Why care

Intrinsic Property of Data … it grows

90%

of the world's data was created in the last two years

80%

of the world's data today is unstructured

20%

of available data can be processed by traditional systems

1 in 2

business leaders don't have access to data they need

83%

of CIO's cited BI and analytics as part of their visionary plan

5.4X

more likely that top performers use business analytics

Source: GigaOM, Software Group, IBM Institute for Business Value"

"Data is the new Oil"

In its raw form, oil has little value. Once processed and 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."

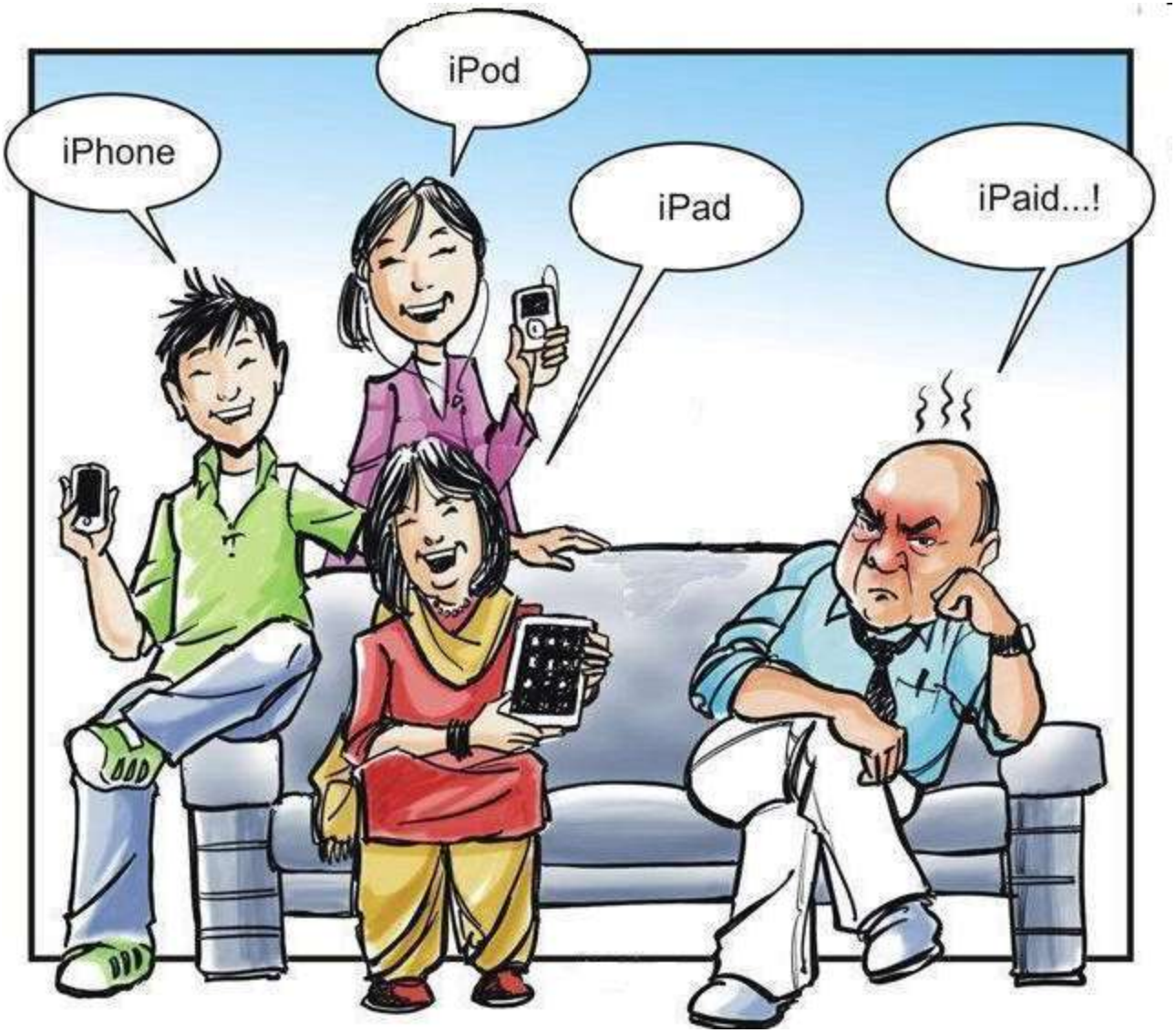
Los Angeles Times

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."

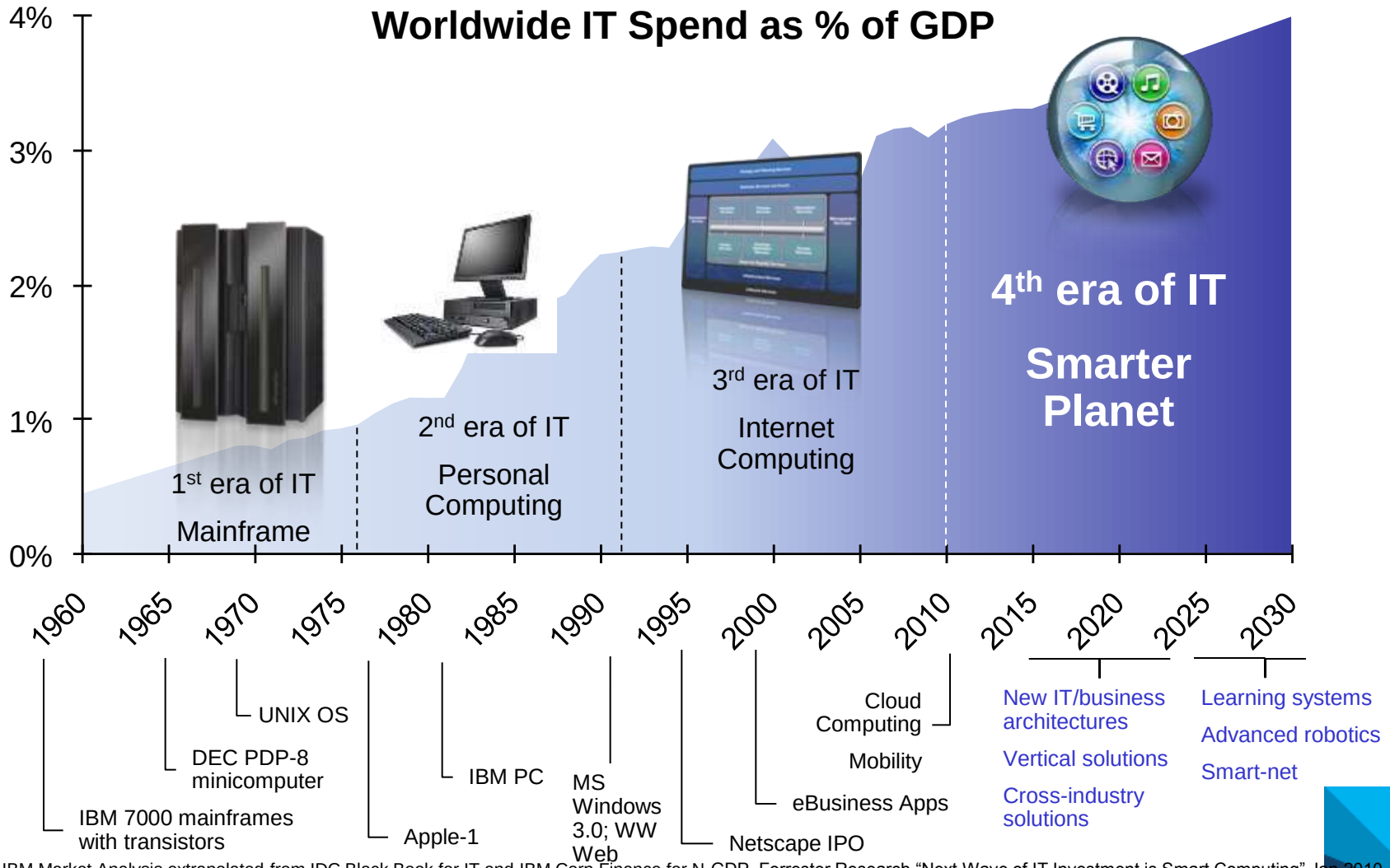
CNBC

"Data is the new oil."
Clive Humby

How did we get here?

