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# *Emerging Technologies*

## Big Data Analytics Service Offerings

*Strictly Private  
and Confidential*

*28 February 2014*



**pwc**

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# *Agenda*

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# *Big Data Reality*

## **Contents**

1. Social enterprise – A business case
2. How does social enterprise look like
3. Benefits of social enterprise

# 1

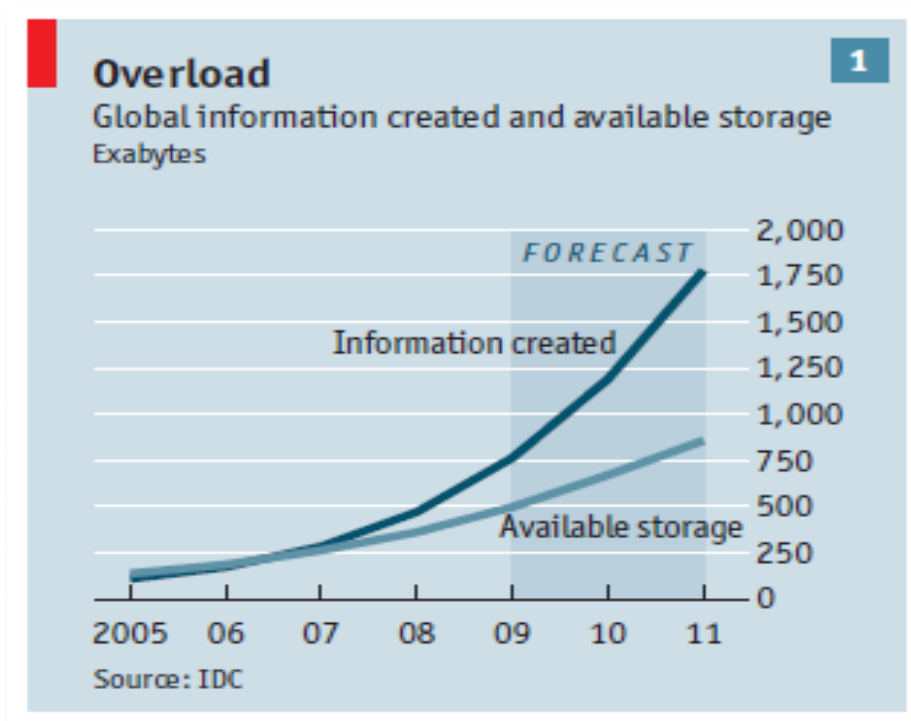
## Big Data Reality

Companies have heard the hype about big data, are trying to understand the impact and trying to decide whether to invest as a solution for their information challenges.

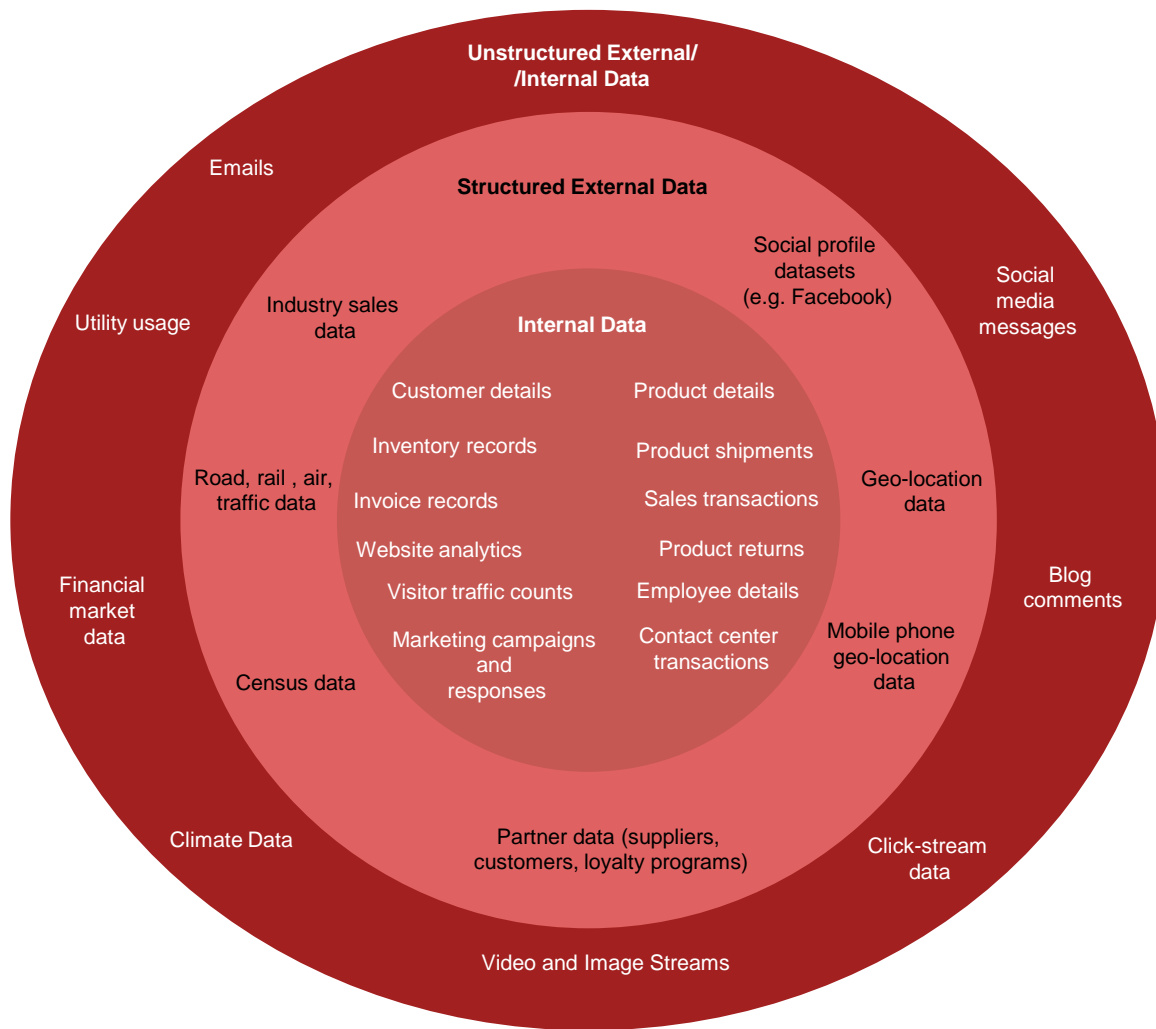


## *Acceleration of Technology Change – We’re experiencing a data deluge*

- By 2013 the amount of traffic flowing over the internet annually will reach 667 exabytes
- In 2008, households were bombarded with 3.6 zettabytes of information (or 34 gigabytes per person per day)
- Worldwide mobile data traffic will double every year through 2013... increasing 66 times between 2008 and 2013



