



BIG DATA BUSINESS  
ANALYTICS



# THE NEXT – GENERATION DATA PARADIGM

HCL BIG DATA LAKE : A UNIFIED DATA PLATFORM



# DATA FABRIC FOR THE DIGITAL REVOLUTION

Is your organization keeping with the fast pace of digital commerce and the evolving technologies necessary to deliver “fast” insights to business users and “fast” interactions to customers? Do you have the flexibility to meet increasing expectations to deliver services quickly to any device? Most business leaders are faced with challenges concerning big data and are looking for ways to monetize the goldmine of information produced across digital sources. The key lies in enabling business agility while harnessing the power and scale of big data.

Across industries such as Telecom, companies are driving micro-targeted marketing and personalized customer service effectiveness by harvesting insights from call and network log data. Utilities companies are constructing ecosystems to continuously monitor sensor data to predict anomalies and proactively prevent failures with right-time-maintenance. Healthcare providers are analyzing the patient data in real-time from ICUs to deliver potentially lifesaving just-in-time insights.

Converting big data in right-time and just-in-time actionable insights is no simple task. Defining and

delivering such insights require a multi-discipline team and approach—i.e. business teams to define new processes aligned to tools and techniques; data teams to source and manage the variety of data sources streaming at huge volumes and increasing complexity; data scientists and big data analysts to unlock the insights by integrating current data assets in enterprise legacy systems and incorporate new big data sources from the internet, sensors, and devices; and visualization teams to build any device interfaces providing insights and customer facing interactions.

To tap the potential of big data and advanced analytics, business and IT leaders must re-examine the current warps and wefts of the data fabric that power the business applications. Unified the unified information architectures, next generation of sourcing and managing any data, and applied analytics combine to create capabilities such as the Big Data Lakes. This combination of new business process and technologies weaves resilient fibers that strengthen the end-to-end management and utilization of data assets in a secure fashion.

# THE BIG DATA LAKE

Big Data Lakes are gaining acceptance as repositories that integrate enterprise data assets with modern data sources to meet new business challenges in flexible and cost-effective manner. By improving operational efficiencies and monetizing services, Big Data Lakes enable rapid access to a growing array of data sources to help businesses to bridge the current deficits with new insights that increase profitability.

The big data lake concept comprises three key constructs:



Overarching governance for the data and metadata, providing integration of any data, any time and any volume, and the security to deliver data to any user on any device



Standards for staging raw data needed by all other data platforms



Standards for the analysis and transformation environments

## EQUAL RIGHTS TO DATA ACCESS

With the Big Data Lake, businesses that use data as a strategic asset can deliver speed-to-market at every level across the enterprise to people who convert data into insights. Hence, a Data Lake and the accompanying digital fabric must be driven by the philosophy of secure, role-based access granted to the right users seeking to unlock insights.

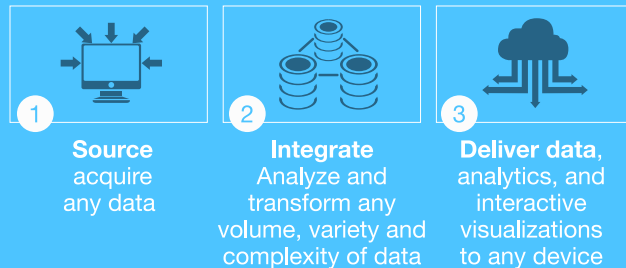




# HCL'S APPROACH TO **BIG DATA LAKE**

HCL's Business Analytics Services (BAS) provides a full lifecycle big data framework, the agile analytics methodology, and change-the-business and run-the-business operating model to help our clients in building the foundational services to deliver business value quickly and deploy these new services as enterprise solutions. Our framework enables clients to derive insights from all sources including social media, internet of things (IoT), machine-to-machine (M2M), and business events and transactions.

Our approach includes a comprehensive big data operating model comprising three phases, each enabled by an agile analytics development method and governance process:



## HCL'S BIG DATA LAKE THREE PHASES:

**Acquire any data:** Allows sourcing of any data, any time, as an automated process. Data from enterprise application, data from sensors, web and devices, or, images, and video. Data is ingested and stored in near real-time, real-time, and batch modes.

**Integrate – Manage, Analyze & Transform:** Automates metadata gathering, data cleansing and processing. Provides correlated data sets distributed across the enterprise. Management of role-based security and governance controls provide any type of data to any device, at any time.

