ROLTA

INSIGHTS. INNOVATION. IMPACT

# Turning Big Data into Big Outcomes

With Rolta OneView™ Enterprise Suite


**Issue 4**



Featuring research from Gartner®

# Welcome

I am pleased to welcome you again through this Third Newsletter from Rolta featuring research from Gartner. In the past newsletters, we focused on Striving for Operational Excellence for Asset intensive industries with Rolta OneView™ using Operational Intelligence (OI) as architecture and how Rolta OneView™ enables to accelerate the transformation with the strategic imperatives imposed on the Energy and Utilities industries. Here we focus on how Big Data Analytics is shaping up as the critical frontier for organizations who want to use Big Data to excel on their performance and not use the data to just control the performance.

Knowing more about your business and knowing it faster than others is the best way to power innovation & stay ahead of competition. Often more than 70% of the data is referred as Dark Data, though it exists with a purpose in the enterprise is not used. Big Data Analytics brings the need of getting all the relevant data within the data landscape and expands the power of the information and actionable insights of the organization. The Nexus of Big Data (Information), OT-IT Convergence, Internet of Things, Cloud, Mobile, Enterprise and Consumer Social is creating new potential opportunities that necessitate the transformation of current BI & Analytics landscape, to leverage them.

Merely adding "Big Data" as one more component to the existing landscape without focusing on the overall vision, strategy and technology roadmap is likely to yield myopic consequences. On the other hand, soundprinciples have to be applied to ensure minimal incremental investments and maximize re-use of existing resources. Big Data brings in its own complexities, challenges and opportunities that merit thoughtful debates at appropriate levels of decision-making. To achieve competitive advantage, organizational leaders and CXOs need to be able to rely on single source of truth (Logical Data Warehouse - LDW) across the value continuum, irrespective of the type and underlying source of data. This is logical extension of the Enterprise Data Warehouse (EDW), with special considerations for Big Data. Corresponding BI and Analytics platforms also need to evolve. Business Use Cases should drive Technology Adoption, creating value through rapid ROI at lower TCO.

Rolta through its comprehensive Big Data Analytics solution has been helping numerous customers to exploit the power of Big Data and bring 100X value of the data in the enterprise. Rolta's IP based Big Data Analytics Solution addresses the comprehensive solution needs for accelerating customers Analytics journey to realize the business outcomes along with business transformation and not waiting for years. The solution includes, Rolta Advizer™ - a rich automated tool based structured advisory for defining the roadmap, Rolta SmartMigrate™ - IP driven automated migration & consolidation solutions, Rolta iPerspective OT-IT Fusion™ that rapidly integrates the data and application landscape and finally Rolta OneView™ - an industry rich pre built Big Data analytics solution that brings instant ROI with its 3000+ built-in domain specific analytics providing Descriptive, Diagnostic, Real time, Predictive and Prescriptive Analytics.

Rolta is a leading provider of innovative IP-led, ROI-driven IT solutions. With three decades of expertise in Engineering, Geospatial and IT solutions working with Global Leaders, Rolta has pioneered this integrated innovative solution that simplifies Big Data Analytics and helps appropriately harness the power of the Nexus of Forces. I am confident that the research and case studies in this document will help in your pursuit of Big Data Analytics Program, through an ROI-driven comprehensive solution helping business in strategic imperatives and lead the transformation in a smarter way.

Thank You,

**Rajesh Ramachandran**
Chief Technology Officer & President, Rolta

# Why Big Data Analytics?

- Knowing more about your business and knowing it faster than others is the best way to power innovation & stay ahead of competition. Often more than 70% of the data referred as Dark Data, though it exists with a purpose in the enterprise is not used. Big Data Analytics brings the need of getting those dark data within the data landscape and expands the power of the information landscape of the organization.

- Industries are going through significant transformation. Nexus of Technology Trends impacting them more than ever. Cloud computing, Big Data, Social, Mobile, OT-IT convergence, Predictive Analytics, IoT, Spatial Analytics, In-memory computing and so on.

- Big Data is changing how organizations do business. 2.5 quintillion bytes of data are generated each day. 90% of the data in the world is <2 years old. Companies use Data to Control Performance. **Leading Companies** exploit Big Data to Excel.