# What kind of data constitute big data?



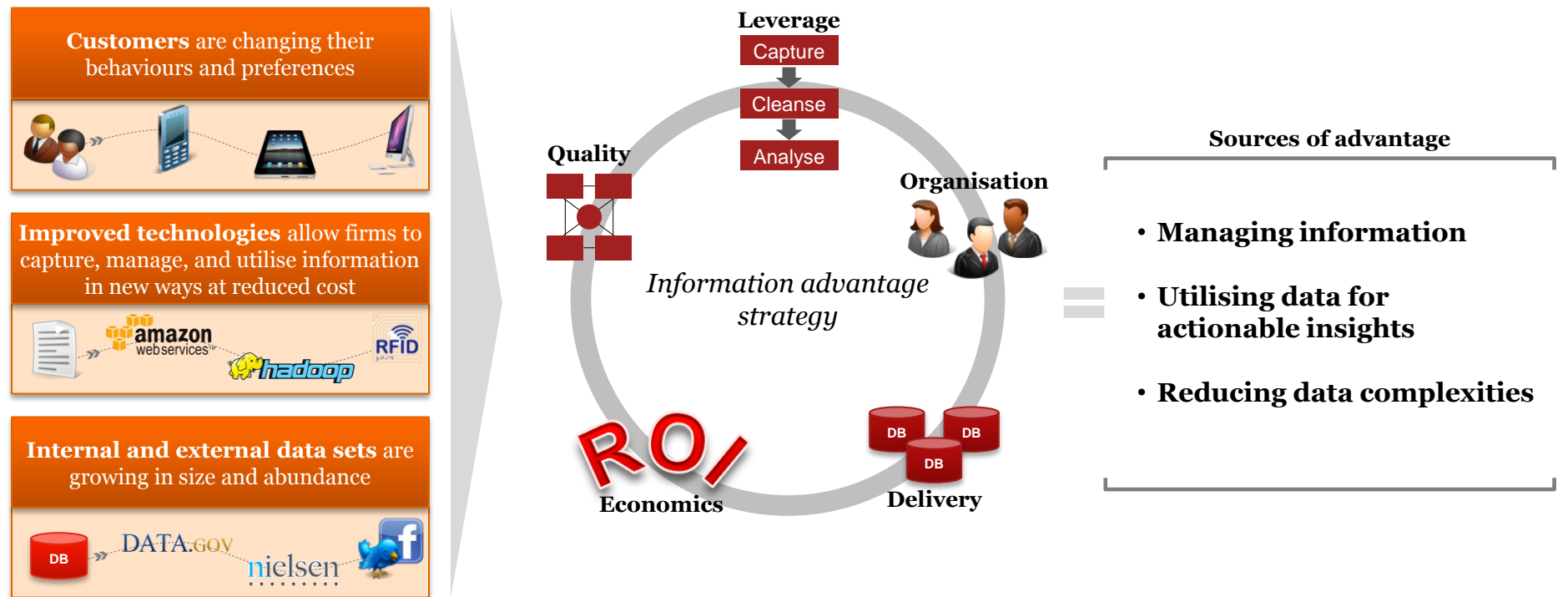
## ***PwC Avoids the Hype and Focuses on the Business***

Sometimes the hype is right; sometimes it is wrong. Overall, we believe Big Data provides a solution for sets of marketing information whose value to the organization is not proven but volume is enormous.



# Our point of view

*A forward looking strategy to achieve lasting change helps establish the roadmap to execute this change*



*The development and adoption of a information advantage strategy can drive profitability and a sustainable competitive advantage*

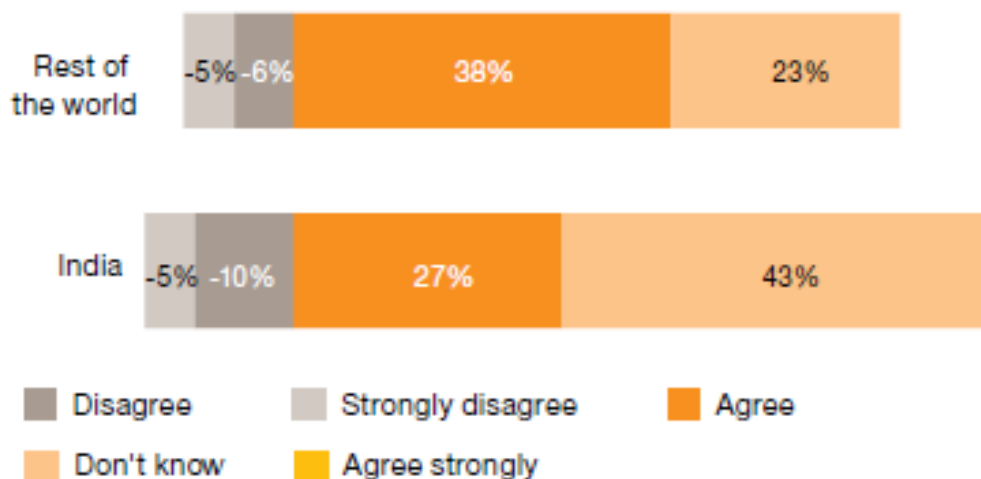




# Big Data Adoption : India and Global Scenario

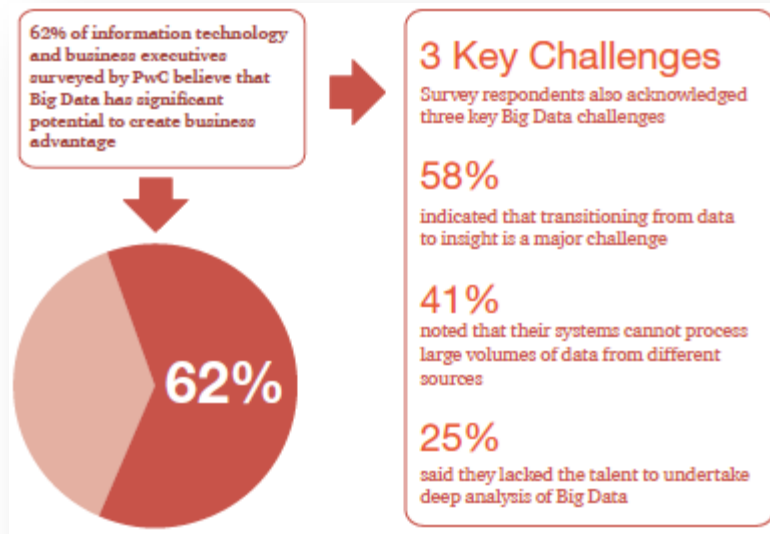
## Big data, big benefits

To what extent do you agree or disagree with the following statements –  
 Harnessing 'Big data' will give my organisation a competitive edge



