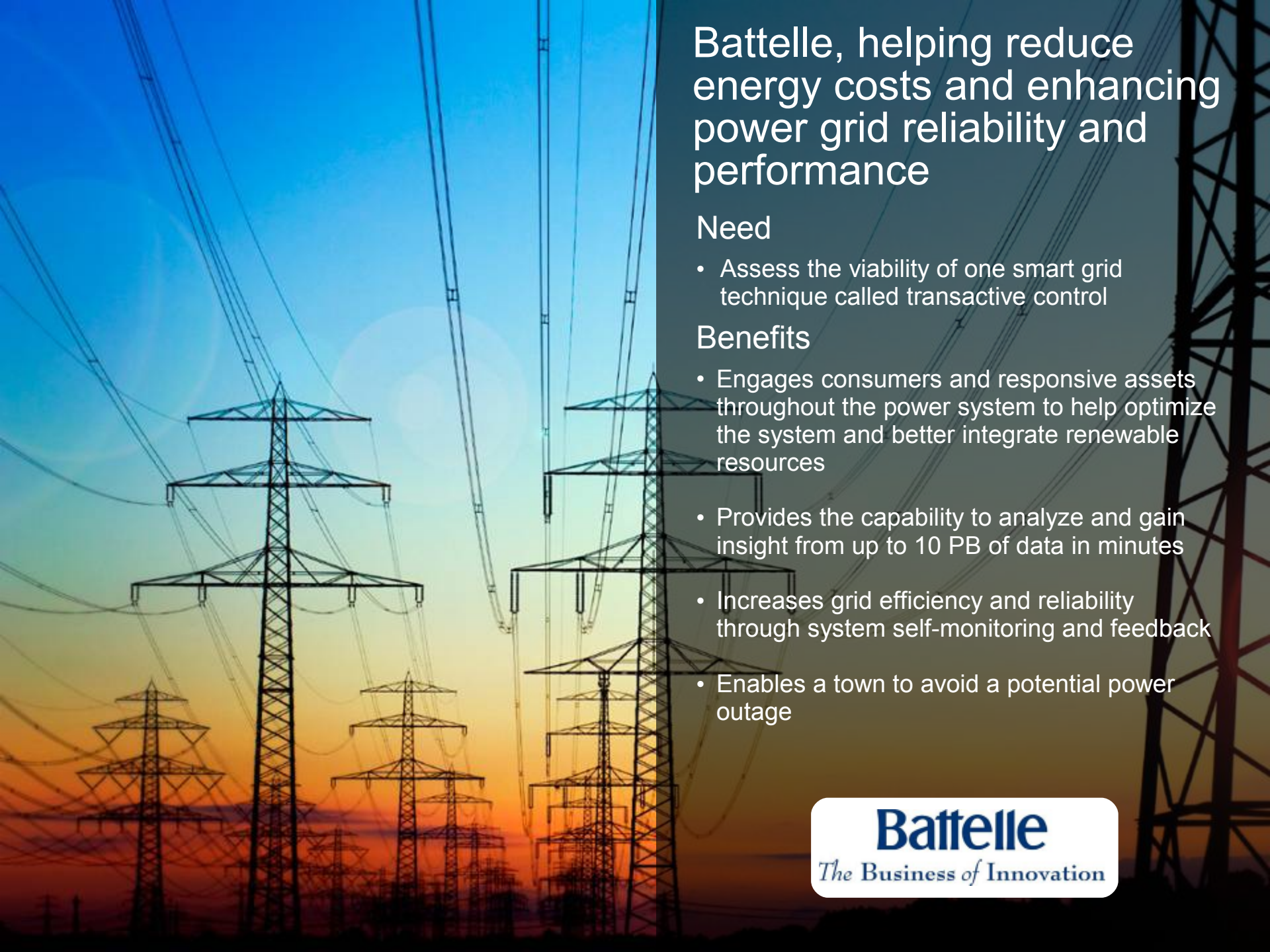
Indexing, Search



Statistical Modeling

Root Cause Analysis

Federated Navigation & Discovery



Battelle, helping reduce energy costs and enhancing power grid reliability and performance

Need

- Assess the viability of one smart grid technique called transactive control

Benefits

- Engages consumers and responsive assets throughout the power system to help optimize the system and better integrate renewable resources
- Provides the capability to analyze and gain insight from up to 10 PB of data in minutes
- Increases grid efficiency and reliability through system self-monitoring and feedback
- Enables a town to avoid a potential power outage