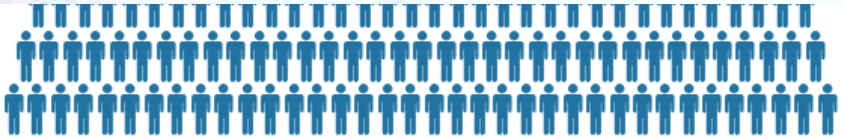


As was true in prior eras, the 4th era may increase IT's share of worldwide GDP to 4% by 2030



Source: IBM Market Analysis extrapolated from IDC Black Book for IT and IBM Corp Finance for N-GDP, Forrester Research "Next Wave of IT Investment is Smart Computing" Jan 2010, IBM Research OCTO 2011 "Frontiers of IT"

The world is changing and becoming more…



2 Billion internet users

4.6 Billion mobile phones

A growing Interconnected and Instrumented World

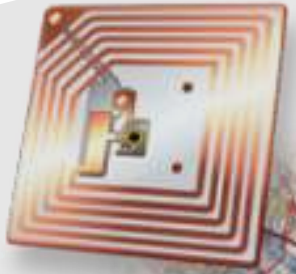
500+ Million
users posting 55 Million
tweets every day

1.2 Trillion
searches

2012

1+ Billion
active users spending 700 Million minutes per month

30 billion **RFID tags today (1.3B in 2005)**



4.6 billion **camera phones world wide**

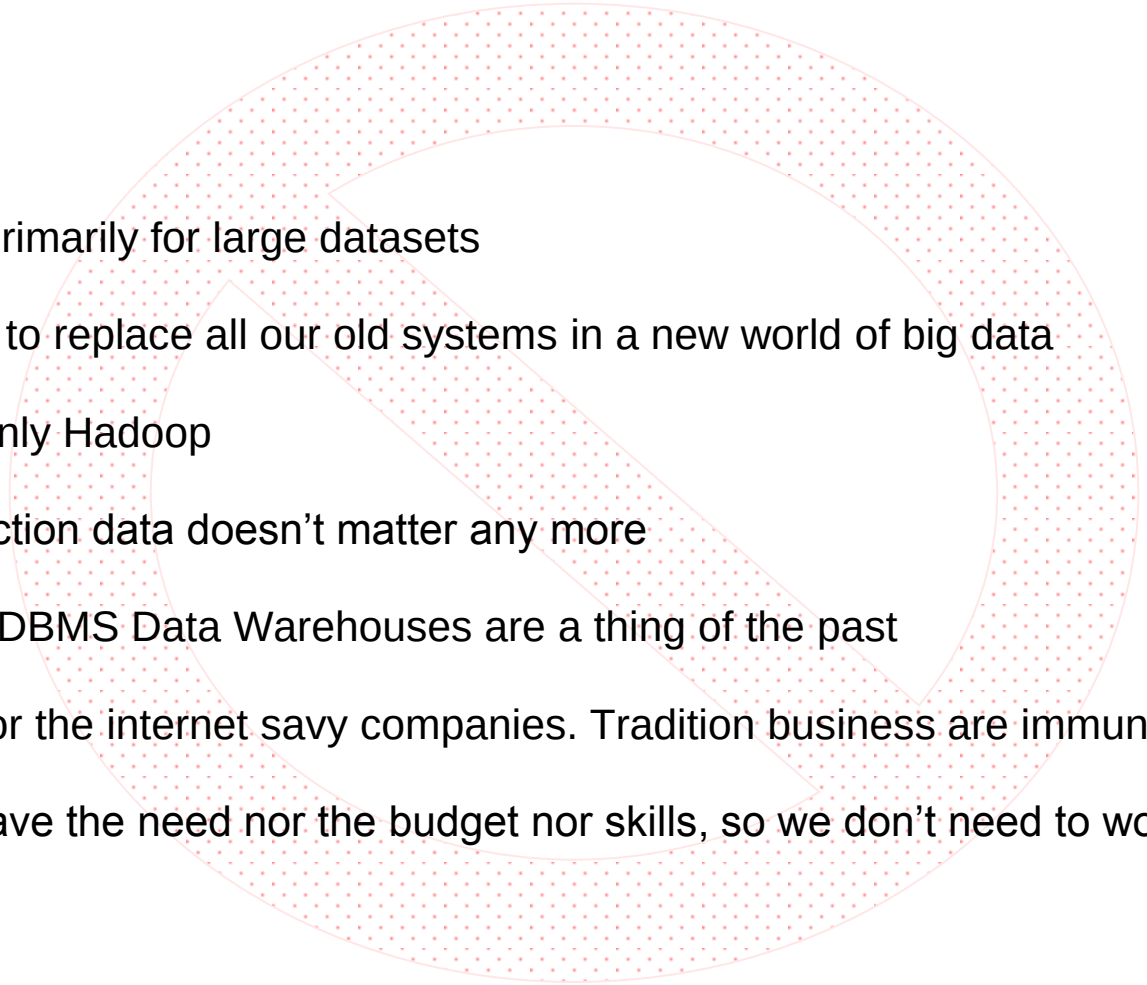
100s of millions of GPS enabled **devices sold annually**

76 million **smart meters in 2009… 200M by 2014**

2+ billion **people on the Web by end 2011**

What is it?

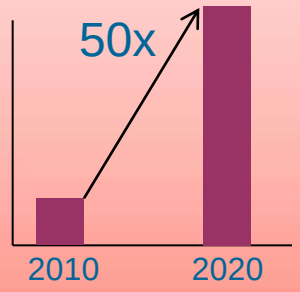
What is it NOT!



- Big Data is Primarily for large datasets
- We will have to replace all our old systems in a new world of big data
- Big Data is only Hadoop
- Older transaction data doesn't matter any more
- Traditional RDBMS Data Warehouses are a thing of the past
- Big Data is for the internet savy companies. Tradition business are immune
- We do not have the need nor the budget nor skills, so we don't need to worry

The characteristics of big data

Cost efficiently processing the growing **Volume**



35 ZB

Responding to the increasing **Velocity**

30 Billion RFID sensors and counting

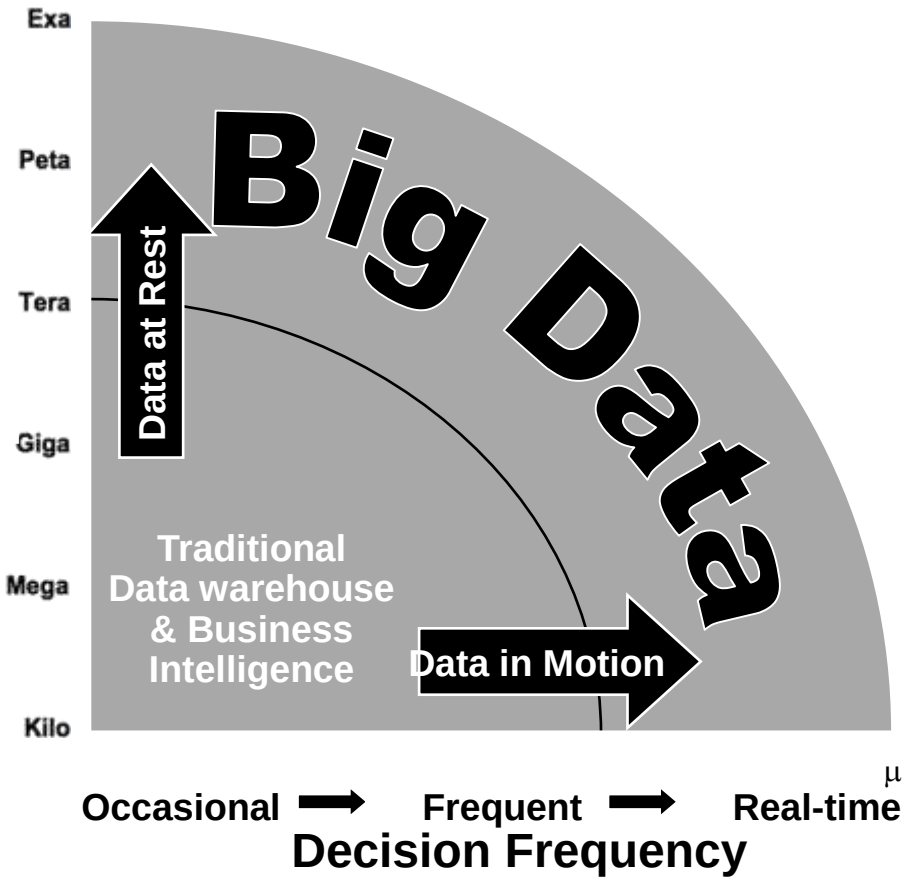
Collectively Analyzing the broadening **Variety**