Base: All respondents (1,108); India (60)

Source: PwC's 5th Global Digital IQ Survey -The India story



# The triggers for the need of Big Data solutions



## Data volumes explode by 40% every year

Organisations are generating petabytes (\*) of data annually but are only able to store and analyse terabytes  
Google processes about 24 petabytes of data per day  
(\* ) 1 petabyte = 1.000.000.000 megabyte

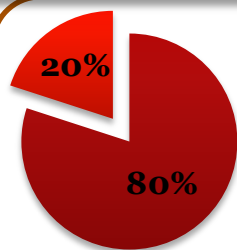
## Storage costs decrease by 45% every year

Throwing away data is becoming more expensive than storing data. Generate business value now with scalable cost structure.



## We live in a digital & connected world

Smartphones sales have outpaced PCs in 2011.  
Social medias are extensively used  
NB: 900 millions Facebook active users in April 2012



■ Unstructured **Most data is unstructured and complex to analyse**

■ Structured Only 5% of data is currently in a structured format suitable for traditional Business Intelligence

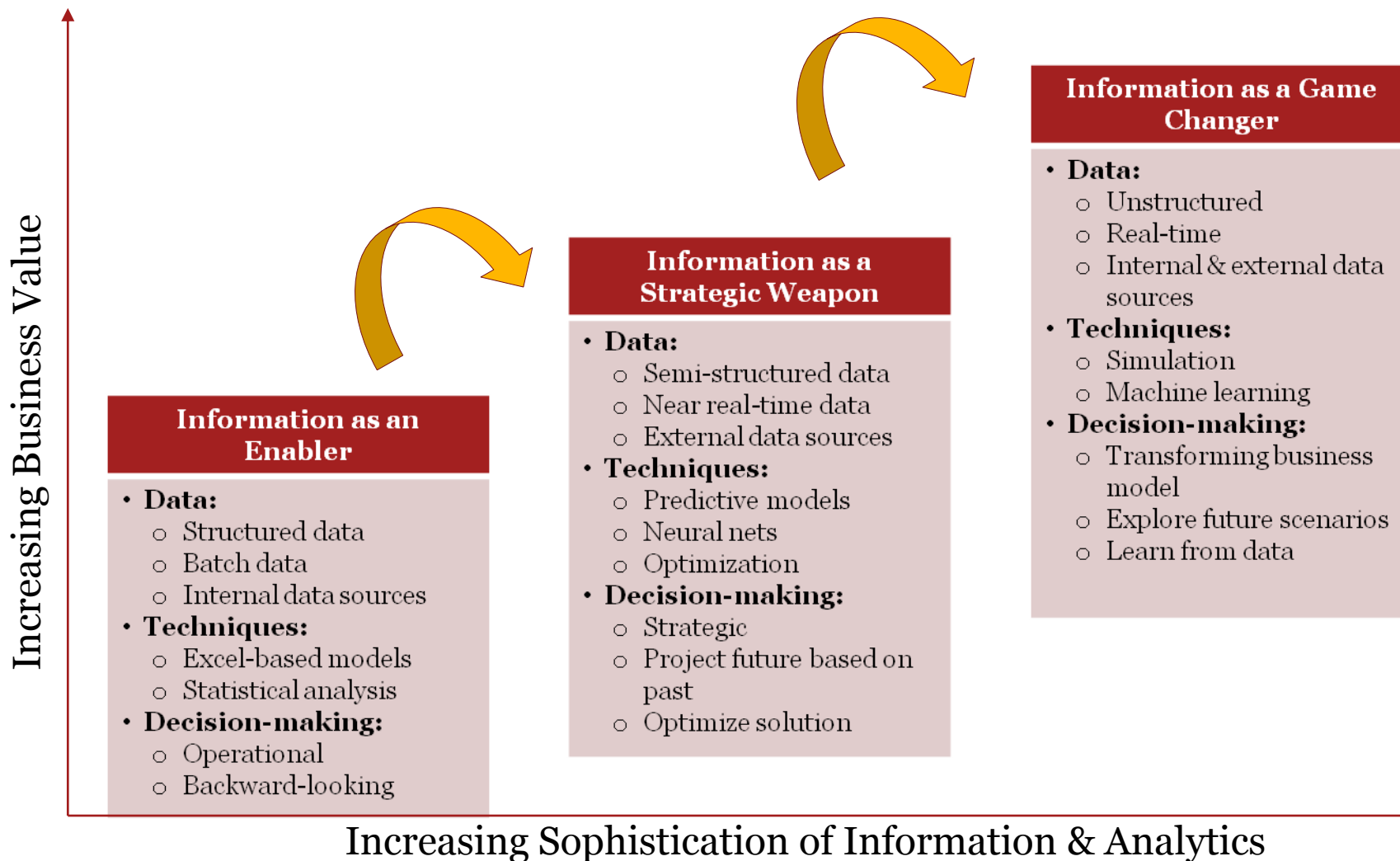
**Next-gen analytics & big data is a way to use and value the massive amounts of information companies collect today to get competitive insight**

***Big Data Challenges – The pace of technological advancement and adoption has created diverse sources of data that are generated in unmanageable quantities on a daily basis***

<b>Data Dimensions</b>	<b>Velocity</b> The speed at which data is generated and used. New data is being created every second and in some cases it may need to be analyzed just as quickly	<b>Challenges</b> <ul style="list-style-type: none"><li>• Integrating unstructured and external data feeds into existing analysis and processes</li><li>• Developing tools and algorithms that are efficient and scalable</li></ul> <hr/> <ul style="list-style-type: none"><li>• Identifying the data that will best enhance an analysis</li><li>• Linking data sets of varying structures and disparate sources</li><li>• Extracting knowledge from unstructured data sources</li></ul> <hr/> <ul style="list-style-type: none"><li>• Storage infrastructure that keeps pace with data growth and accessibility</li><li>• Data management practices that quickly react to changes in data sets and storage durations</li><li>• Filtering data before it becomes a data management issue</li></ul>
	<b>Variety</b> Represents the diversity of the data. Data sets will vary by type (e.g. social networking, media, text) and they will vary how well they are structured	
	<b>Volume</b> Reflects the size of a data set. New information is generated daily and in some cases hourly, creating data sets that are measured in terabytes and petabytes	