**Deliver data and analytics:** Operationalizes the benefits of the Big Data Lake, by delivering data-as-a-service, analytics-as-a-service, and customer facing rich interactive analytics applications. Our flexible framework and agile methodology help clients transition existing BI resource to advance analytics teams providing the organizational changes to adopt Big Data solutions and monetize new services. HCL can work with your teams to setup up the foundational service to enable co-innovating processes.



## HCL'S BIG DATA LAKE OPERATING MODEL

Deliver Data & Analytics to Any Device

Data Services

Interactive Visualizations

Analytical Tools

BI Tools

Source  
Any Data

Real-time  
&  
Near-real-time

Batch

**Integrate – Analyze - Transform**  
Governed – secure  
Publish & Subscribe

Metadata & Virtualization

In-Memory

My Discovery Zone

Massively Parallel Processing

Data sets

Data marts

Data Warehouse

**Consolidate – Enrich**

**Harmonize - Transform - Correlate**

Data Lake

Structured

Semi-Structured

Unstructured

- ✓ Secure role-based access
- ✓ Self services
- ✓ Any device delivery to

- Visualizations
- Social ideation
- Data structures
- Enrich data sets
- Variable selection
- Certified
  - Methods
  - Models
  - Algorithms
  - Metrics
  - KPIs

## SOURCING ANY DATA

A leading US telecom operator benefited from a meticulous consolidation approach adopted by HCL

### CHALLENGES

The customer was facing the following challenges:

- Integrating customer data from social media with legacy systems
- Correlating the data coming from multiple sources (silos)
- Building next-gen BI
- Maintaining high scalability and performance of Unix based Data Landing Zone given the rate of business growth and higher volume of data

### HCL SOLUTION HIGHLIGHTS

HCL implemented the enterprise data lake solution for the customer. A reliable service for ingesting data that was extensible, reusable and future-ready was set up along with agile analytics operating model and established “as-a-service” delivery for enabling applications.

### BENEFITS

HCL's solution enabled end-to-end process for capturing, storing, and processing multiple varieties of high speed and high volume data. Data was pushed to the desired systems and advanced analytics could be carried out in a secured manner.

## INTEGRATE - ANALYZE - TRANSFORM

A Fortune 500 diversified financial services group of companies increased its conversion rates, and improved the quality of its leads.

### CHALLENGES

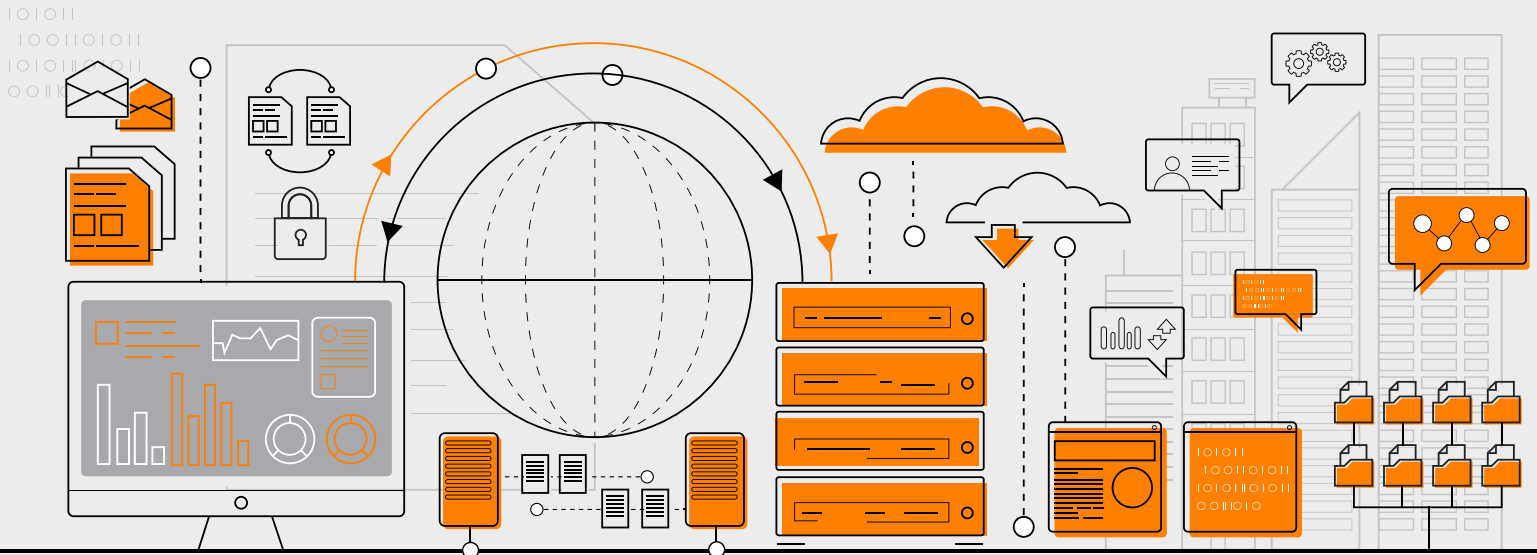
The customer's reports revealed that while overall traffic to dotcom site was increasing, sales for online auto insurance products was declining. The existing analytics tools had limited capabilities to identify trends over time and thus arrest declining conversions.