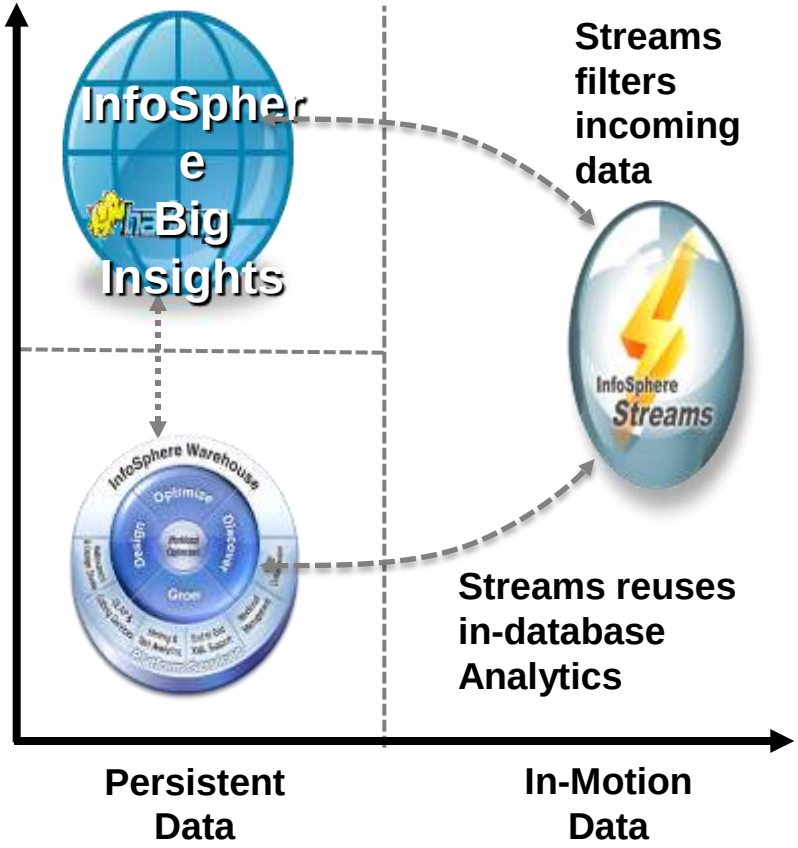
80% of the worlds data is unstructured

Establishing the **Veracity** of big data sources

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

“Big Data” brings new opportunities





Source: Global Technology Outlook 2011

Harness the Power of Big Data & Analytics for Improved Business Outcomes in Banking

Dramatic forces across the industry require new approaches to help maximize profitability and returns

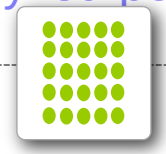
- Turbulent Global Economy
- Increased Regulations
- Competition for Wallet Share
- Capital and Liquidity Pressures
- Emboldened Customers
- Net Margin Pressures

To address these challenges, big data presents a huge opportunity – if banks can harness it

Volume

180 million

Loan records analyzed per day

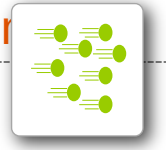


Analyze more loans for risk and patterns of fraud

Velocity

2 trillion

Calculations of securities data in 1

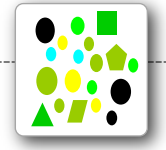


Uncover risk and identify opportunities faster than ever before

Variety

40 million

Emails analyzed per month



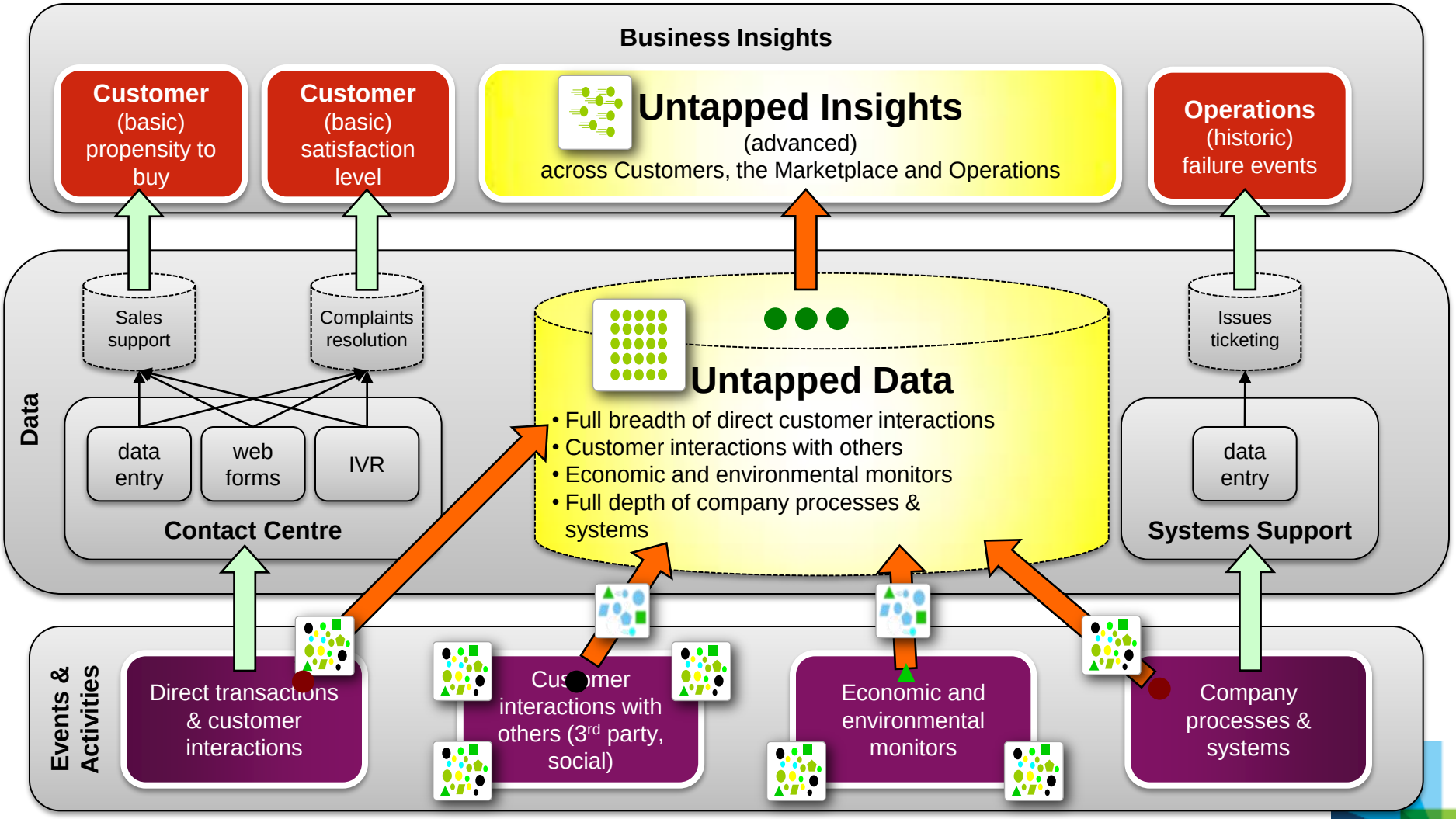
Dig deep to discover customer sentiment and attitudes

Establishing the Veracity of big data sources

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

Is Big Data something new (don't we do it already today)?

Existing methods may be sufficient, but additional insights could be surfaced

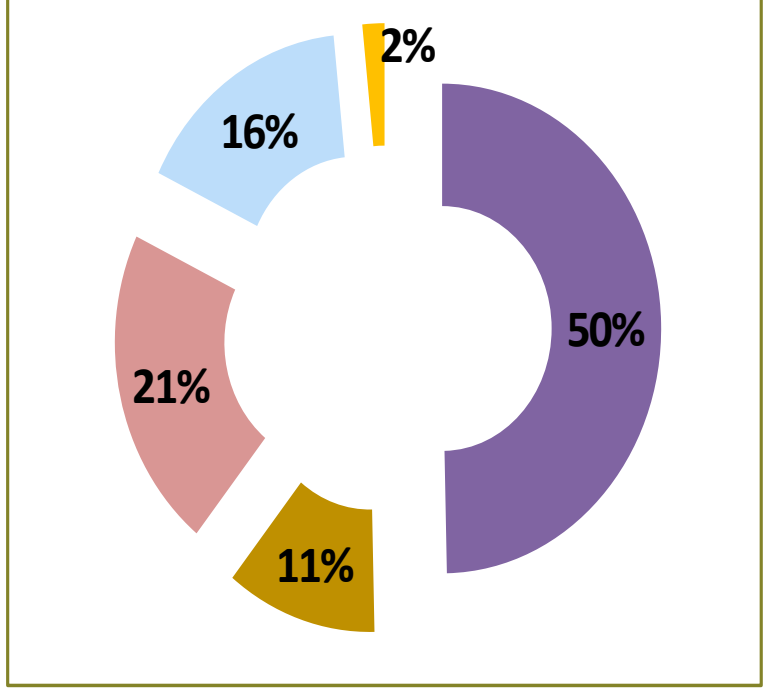


Studies show that two thirds of banks have big data activities underway

Customer-centric analytics is the primary functional domain to leverage big data capabilities

Big Data Activities

Financial Services



Source: The real world use of Big Data, IBM & University of Oxford

$GM uses BigInsights as their landing zone
to augment their EDW Enterprise Data Warehouse (EDW)

BNP PARIBAS Bank performs social data analytics leveraging BigInsights to enhance their 360º View of the Customer

BNP PARIBAS | The bank for a changing world

USAA is using BigInsights to run analytics model for their fraud detection at scale

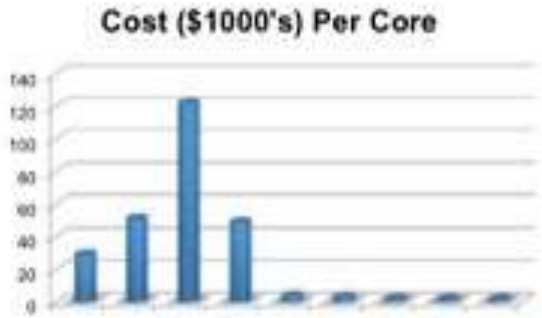
HSBC uses Hadoop-based solution as their landing zone
to augment their EDW Enterprise Data Warehouse (EDW)