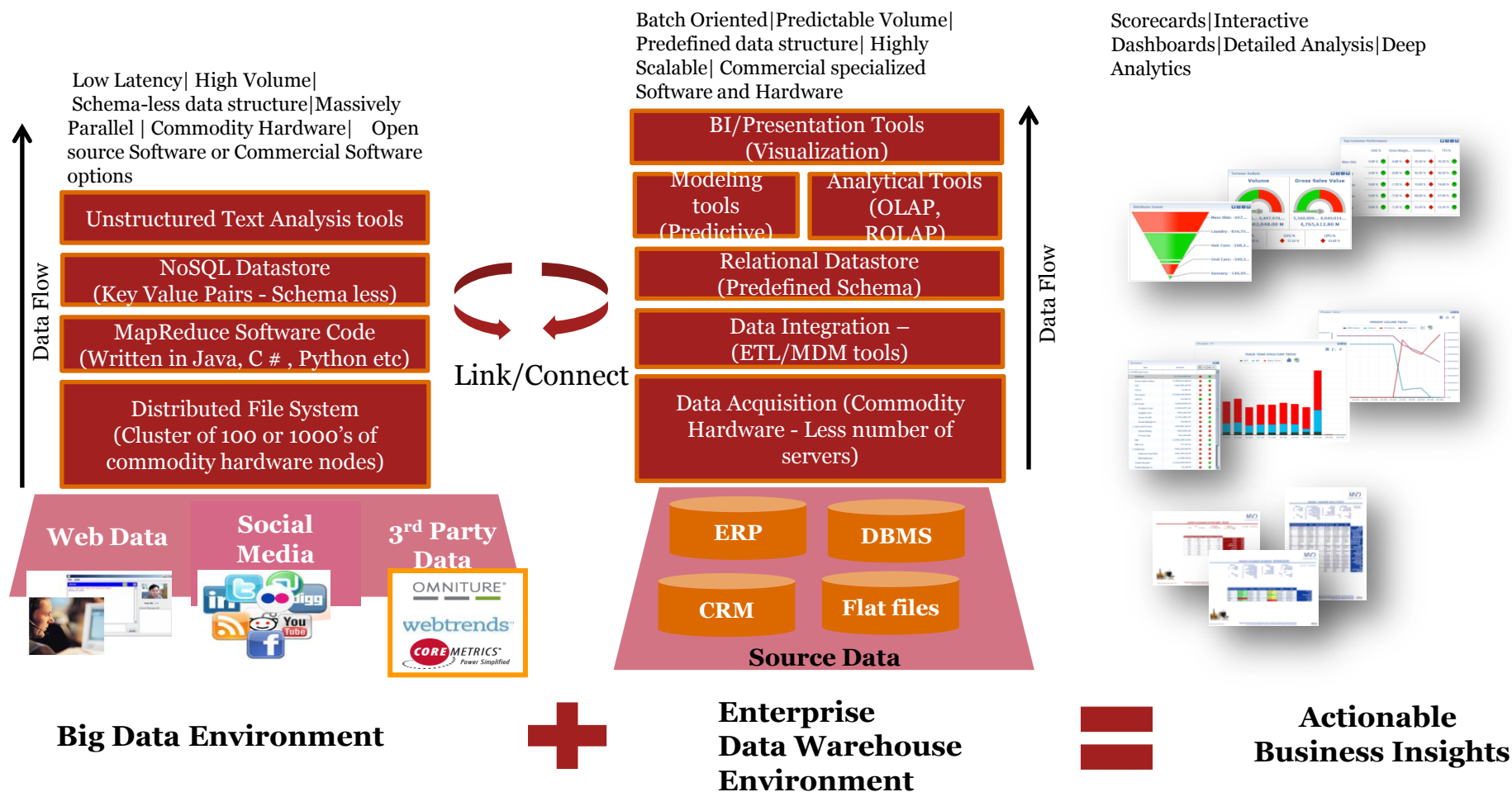
## *The fourth V – Value from big data*

*Accelerating technology and availability of real-time data is allowing companies to use Information as a ‘Game Changer’ and not just as a ‘Strategic Weapon’*



# Conceptual Architecture – Leveraging Big Data For Insights

Interlocking your EDW and Big Data Environment is critical to supporting a comprehensive view of the business



# *PwC Big Data Methodology and Services*

## **Contents**

1. What do we offer?
2. Summary of offerings

# 2

# What do we offer?

*PwC can help its client understand the potential of social media and develop strategies to leverage it to their advantage across their organization*

*PwC will help its clients design effective organizational structures to reach their social media and collaboration goals.*



*PwC will provide its expertise to the clients so that they can encourage collaboration within and outside the organization*

*PwC will help its clients identify and utilise the right technology for their unique business needs.*

*PwC can help its clients design and implement processes and systems for effective utilization of social media tools and platforms to transform their businesses.*

# PwC Social Enterprise Solutions

## Our Big Data Capabilities

### Innovation

We work with our clients to develop information driven innovation models by defining new processes and operating model using existing data sources as well as outside data sources to discover new insights

### Strategy

We design comprehensive approach that identifies and defines business capabilities that are enabled through improved insights achieved through big data and develop a comprehensive roadmap for execution

### Design

We architect integrated solutions that create scalable harvesting of large data sources into big data solutions which interlock with existing analytical solutions

### Construction

We build scalable big data solutions which combine analytics, business intelligence, data integration, and data warehouses to create a comprehensive solution to support extraction of insights and value

## Big Data Service Offerings

- **Executive Workshops:** Catalyst workshop that educates and identifies opportunities for big data
- **Innovation Operating Model Design:** Establishes the processes and capabilities for innovation using big data
- **Outside In Data Innovation:** Identifies outside data sources that are impactful for improved insights
- **On Demand Analytics:** Pilots the use of a big data source to prove out value

- **Capability Strategy and Roadmap:** Identifies needed capabilities required for big data, conceptual architecture, and develops a realization roadmap
- **Information Strategy:** Creates a cohesive information strategy for realization of traditional and big data insight capabilities
- **Risk and Governance:** Develop the approach for managing risks with big data and establish overall governance

- **Platform Architecture:** Develops an overall platform architecture for big data
- **Jump Start:** Take a real-work use case to drive a real-life pilot for Big Data by setting up the infrastructure, data provisioning, and analytics to jumpstart corporate big data capabilities
- **Solution Design:** Develop a comprehensive solution for a big data problem which can then be used for construction including tool selection/RFP