Battelle
The Business of Innovation

5. Data Warehouse Augmentation: Needs

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

Requirements

Add new sources to existing data warehouse investments

Optimize storage and provide query-able archive

Rationalize for greater simplicity and lower cost

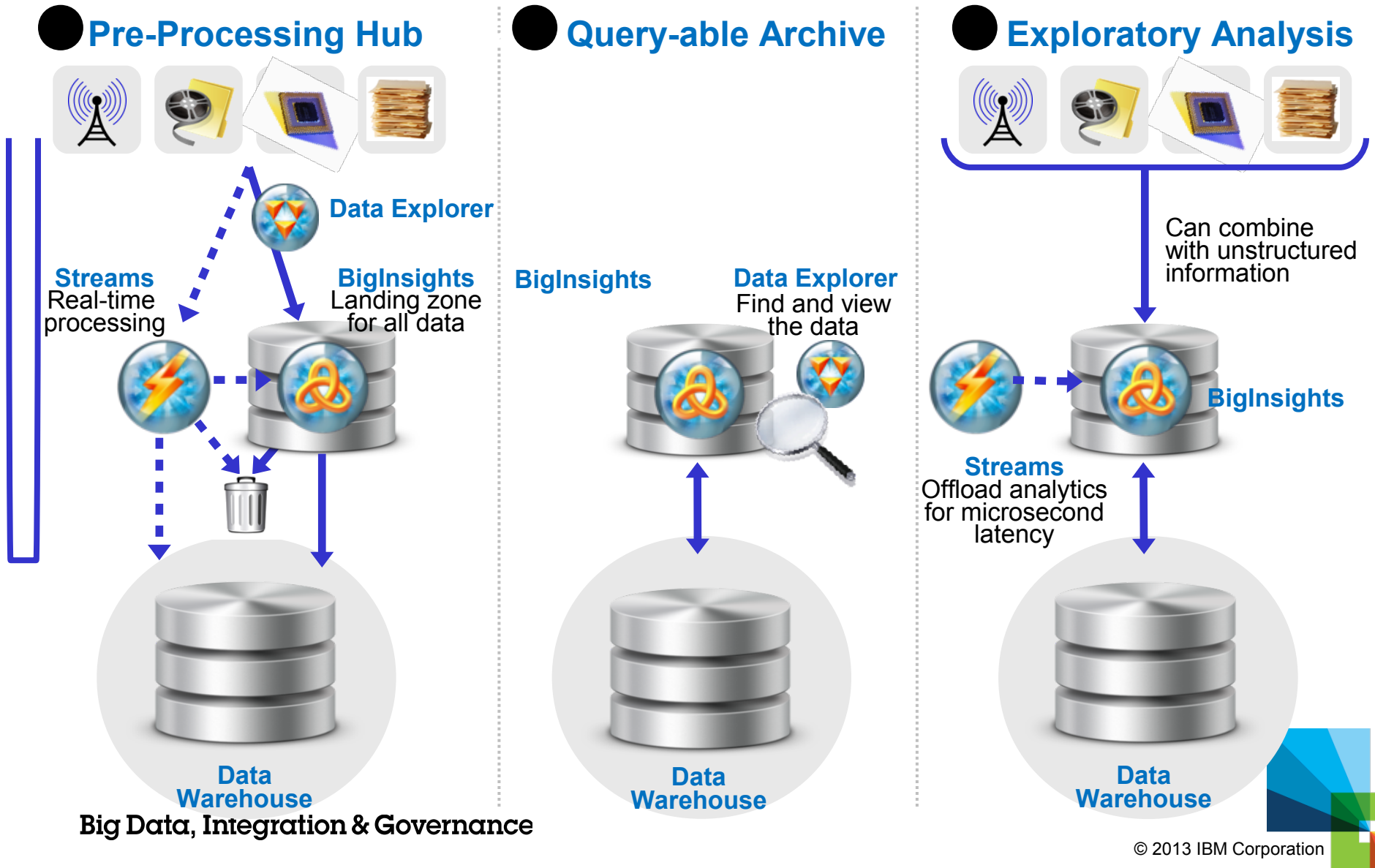
Enable complex analytical applications with faster queries

Scale predictive analytics and business intelligence

Examples

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

5. Data Warehouse Augmentation: Diagram



Big Data, Integration & Governance

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

Common Big Data Use Cases by Industry

Banking

Next Best Action

Compliance and Risk

E & U

Smart Meters

Asset Performance Management

Government

Social Program Integrity

Tax Fraud, Waste and Abuse

Retail

Deliver a Smarter Shopping Experience

Merchandise Planning & Optimization

Insurance

Claims Fraud

Customer Retention

Telco

Network Analytics

Next Best Action

Healthcare

Consumer360 Insights

Provider Outcome Analytics

Industrial

Track & Trace Supply Chain M t

Actionable Consumer Insight

Get Started

Get Educated

- Forum content
- IBMBigDataHub.com
- Big Data University
- 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