HSBC

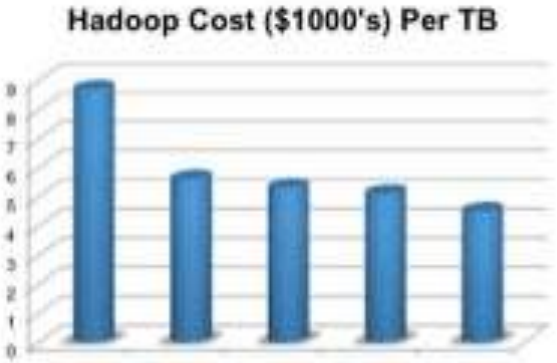
Proof of Concept Results

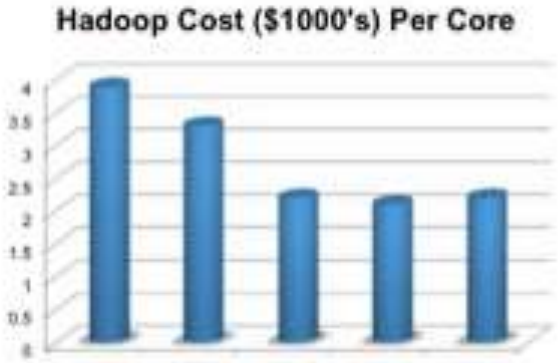
- Hadoop was installed and operational in a week 
- 18 RDBMS Warehouse and Marts databases were ported to Hadoop in 4 weeks 
- A existing batch that currently take 3 hours was reengineering on Hadoop: Run Time 10 minutes 
- A current Java based analytics routine was ported onto Hadoop increasing data coverage and reducing execution time 
- We lost the namenode and had to rebuild the cluster….. 

Big Data Plan: Big Data Economics (names removed to protect the innocent)



To better visualize the Hadoop costs details, which are dwarfed by the MPP vendors the Hadoop only solution costs per unit Terabyte or processing core is shown here:





Imagine if you had all the answers you need to win

Which customers are thinking of leaving?

Which transactions are fraudulent?

Which new product has the greatest chance of success?

How can I extract insight from all of my information?

The ultimate differentiator today…

…is being able to make more informed choices with confidence, to anticipate and shape business outcomes.

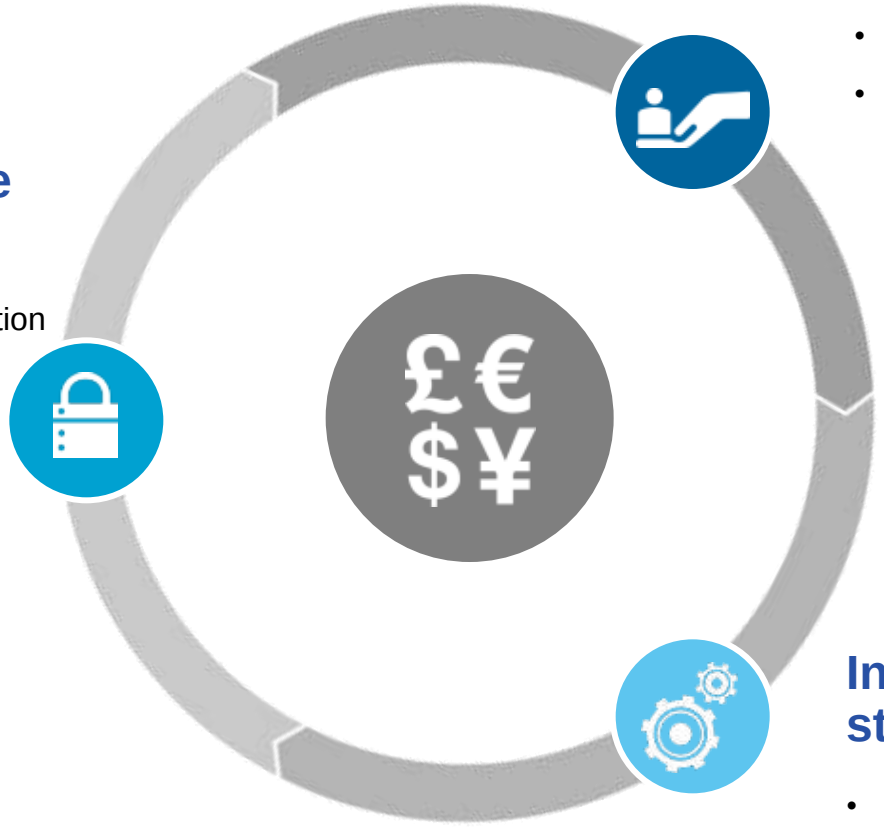
Top Use Cases for Big Data and Analytics in Banking & Financial Markets

Create a customer-focused enterprise

- Optimize Offers & Cross Sell
- Call Center Efficiency & Problem Resolution

Optimize enterprise risk management

- Fraud Detection & Investigation
- Counterparty Credit Risk
- Security Risk Management



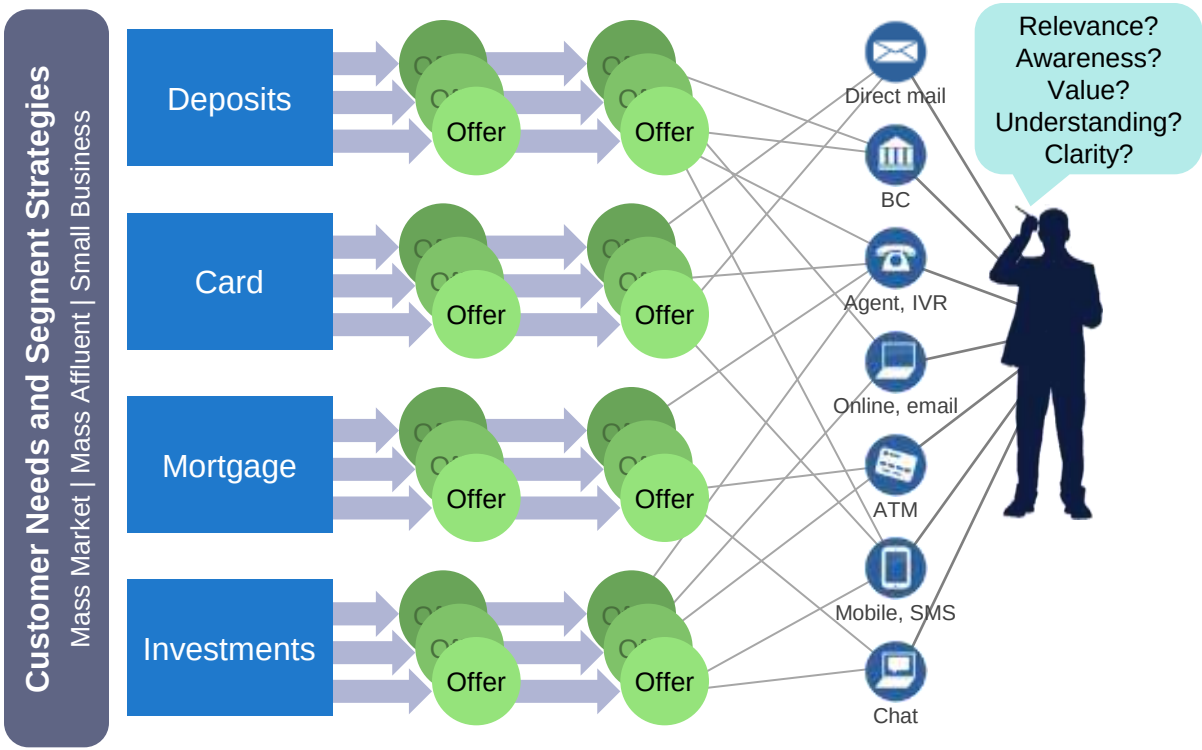
Increase flexibility & streamline operations

- Data Staging & Management
- System Log Analysis
- System Failure Analysis

The current state of customer management for most banks

Limits cross-sell success & provides a poor customer experience

"I have an offer – let me find a customer to sell to."



Customers Point-of-View

- You **do not know me** or understand my needs.
- You **ask me multiple times** about the same thing.
- Most of your suggestions are for products & services that seem irrelevant to me.
- I am **not offered solutions** based on **my multiple relationships.**
- When you recognize that I have a need, **you send me multiple offers** for different products – *it's confusing*.

…customer insight is limited to a sub-set of available data…

…limiting the relevance & timeliness of offers to customers…

Does this sound familiar?

Today we treat Aki like any other customer in her segment… …but Aki is an individual

By using only our limited segmentation, we treat Aki like anyone else

Aki holds a mortgage and a savings account with us

Action	Impact on Retention	Impact on Customer Lifetime Value	Likelihood to respond positively to action
Cash Management Acct.			
Set meeting with Private Banking & Wealth Mgt. Advisor for a Portfolio Review			
Equity Bank Line / Secured Line-of-Credit			
Preferred Gold Credit Card			

25

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Information helps us understand how Aki is different, but do we use it?