- **Big Data Integration:** Integration of big data sources into the enterprise information ecosystem by developing intake, cleansing, and loading processes
- **Innovation Platform Development:** Creates an innovation data warehouse by interlocking a companies data warehouse with big data technologies to provide new insights to the business



# *Big Data Solutions*

## **Contents**

1. Big data solution – use cases
2. Sector specific use cases

# 3

## *Unbundling of Services backed by Big Data Analytics*

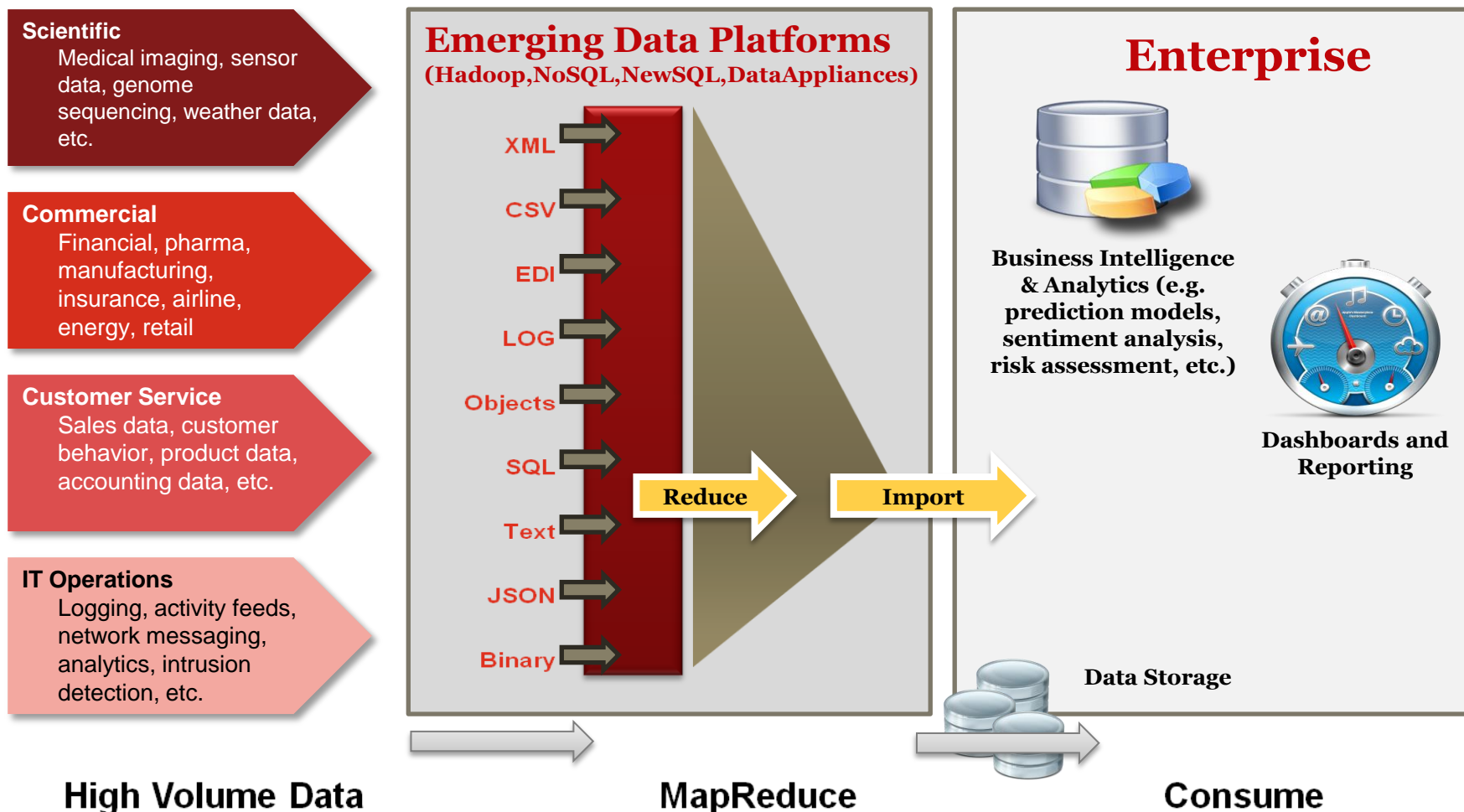
Directorate General of Civil Aviation (DGCA) had allowed airlines to charge fees for 'unbundled services' like check-in baggage, preferential seats, meals, snacks or drink (except drinking water) and sports and musical instruments on their domestic flights. That leads to major domestic airlines like Indigo to lower the base price after unbundling and charge a premium for such preferential services.

### **Big Data can help in unbundling and associated pricing in real time:**

- Impact of revenue on a real time basis for such unbundled services
- Geographical sector based focus on such unbundled services, i.e. customers from which segment prefers what type of services
- By analyzing the excess baggage and fuel consumption due to decrease in baggage weight, offering an optimal base price and thus attracting more customers on a segment basis

# Big Data Solutions – Use cases

All solutions essentially achieve the same thing with different means -- processing Information of 3 V's (Volume, Velocity, Variety) in 'Batch' OR 'Real Time' basis to derive the golden nuggets required for generating business insights and customer facing applications



## Big Data Use Cases – BFSI Sector

Functional Area	Use Case	Description	Types of Data
Sentiment Analytics	Companies Utilize Sentiments Concerning Stocks Mined from Media Sources	By harvesting traditional as well as new media sources in order to gauge public opinion, financial institutions are able to identify trends earlier. Some hedge funds have gone as far as to base their entire investment strategy on trading signals generated by Twitter analytics.	<ul style="list-style-type: none"> <li>•News Keyword Analysis</li> <li>•Entity Extraction</li> <li>•Social Media Response</li> </ul>
Predictive Analytics	Capital Market Firms Utilize Big Data for Strategy Development and Risk Mgmt	Capital market firms are starting to rely more on frameworks such as R and Hadoop to correlate large amounts of historical data and new data and quickly perform analytics in near real time.	<ul style="list-style-type: none"> <li>•Historical Market Data</li> <li>•New Market Data (correlations, back-testing strategies, probability calculations)</li> </ul>
Rogue Trading	Rogue Trading Assessment and Control	Deep analytics permit the correlation of accounting data with position tracking and order management tools to identify patterns and identify rogue trading.	<ul style="list-style-type: none"> <li>•Accounting Data</li> <li>•Position Tracking</li> <li>•Order Management Systems</li> </ul>
Fraud	Utilizing Big Data for Fraud Detection and Reduction of False Positives	By correlating data from multiple points it is possible to identify fraudulent activity faster than current methods. Another benefit is the reduction of false positives by linking cellular location along with the financial data.	<ul style="list-style-type: none"> <li>•Point of Sale</li> <li>•Data from other financial institutions</li> <li>•Data from service providers</li> <li>•Cellular location</li> </ul>
Retail Banking	Risk Profile Assessment Drives Loans and Other Financial Decisions for Financial Institutions	The increased access to customer web data allows financial institutions to make more thorough assessments of loan requests, as well as to make targeted service offerings based on major life events.	Web Data (life events such as job status, marriage, etc.)
Retail Banking	Analytic Solutions Provide Customer Insight to Promote Lasting Relationships	Leading banks are focusing on Internet feedback and social media to identify areas of concern and improve their reputation and customer retention.	<ul style="list-style-type: none"> <li>•Internet feedback</li> <li>•Social media</li> <li>•Service logs</li> </ul>
Stock Prices	Social Media Sentiment correlation with Stock Returns	Aggregate opinions from social media to generate predictions of industry stock prices- essentially utilizing social data analysis to boost investment returns .	Social media