### HCL SOLUTION HIGHLIGHTS

HCL explored patterns in consumer behavior to identify reasons for conversions decline. A baseline was established and the team worked with the client analytics group to define and implement journey from traditional analytics to big data analytics.

### BENEFITS

HCL improved the accuracy of insights with funnel analysis and behavior analysis, enabling increase in conversation rates, improvement in the quality of leads, and ability to perform target marketing, cross-sell and up-sell.



## DELIVER DATA AND ANALYTICS TO ANY DEVICE

Agile analytics for a global aerospace manufacturer using big data

### CHALLENGES

The customer had the following business needs:

- To acquire, process, and analyze aircraft sensor data in near real-time
- To reduce the time lag created by manual processes used to analyze unstructured text
- To improve performance metrics for reliability and service management in a changing commercial aircraft industry servicing a dynamic global operator base

### HCL SOLUTION HIGHLIGHTS

HCL provided a holistic big data lake approach ensuring overarching governance, quality, and data management built on the three core pillars of the big data operating model:

In the **Sourcing Any Data** phase, the semi-structured or unstructured data formats were integrated with structured data.

In the **Integrate – Analyze – Transform** phase, secure access to data and interactive dashboards were enabled.

In the **Deliver Data and Analytics to Any Device** phase, HCL deployed an operating model for cross functional teams to work together. Further training was provided in using new technologies and following new process as part of transformation.

### BENEFITS

Implementation of the HCL solution led to:

- Replacement of manual process for analyzing text data with text mining and advanced analytics
- Integration of the service data and text mining with in-flight sensor data to develop predictive models to improve service reliability guidance and maintenance scheduling
- Higher service reliability
- Enablement of self-services through cross-functional “as-a- service” delivery model that enabled a shift from requesting reports to self-services

## WHY HCL?

HCL's Business Analytics Services practice provides deep capabilities and solutions" to address current challenges specific to your business environment. Our big data lake solution is designed to work across various data sources and multiple Hadoop distributions to deliver monetized results to clients.

- ✓ One global team seamlessly drawing upon cross-functional services aligned to business and IT to support co-innovation for our clients' solutions; Co-innovation labs in Noida and Bangalore (India), London (UK), Cary (NC), Guadalajara (Mexico)
- ✓ Agile Analytics approach to design, build, and deploy data lakes

- ✓ Global Center of Excellence with high standards of practice and competency building for accelerated deliveries
- ✓ Talent pool with deep and comprehensive big data and analytics skills
- ✓ Vast range of next gen services for unified information architectures includes EDW, MPP, In-memory processing, big data and analytics, business intelligence and interactive visualizations
- ✓ Strong governance framework



APPLICATION  
SUPPORT &  
MAINTENANCE



BIG DATA &  
BUSINESS  
ANALYTICS



BUSINESS  
ASSURANCE  
& QUALITY  
SERVICES



CLOUD, DIGITAL  
EXPERIENCE &  
MOBILITY



COLLABORATION,  
CONTENT & SOCIAL



CUSTOMER  
RELATIONSHIP  
MANAGEMENT



DIGITAL  
SYSTEMS  
INTEGRATION



E-COMMERCE  
& OMNI-CHANNEL



ENTERPRISE  
RESOURCE  
PLANNING



HUMAN  
CAPITAL  
MANAGEMENT



MODERN  
APPLICATION  
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