Aki holds a mortgage and a savings account with us

Last week Aki asked the Call Center about loan processing times

This week, she checked mortgage rates on the Web Site three times

Aki's current credit score & profitability qualifies her for a preferred rate

Aki has also posted property photos to Facebook asking friends to vote

And today she's tweeted a link to an article about buying a second home

26

By using all the information we can make our service unique to Aki

Aki holds a mortgage and a savi… accoun… u…

Action	Impact on Retention	Impact on Customer Lifetime Value	Likelihood to respond positively to action
Cash Management Acct.			
Preferred Gold Credit Card			
Equity Bank Line / Secured Line-of-Credit			
Mortgage special rate discount 25 basis points			

Aki has also…

27

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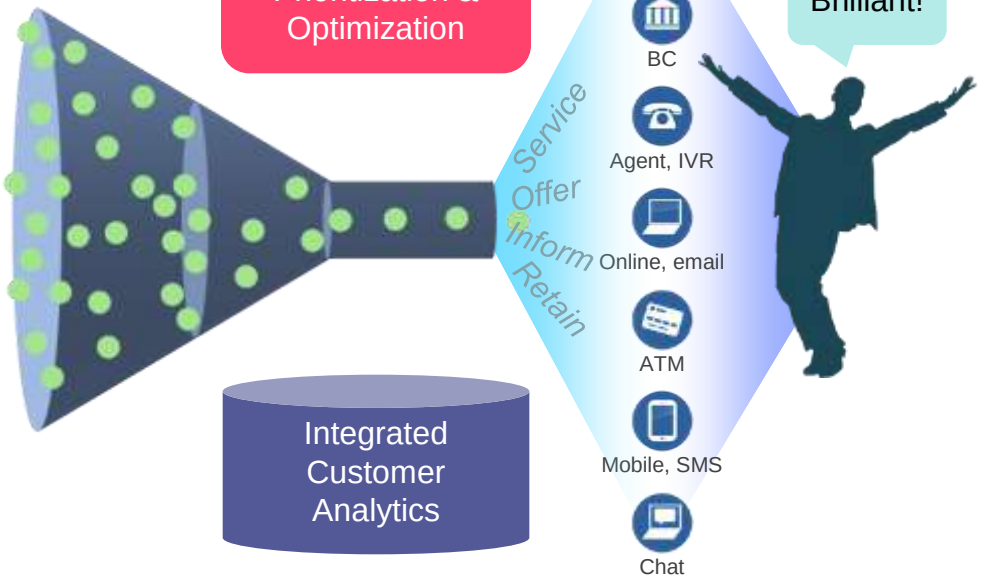
Big Data can optimize offers & cross-sell success

Improving outcomes for the customer & the bank

"I have a customer – what do they need most?"

Customer Needs and Segment Strategies
Mass Market | Mass Affluent | Small Business

- Deposits
- Card
- Mortgage
- Investments
- Customer Experience & Treatment Strategies



- "The bank knows me & values my relationship."
- "They seem to know what I need & when I need it."
- "The bank isn't always selling something."
- "They always get me to the right place & never fail to follow up."
- "There is real value to me in getting all my needs met by one bank."

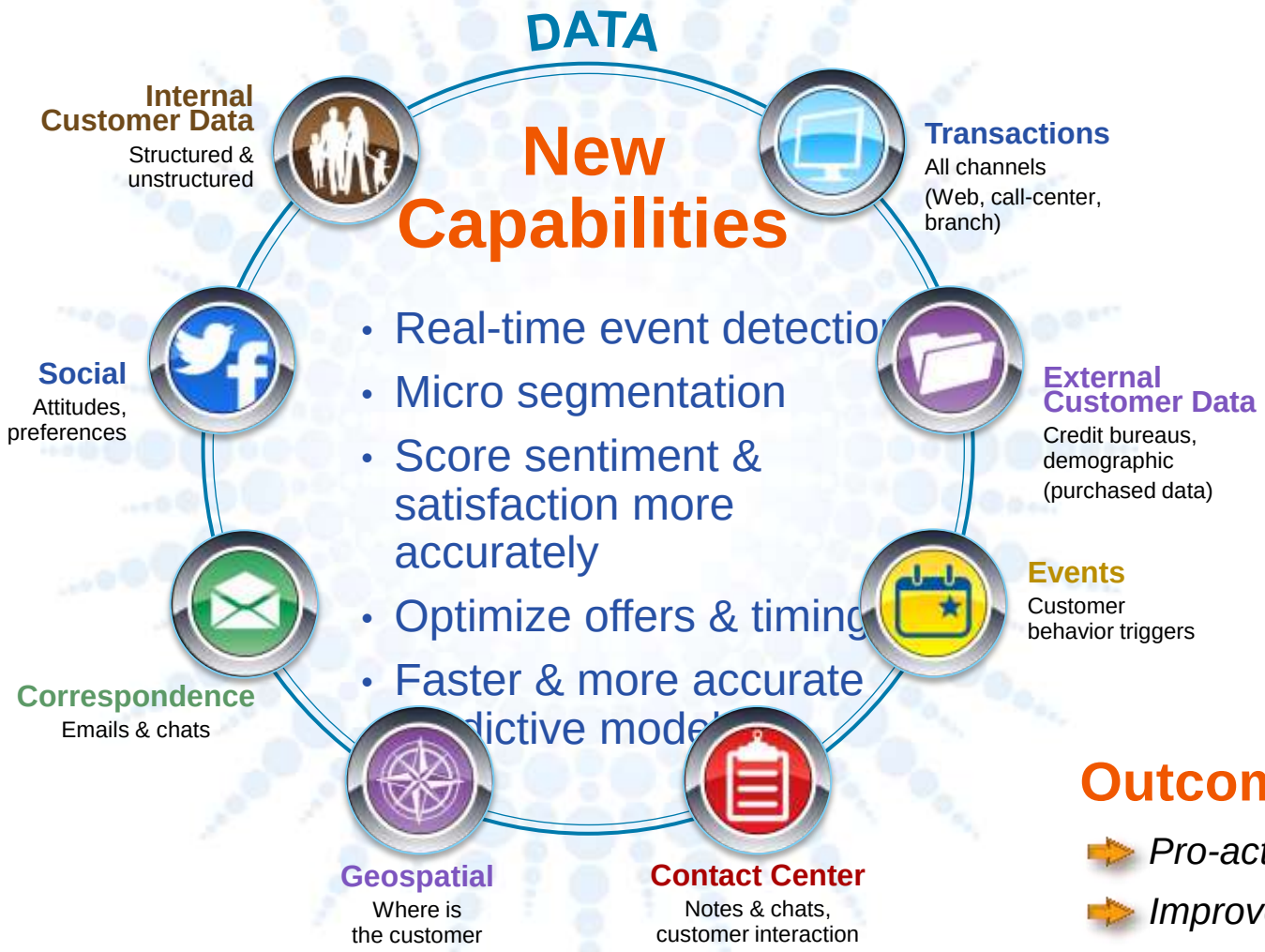
The customer feels that the bank understands & responds to their changing needs

The bank's KPI's improve: Customer Profitability / Satisfaction & Advocacy / Retention