## Big Data Use Cases – Healthcare Sector

Functional Area	Use Case	Description	Types of Data
Patient Care	Big Data Reduces Patient Mortality Rate From Decision Making Improvements	Healthcare providers are able to make better, more holistic real-time decisions based on patient's medical history, current status, and environmental factors, as well as incorporate medical journal articles and other industry knowledge.	<ul style="list-style-type: none"> <li>•Previous medical history</li> <li>•Test results</li> <li>•Sensor information</li> <li>•Biomedical data</li> <li>•Environmental data</li> <li>•Medical journals</li> </ul>
Disease Assessment	Develop Non-Intrusive Test to Predict Coronary Artery Disease	By analyzing millions of gene samples, identify the specific genes that have been proven to predict coronary artery disease in patients long before any other indicators are present.	Gene Samples
Patient Care	Sensor data obtained from Home Carpet to Monitor Activity of Senior Citizens	Sensor data from home carpet can be used to monitor deviations in daily routine and can notify family or caretakers in the event of concerning behavior.	<ul style="list-style-type: none"> <li>•Time</li> <li>•Speed</li> <li>•Pressure</li> </ul>
Disease Assessment	EKG Analysis Helps Predict Patients At-Risk of a Second Heart Attack Within the Year	By analyzing full EKG data as opposed to just a few minutes, specific indicators have been identified which imply that the patient is at risk of a second heart attack in the near future.	<ul style="list-style-type: none"> <li>•Machine learning</li> <li>•Data mining</li> </ul>
Disease Outbreak	Measuring and analyzing disease related posts on Twitter	Automated social data collection platform, is used to identify the location and number of disease specific posts in Twitter, resulting in accurate results weeks ahead of the official data.	Social media (Twitter)
Health Care Management	Opportunity to deploy mobility and cloud capabilities for more consumer-centric applications vs. clinical efficacy applications (Wellness, Fitness, Aging, Activity Date, Healthcare players' social media goals)	<p>Develop a 3P-agnostic consumer user single point hub (cloud-based) for consumer health that captures and provides rich access to wide variety of data from multiple sources and devices</p> <p>Develop analytics tools both for consumer use that allow for intersection between different "Apps" – e.g. fitness with a specific condition tracker – but also allow potential third parties to access, with a structure for paying consumers market as an access point for payer, pharma, device companies etc. to access wide range of consumer data (health and wellness as well as other activity) on a disaggregated, non-provider driven basis</p>	

## *Big Data Use Cases – Retail Sector*

Functional Area	Use Case	Description	Types of Data
Segmentation	Individualized Marketing Reduces Marketing Costs and Enriches Shopping Experience	Identify which customers are in the vicinity of their shops and provide customer specific offers and advertisements based on purchase data and feedback form social media.	<ul style="list-style-type: none"> <li>•Cellular location</li> <li>•Purchase data</li> <li>•Social media</li> </ul>
Predictive Analytics	Stocking local retail branches based on customer preferences	Utilizing a variety of data to identify customer preferences to a specific locality and customizing supply chains at the local level to increase customer satisfaction and generate more profit.	<ul style="list-style-type: none"> <li>•Purchase data</li> <li>•Social media</li> <li>•Product placement</li> </ul>
Customer Satisfaction	Engaging Customers pro-actively based on Social Media Response	Monitoring social media chatter 24/7 to proactively engage customers and improve experience.	Social media
Online Sales	Online Retailers track more than physical retailers, providing more tailored experience	Online retailers are able to track, not just what is sold and who bought it like physical retailers, but also what users are looking at and how they search, to provide a constantly evolving and more successful algorithm for recommendations and improved user experience.	<ul style="list-style-type: none"> <li>•Viewing data</li> <li>•Site navigation</li> <li>•Influence of promotions, reviews, and page layouts</li> <li>•Similarities across individuals and groups</li> </ul>
Customer Mapping	Using mobile location data to predict the number of people / customers in a specific locality	Using mobile location data, retailers sales can be estimated using predictive analysis even before the actual sales numbers are recorded	Mobile location services
Food	Restaurants Capable of Reacting to Feedback from Social Media for Optimization	Restaurants are able to make changes or continue product offerings based on customer reactions through social media avenues such as Facebook and Yelp. Examples include keeping or discontinuing products based on customer response, as well as adjusting employee training based on customer experience.	Social media

## Big Data Use Cases – Telecom Sector

Functional Area	Use Case	Description	Types of Data
Revenue Generation	Data Based Cross- and Up-sell Approach Drives Revenue Through Delivery of Highly Targeted Product Bundle	An increase in available information from existing customers such as search and view history allow telecomm companies to more strategically make up-sells to customers, which in turn makes the company more profitable.	<ul style="list-style-type: none"> <li>•Existing customer information</li> <li>•Location</li> <li>•Search-history information (from smart phones, landline, TV, and Internet services)</li> </ul>
Customer Retention	Using customer feedback to cut customer defection and enhance customer loyalty	Using customer's billing information and comparing against social media data, analyze customer comments on social media, identify customer dissatisfaction and proactively address customer issues to enhance customer loyalty	<ul style="list-style-type: none"> <li>•Customer data records</li> <li>•Web logs</li> <li>•Billing data</li> <li>•Social media</li> </ul>
Telecom Bandwith	Cell phone tower data analysis to detect and prevent network bottle necks	Detect collocation events to detect and prevent network bottle necks	
Security	Multi device event stream analysis co-relating Firewall & IDS & Switch activity	Create a 360 degree view of an intrusion using an event log repository streaming thousands of events per second collected from firewalls, IDS, routers, switches etc	
Stimulating Behavioral Change	Using data analysis to target an off-peak feature, developing offers designed to stimulate the lowest prepaid users to carry and use the phone daily, improving segment revenues	Using data analysis to identify pockets of low usage subscribers within the prepaid base and developed an off peak feature, stimulating overall usage of target subscribers	
Telecom Bandwith	Contact centre data mining	Analyze text keywords in call center data and use frequency of occurrence as an indicator to infrastructure bottlenecks and perform network throttling and route optimization	<ul style="list-style-type: none"> <li>•Cell Phone Call data</li> <li>•SMS</li> <li>•Web data</li> </ul>