Leveraging Big Data to optimize offers & cross-sell

Analyze information from all customer interactions & data sources

Create a customer-focused enterprise



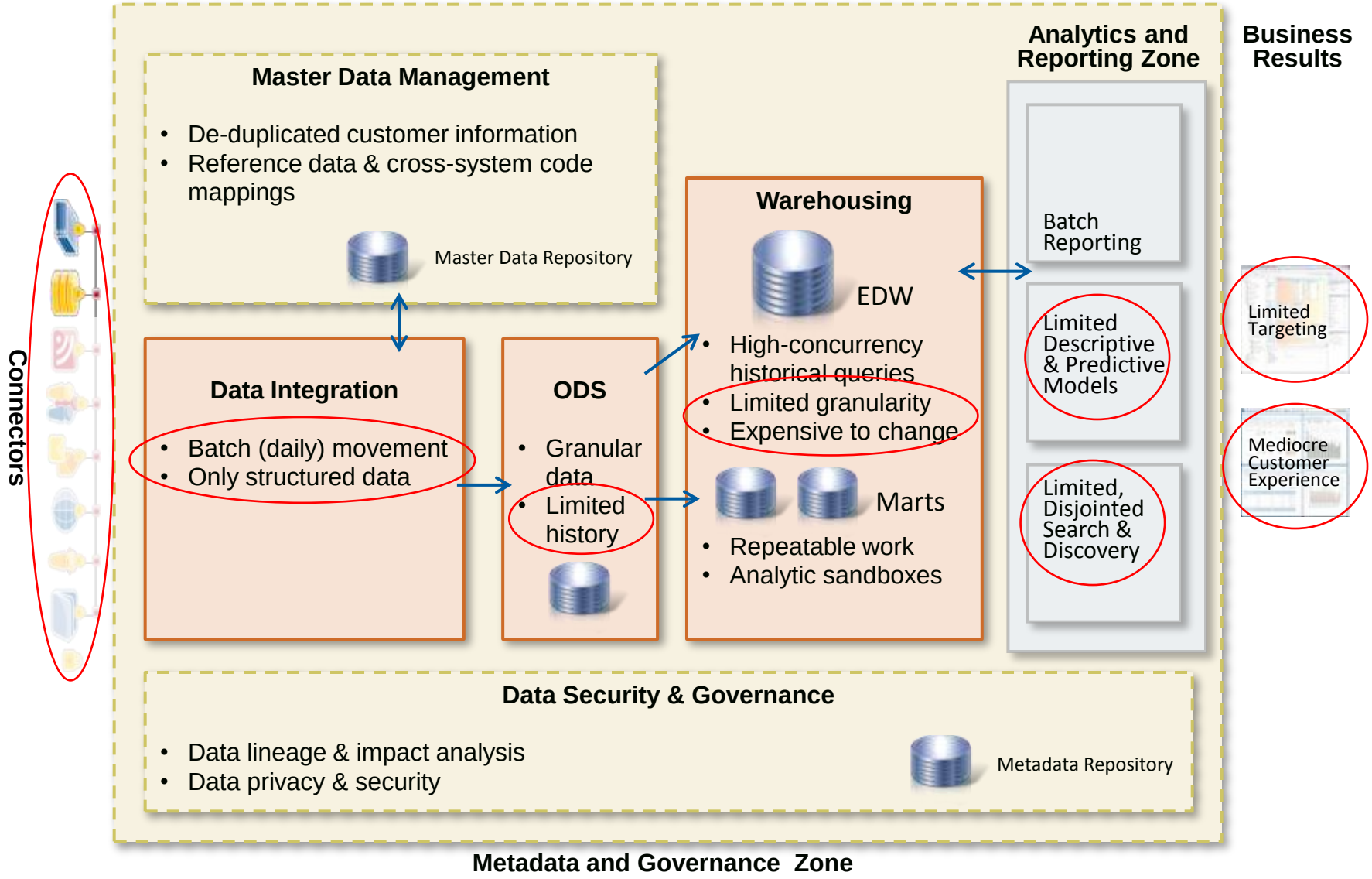
Outcomes

- *Pro-active interactions*
- *Improved offer acceptance*
- *Increased customer satisfaction*

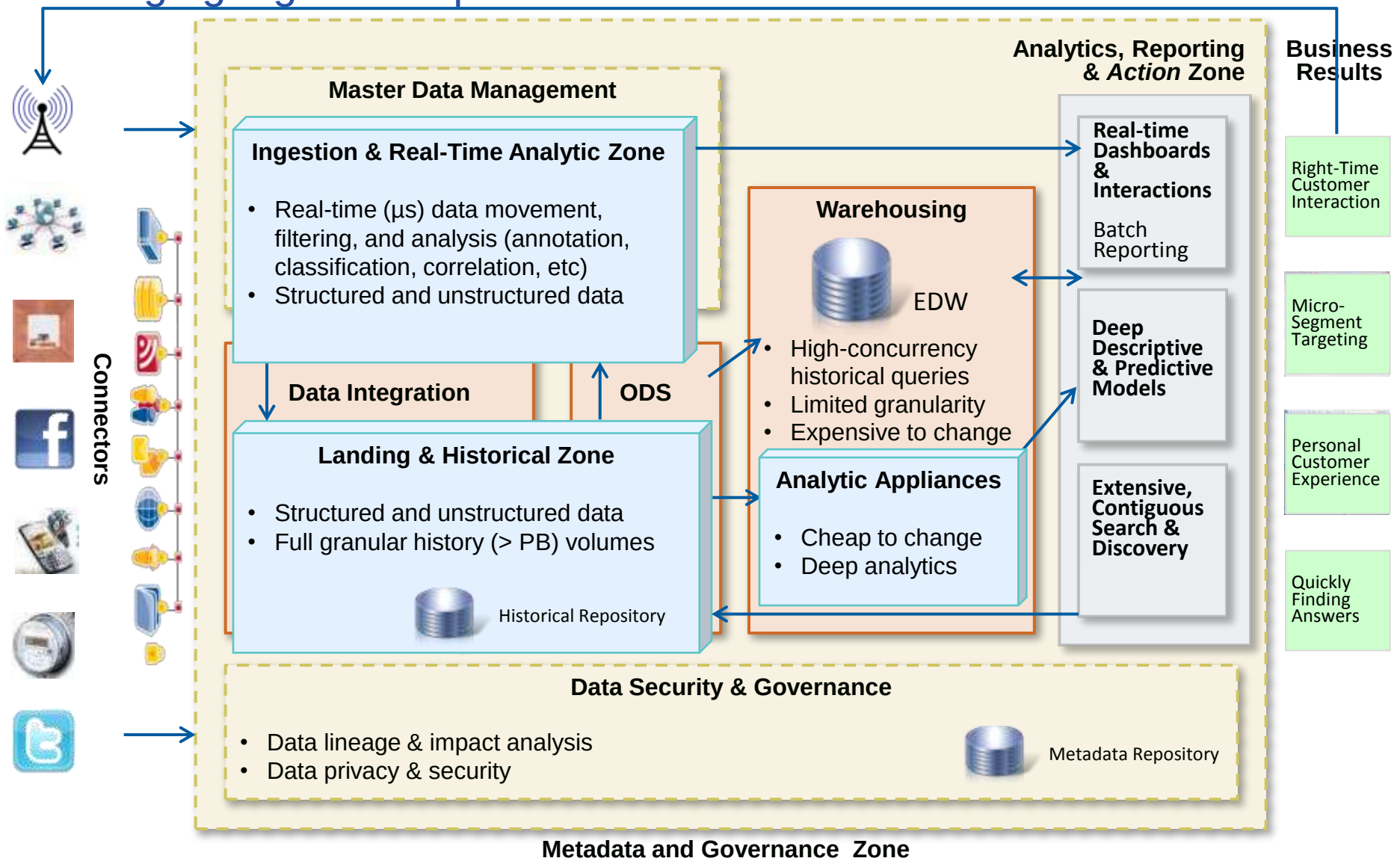
THE BIG DATA PLATFORM ADVANTAGE

The warehousing & analytic environment of most banks today

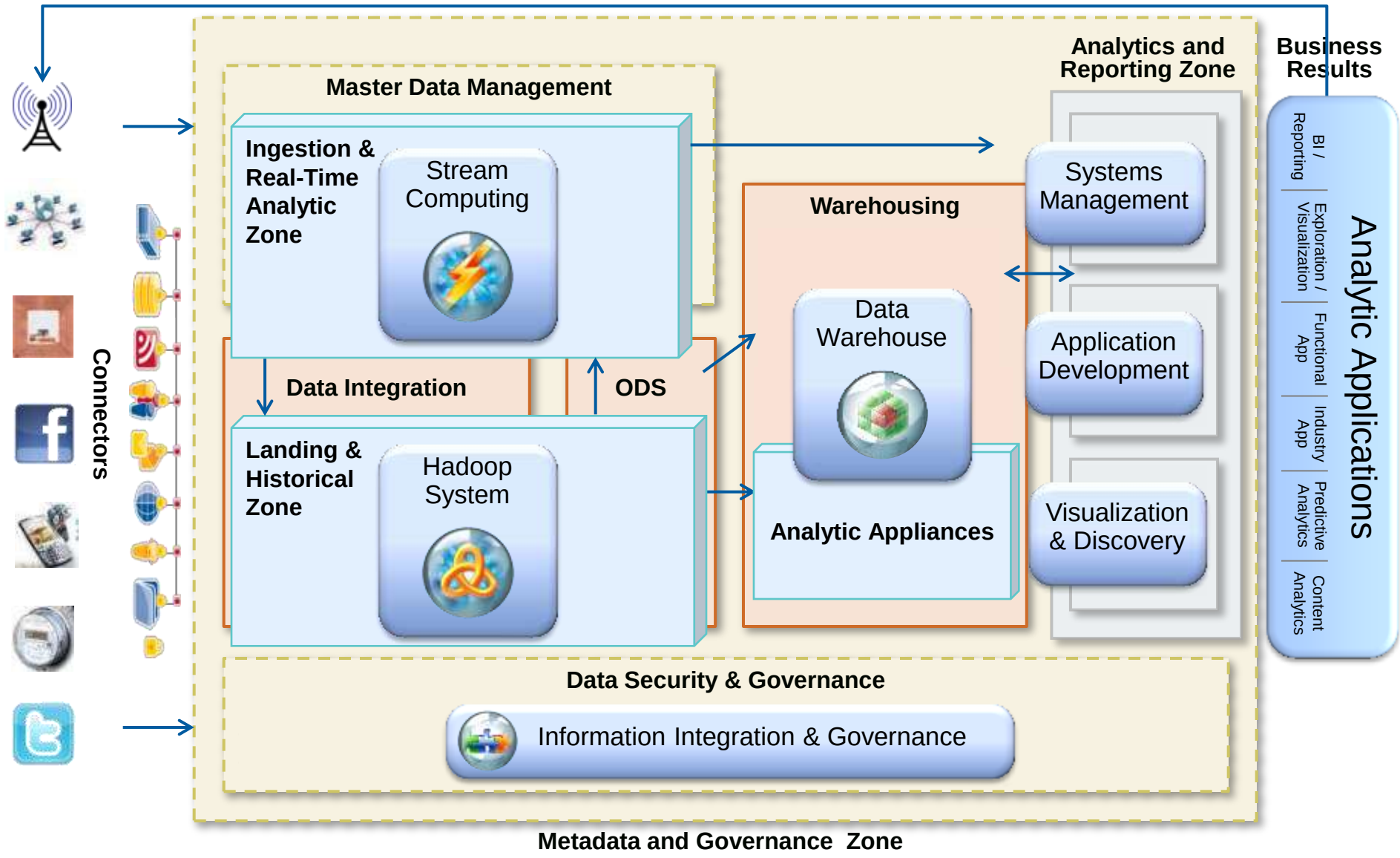
Has a number of limitations



How banks are expanding and evolving their environment by leveraging big data capabilities



IBM provides the complete platform to support this evolution



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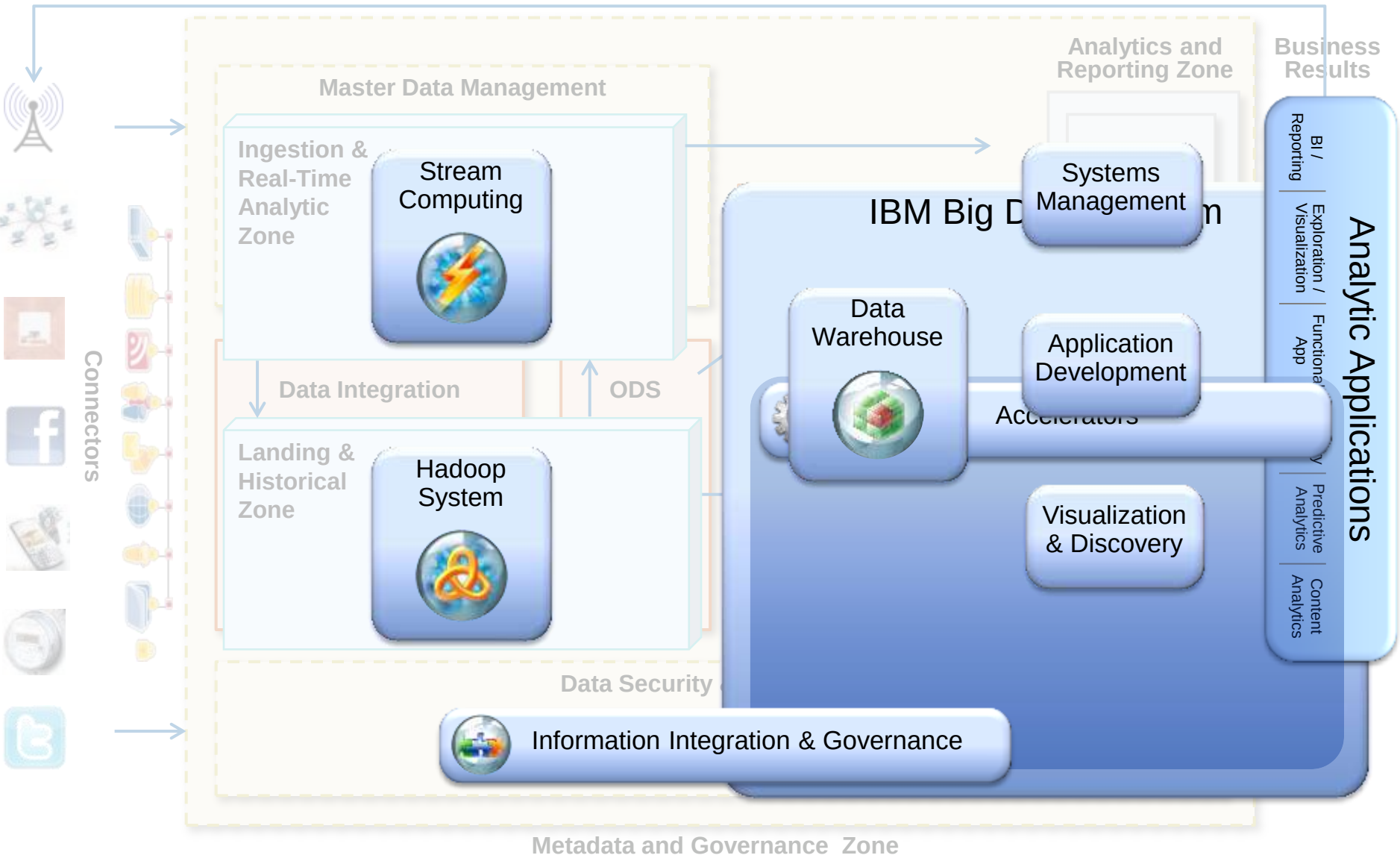


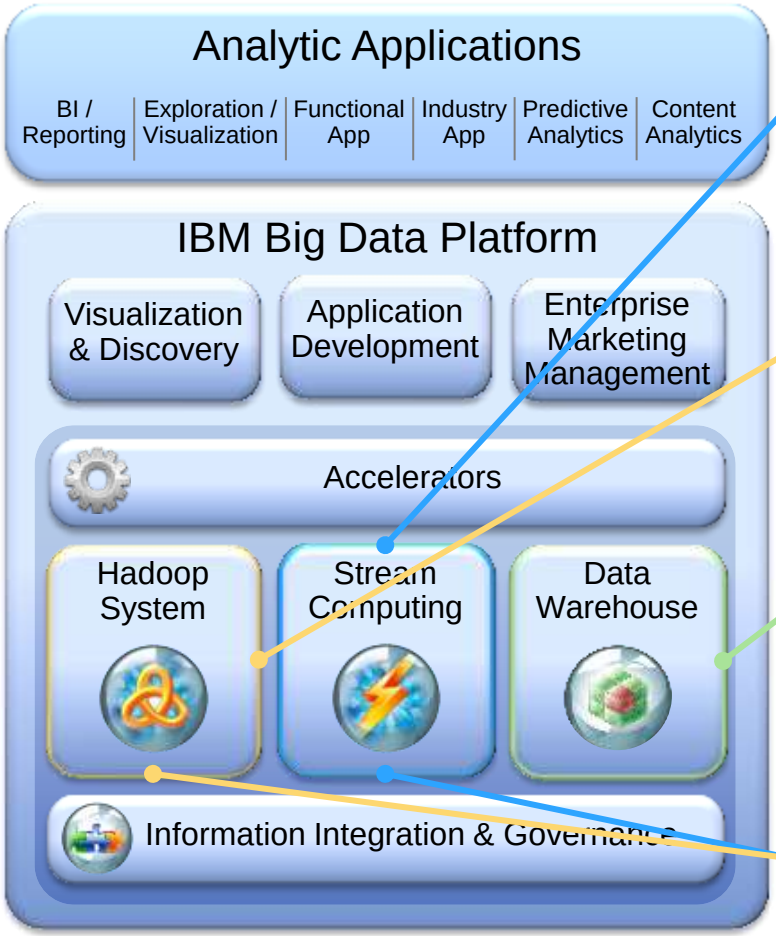
The Platform Advantage

- The platform enables starting small and growing without throwing away work
- Shared components and integration between systems lowers deployment cost, time and risk
- Key points of leverage
  - Accelerators built across multiple components to address common use cases
  - Pre-built integrations between the components using open connectors
  - Common analytic engines across components (i.e. text analytics)
  - Common metadata, integration design and governance across components

Products within the IBM Big Data Platform give direct entry points to addressing the challenges

Summary of challenges

1. Feedback from actions taken have too much latency
2. The full measure of customer response is unavailable
3. Inability for LOB to model and test new ideas quickly enough
4. Little of the already collected data is actually utilized to inform the offer