## Big Data Use Cases – Other Sectors

Sector	Functional Area	Use Case	Description	Types of Data
Automotive	Quality Assurance	Social Media Predicts Trends in Automotive Equipment Failure	Research proves that the existence of safety and performance defects are strongly predicted by the incidence of automotive problem reports in social media.	Social media
Automotive	Auto user experience	Leverage LTE capabilities and functionality to connect to 250M Registered Vehicles in the U.S in enhance user experience.( requires 'White label' agreements with auto manufacturers)	Build a value added user experience for the auto manufacturers to market In vehicle connectivity - WiFi Addressable Advertising Telematics Monitoring Information Contacting for advice Locations Services Mapping and Traffic Communications Delivering media content to the car Music Video (Subscribed content by current FIOS users)	
Communications	Networking Providers	Management of Customer Satisfaction by Monitoring Outages via Social Media	By monitoring social media, network providers are able to determine outages and customer issues faster than with formal channels, allowing a proactive approach to the management of the customer experience.	Social media
Communications	Customer Churn	Customer Churn Reduction Through Proactive Engagement	Reduce customer churn by analyzing customer data to anticipate which customers were most likely to move to a competitor and focus attention on ensuring their satisfaction.	"Customer Data"
Energy	Oil	Major Oil Company Cuts Operating and Staffing Costs and Increases Production	By utilizing instruments to constantly read wellhead conditions, pipelines, and mechanical systems, operation centers can adjust oil flows to optimize production and minimize downtimes.	<ul style="list-style-type: none"> <li>•System readings</li> <li>•Physical condition data</li> </ul>



## Big Data Use Cases – Other Sectors Contd...

Sector	Functional Area	Use Case	Description	Types of Data
Entertainment	Revenue Forecasting	Designing a simulation model to forecast the revenue a movie will generate across the full spectrum of release windows, physical and digital media platforms	Designing a model to evaluate revenue impact of release timing across windows and channels, which allows executives to safely “test drive” varied release and promotional strategies in advance The model can be used to: 1.optimize revenue across release windows 2.plan media campaigns 3.adjust in-flight campaigns and release strategies	Direct factors such as theater count, marketing spend, and descriptive information (e.g. rating, genre) Indirect factors such as word-of-mouth, movie competition, and movie quality (e.g. star power)
Hospitality	Staff Utilization	Hotel Staff Utilization Increased through New Scheduling Processes	By utilizing information from the National Weather Forecast in conjunction with historical hotel data, a major resort was able to drastically reduce staffing costs by hiring and staffing based on forecasted weather. The resort earned an ROI of 1,822%.	National Weather Forecast
Logistics	Trucking	GPS Technology Allows For Tracking, Rerouting, Customer Notification, Forecasting, and Pricing	The use of GPS technology allows for companies to better track their shipments, leading to better pricing structures, more efficient routing, and better customer satisfaction through notifications.	•GPS data •Live traffic updates
Media	Customer Usage	Content Optimization on Web Applications	By following the user clickstream patterns, companies can modify their web applications to promote certain actions or draw attention to certain functions or advertisements.	Clickstream Sessionization
Political	Military	Trend Analysis in documents	Analyzing terabytes of data to determine trends in the conflict such as the type of activities, evidence to seasonal spikes in conflict, and trends in attack locations.	Wikileaks data (location, type of activity, date)
Political	History	Investigative analysis of historical data	Historical Data can be used for forensic analysis and investigations to determine actions, motives, vectors, effects, and evidence for incidents, misuse, theft, or fraudulent activities.	Government Documents (arrest reports, documented disappearances)

# *PwC Expertise*

## **Contents**

1. PwC thought leadership
2. Case Studies
3. How to reach us ?

# 3

# Thought Leadership

## Examples of Big Data Analytics Thought Leadership (Non exhaustive)

**Getting started in big data: Five steps to put big data to work**

Big data holds the potential to increase sales, improve operations, decrease the development of breakthrough products and services, look to increase loyalty, and give customers better, more engaging and more personalized experiences.

PwC has helped many clients leverage the power of big data to deliver business results. The reason: Our sales management team of major international clients advised us on how to evaluate the benefits of programs to identify potential strategic revenue opportunities. One of our seven major partners is a leading retailer that primarily sells home improvement products. With more than 10,000 stores and 100 million square feet of retail space, the company is looking for ways to improve its sales and customer experience. PwC developed a program to help the company better understand its data systems to gain a deeper picture of demand. Our model identified the company's historical sales data to identify a large, long-term program area of full demand that the company had identified. As a result of PwC's analysis, the company reworked its sales and distribution channels to address the opportunity.

The sales program was completed in eight weeks. Based on these opportunities, the company is applying big data analysis regularly to enhance sales potential of their clients to provide it from season to season.

**How to get started in big data:**

In today's market, a single transaction, large block of sales, or an entire season of data is not enough to begin exploring the potential value big data can provide business results. Initiating an effective strategy can take quite a while to explore if you don't have big data that you already have business results.

- Identify a big data challenge:** Pursuing a single transaction or a large block of sales, or an entire season of data is not enough to begin exploring the potential value big data can provide business results. Initiating an effective strategy can take quite a while to explore if you don't have big data that you already have business results.
- Identify big data opportunities:** Select a few senior executives with a broad view of the entire organization who can identify a strategic business or market opportunity that big data can address. Use these executives to identify and discuss their own personal experiences with big data. Ultimately, the team should explore the question: "How has big data helped drive other data and the ability to improve high-quality products, build stronger customer relationships and generate better results, quality? Time a number of possible opportunities are identified, prioritize them and narrow the field to a single opportunity that holds high promise."

In this issue: 04 **Identify a big data challenge** 22 **Identify big data opportunities** 38 **Reshaping the workforce with the new analytics**

By Alan Morrison

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**Technologyforecast**

**Making sense of Big Data**

A quarterly journal

2012, Issue 1

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**Creating a cost-effective Big Data strategy**

Disney's Bud Abers, Scott Thompson, and Matt Estes outline an agile approach that leverages open-source and cloud technologies.

Interview conducted by Galen Gruman and Alan Morrison

Bud Abers joined what is now the Disney Technology Shared Services Group two years ago as executive vice president and CTO. His management team includes Scott Thompson, vice president of architecture, and Matt Estes, principal data architect. The Technology Shared Services Group, located in Seattle, has a heritage dating back to the late 1980s, when Disney acquired Starline and Imagem.

The group supports all the Disney businesses: \$86 billion in annual revenues, managing the company's portfolio of film properties. These include properties for the studio, theme parks, ESPN, ABC, and a number of local television stations in major cities.

In this interview, Abers, Thompson, and Estes discuss how they're expanding Disney's Web data analysis footprint without incurring additional cost by implementing a Hadoop cluster. Abers and team trend up budget for the cluster by evaluating servers and eliminating other redundancies.

PwC: Disney is such a diverse company, and yet there clearly is lots of potential for synergies and cross-fertilization. How do you approach these opportunities from a data perspective?

BA: We're not approaching the data as work with Web 2.0 provides answers to the complex in the long term. We have some businesses that are data intensive, and that we have some that are less so because of their customer audience. One of the challenges always is how to serve both kinds of businesses and do it in a way that makes sense. The sell-to relationships extend from the studio out to the distribution groups and the theater chains. If you're selling to millions, you're trying to understand the different audiences and how they connect.

One of the things I've been telling my folks from a data perspective is that you don't need analytics one way to be more data or sophisticated on the other side, right? We're thinking through these kinds of pieces and trying to figure out how we move down a path. The next is that working with all these business units is a diverse set of requirements, as you might imagine. We're trying to step ahead of them all the businesses are.

In that respect, the questions I'm asking are, how do we get more agile, and how do we do it in a way that handles all the data we have? We must consider all of the new form factors being developed, all of which will generate lots of data. A big question is, how do we handle this data in a way that makes cost sense for the business and provides us an increased level of agility?

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**Building a bridge to the rest of your data**

How companies are using open-source cluster-computing techniques to analyze their data.

By Alan Morrison

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**Capitalizing on the promise of Big Data**

How a buzzword morphed into a lasting trend that will transform the way you do business

January 2013

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**Technologyforecast**

**Making sense of Big Data**

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2012, Issue 1

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By Alan Morrison

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**Revising the CIO's data playbook**

Start by adopting a fresh mind-set, grooming the right talent, and piloting new tools to ride the next wave of innovation.

By Jimmy Dufresne

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**Management information and performance:**

CFOs face new demands for high-quality data that drives decisions

A report prepared for PwC's Global CFOs by CFO Group Research Services

**CFO** research services **pwc**

**Tapping into the power of Big Data**

Treating it differently from your core enterprise data is essential.

By Galen Gruman

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# ***Big data – Case Study***

## **Fortune 500 Insurance Company**

### **Task:**

The client determined that fast-moving marketplace changes would require a hard-hitting and sweeping analysis of its sales and marketing strategies in the online space. Auto insurance sales had moved online quickly and become commoditized over the past decade—70 percent of today's auto insurance purchasers have obtained an online quote—and the company needed to know if the life insurance sales that were central to its growth were destined to follow the same evolution to direct distribution.

### **Challenge:**

It was critical for the company to avoid finding itself flat-footed if the market shifted suddenly, and it planned to build a high-performance direct distribution operating model to support future growth of online life insurance sales. But the client needed to know how soon would it need to ramp up? What barriers would it encounter? What sales criteria would change the market most? Which customers were most likely to gravitate toward online purchase options? Getting answers to all those crucial questions would require deep and far-reaching analysis of huge amounts of data.

### **Solution:**

PwC collected and analyzed vast Big Data sets to address impact of healthcare regulations and electronic medical records on online sales, marketing effort needed to make consumers feel comfortable shopping online for life insurance, and upcoming technology changes would make online sales more viable. PwC analyzed macroeconomic data, consumer data, and technology advancement data

A 5-10 year model using this data showed 3 potential barriers to growth: medical underwriting requirements for most life insurance applications, consumers' reluctance to share personal medical information online, and complexity of some life insurance products. Removing these barriers could accelerate the move to online sales. PwC's model based on external third-party data sets that showed at a ZIP-plus-4 level the number of people who have life insurance, its type, their net worth, their demographic categories, their digitally savvy, and the length of time that they spend online per week was used to identify target customers and tailor marketing programs

### **Results:**

Estimated increase in direct term life insurance sales of about \$200 million and substantial growth in its direct whole life insurance market share by 2015, under certain scenarios are expected. PwC is currently helping the company develop a more data-driven decision culture as it combs through more Big Data sets to predict other market changes that may shake up the insurance industry in the future

# ***Big data – Case Study***

## **Large media company**

### **Task:**

A large media company found itself awash in data about its subscribers and customers, but it was not effectively using it to develop new business strategies. A legacy environment made up of several disparate transaction systems and customer databases forced marketing personnel to spend their time doing manual data integration across those legacy systems in slow and ineffective ways.

A new CEO accustomed to working in a much more data-driven environment was asking hard-hitting questions about the numbers, and business managers were struggling to answer them because they lacked the depth of analytics he was looking for. Friction developed between management and IT, and both sides faced the challenge of getting the answers the CEO was rightfully demanding.

### **Challenge:**

The company asked PwC to help it understand the current state of its data and analytics and suggest changes that would help it achieve its goals:

- To make better, smarter, and faster decisions using its data
- To draw more timely and intelligent insights using traditional and Big Data techniques
- To clean up its disjointed customer experience, without wholesale changes to its legacy technology environment

### **Solution:**

PwC understood the client's core need: improve customer interactions from deep analysis of their preferences, patterns, and experiences.

Using Big Data concepts along with traditional business intelligence, PwC provided a 7 step roadmap to transform the organization's decision culture, without sacrificing legacy system investments :

- A pragmatic data governance program with a defined agenda supported by key data management roles
- A single view of customers and products to manage customer and product profiles, relationship and hierarchy
- Flexible and robust automated data warehouse architectures and data distribution services to support 360-degree customer view, enhanced data access, and full-spectrum reporting
- A data quality factory to quantify, monitor, & remedy quality issues
- A lightweight metadata tool to manage common business/technical data definitions and lineage
- A sandbox environment - including Big Data technologies – and processes for business users to correlate different data sets
- Staffing needs for a sustainable data management organization

### **Results:**

PwC's solution provides the client deep analytical capabilities to make better, faster, and smarter business decisions in a Big Data environment with complex and interrelated data , to help them prosper in the years ahead.

## ***Contact***

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# *Thank you!*

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