1. Reduce latency to seconds from days

InfoSphere Streams

2. Allow LOB to self-provision multiple sources of data from a single go-to data hub

InfoSphere BigInsights

3. Provide computing power to test new ideas quickly

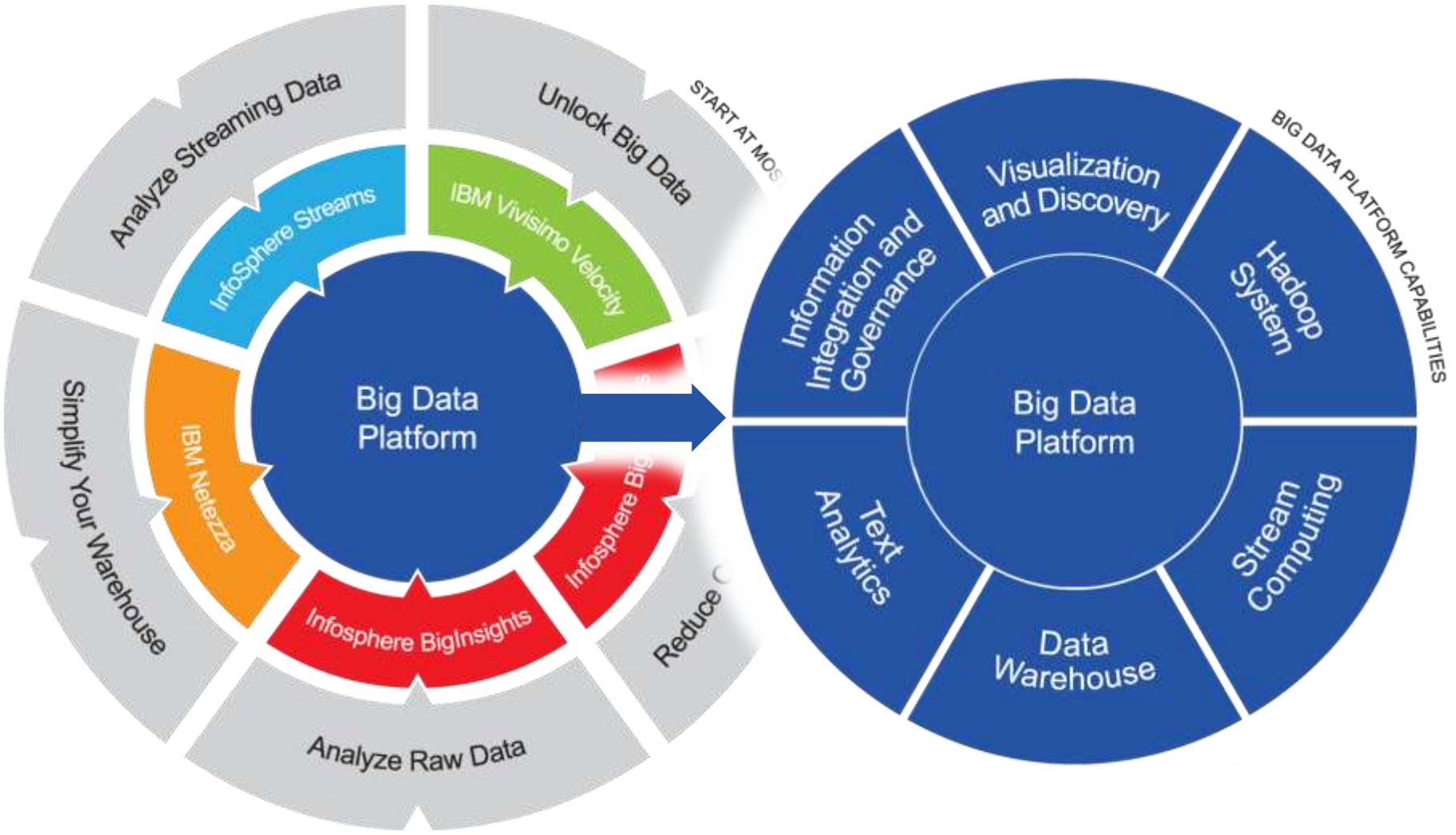
PureData for Analytics

4. Provide analytics against both structured and unstructured data

InfoSphere BigInsights & InfoSphere Streams

HOW TO GET STARTED

Expand with the Big Data Platform for future needs



1 – Unlock Big Data

- **Customer Need**
  - Understand existing data sources
  - Expose the data within existing content management and file systems for new uses, without copying the data to a central location
  - Search and navigate big data from federated sources
- **Value Statement**
  - Get up and running quickly and discover and retrieve relevant big data
  - Use big data sources in new information-centric applications
- **Customer examples**
  - Proctor and Gamble – Connect employees with a 360° view of big data sources
- **Get started with: IBM Vivisimo Velocity**

2 – Analyze Raw Data

- **Customer Need**
  - Ingest data as-is into Hadoop and derive insight from it
  - Process large volumes of diverse data within Hadoop
  - Combine insights with the data warehouse
  - Low-cost ad-hoc analysis with Hadoop to test new hypothesis
- **Value Statement**
  - Gain new insights from a variety and combination of data sources
  - Overcome the prohibitively high cost of converting unstructured data sources to a structured format
  - Extend the value of the data warehouse by bringing in new types of data and driving new types of analysis
  - Experiment with analysis of different data combinations to modify the analytic models in the data warehouse
- **Customer examples**
  - Financial Services Regulatory Org – managed additional data types and integrated with their existing data warehouse
- **Get started with: InfoSphere BigInsights**

3 – Simplify your Warehouse

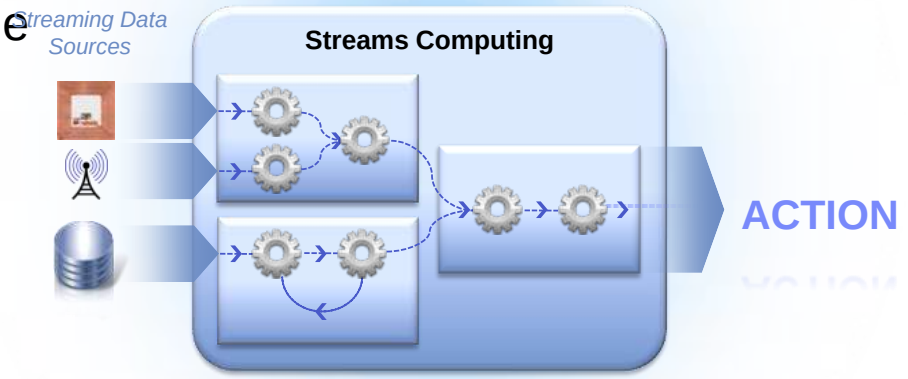
- **Customer Need**
  - Business users are hampered by the poor performance of analytics of a general-purpose enterprise warehouse – queries take hours to run
  - Enterprise data warehouse is encumbered by too much data for too many purposes
  - Need to ingest huge volumes of structured data and run multiple concurrent deep analytic queries against it
  - IT needs to reduce the cost of maintaining the data warehouse
- **Value Statement**
  - Speed – 10-100x faster performance on deep analytic queries
  - Simplicity – minimal administration and tuning of the appliance
  - Up and running quickly
- **Customer examples**
  - Catalina Marketing – executing 10x the amount of predictive workloads with the same staff
- **Get started with: IBM Netezza**

4 – Reduce costs with Hadoop

- **Customer Need**
  - Reduce the overall cost to maintain data in the warehouse – often its seldom used and kept ‘just in case’
  - Lower costs as data grows within the data warehouse
  - Reduce expensive infrastructure used for processing and transformations
- **Value Statement**
  - Support existing and new workloads on the most cost effective alternative, while preserving existing access and queries
  - Lower storage costs
  - Reduce processing costs by pushing processing onto commodity hardware and the parallel processing of Hadoop
- **Customer examples**
  - Financial Services Firm – move processing of applications and reports to Hadoop Hbase while preserving existing queries
- **Get started with: IBM InfoSphere BigInsights**

5 – Analyze Streaming Data

- **Customer Need**
  - Harness and process streaming data sources
  - Select valuable data and insights to be stored for further processing
  - Quickly process and analyze perishable data, and take timely action
- **Value Statement**
  - Significantly reduced processing time and cost – process and then store what's valuable
  - React in real-time to capture opportunities before they expire
- **Customer examples**
  - Ufone – Telco Call Detail Record (CDR) analytics for customer churn prevention
- **Get started with: InfoSphere Streams**



The Big Data and Analytics journey

Typical Big Data and Analytics Adoption Path

Educate
Focused on knowledge gathering and market observations

Explore
Developing strategy and roadmap based on business needs and challenges

Engage
Piloting Big Data and Analytics initiatives to validate value and requirements

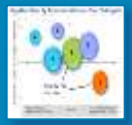
Execute
Deployed two or more Big Data and Analytics initiatives and continuing to apply advanced analytics

Join the business community

Validate and realize business value

Big Data and Analytics case studies, whitepapers and IBM Institute for Business Value reports

IBM Briefings, Solution Centers



IBM Readiness Assessments for Big Data and Analytics

Solution Design and Proof of Concept
-Validate business value for business use cases
-Demonstrate Big Data and Analytics capabilities to execute business use cases

Self-paced learning, exploration with downloads and test environment
BigDatauniversity.com, YouTube Big Data Channel

Join the technical community

Learn the technology and gain expertise

Enterprise-wide Big Data and Analytics initiatives

-Incremental value across multiple use cases

-Leverage investment from re-using the same Big Data and Analytics platform

-Enterprise data platform to optimize business outcomes

Moving Forward

IBM can assist in choosing the right path to deliver rapid and measurable business results

- A **workshop** to help identify and prioritize potential **use cases**
- A **Client Value Engagement** to help determine potential business impact
- Defining the components required as part of the **solution architecture**
- A **pilot** to demonstrate new capabilities that could be delivered to the organization