- Analytics is getting redefined. Exist(ed)ing analytics & BI can't solve Big Data. They rely exclusively on well-defined DW. Big Data Platforms should enable roles across and not limited to data scientists. Cloud Computing provides computing power needed for the Big Data processing and real time and predictive analytics.

- Integrated Actionable Insights - Critical Enabler to achieve Business Outcome along with Business Transformation. Real time Analytics Platform with Logical Data Warehouse drive the Big Data Analytics with 360 degree insights

### What makes the Data To Big Data?

Let us first demystify Big Data which would then help to bring the relevance and value to the specific industry. The term Big Data sometimes perceived as denoting only the "Volume" of data, but not necessarily that. Data becomes "Big Data" when it brings some or all of the characteristics of:

- **4 Vs** – Volume, Velocity, Variety, Veracity
- **8 Ds** – Eight different types of Data
  - o **Transactional Data:** comes from transaction systems
  - o **Operational data:** Operational systems, monitoring of streaming data , historians, SCADA, sensor data
  - o **Dark data:** Excel, PDFs, emails, contracts, drawings, specs,
  - o **Spatial data:** locational & demographic data
  - o **Enterprise Social data** within organization
  - o **Commercial data:** structured or unstructured purchased from industry organizations
  - o **Public data:** numerous formats and topics, such as economic data, socio demographic data and weather data
  - o **External Social Data**
- **4 S** – Strategic Business Objectives of Big Data: Operational excellence, Customer intimacy. New Business Innovations, Risk management

## What Big Data is NOT?

It is not an IT First program: First Business, Next IT. Big Data Transformation Programs are Business Programs and not pure IT programs. CEO, CMO, CDO, COO are the primary sponsors. Value is seen as business use cases solved for the domain. CIO play important role to enable the Big Data infrastructureto drive the programs.


Big Data Analytics is not Just Predictive. It cuts across all the four steps of analytics as shown in the figure and start looking information as asset and a focused information management.

Source: Rolta

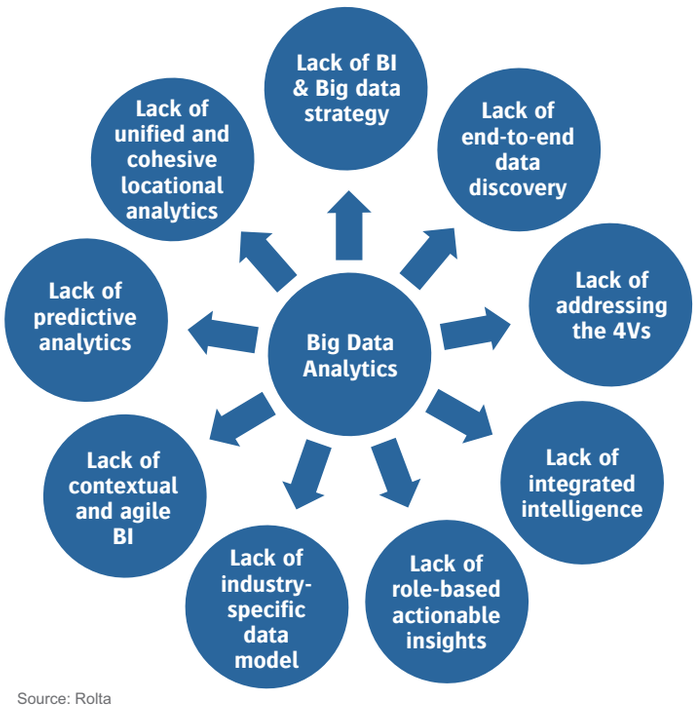
Big Data Analytics is not limited to Consumer Industries. But across industries to achieve the all are few of the strategic objectives (4S). Some of the core Big Data Use cases are stated below.

| Oil and Gas | Utilities | Manufacturing |
|---|---|---|
| Composite Risk Management<br>Predictive asset maintenance<br>Real-time or active operations optimization<br>Well Platform movement<br>Drilling and Completions<br>Production Forecasting<br>Enhanced Oil Recovery<br>Optimize Global Operations | Peak-demand analytics<br>Locational Intelligence<br>Network Monitoring<br>Asset Tracking and Performance<br>Manage Disasters and Outage<br>Smart meters analytics<br>Smart grid optimization<br>Fraud detection<br>Cybersecurity<br>Customer entity resolution | Predictive Maintenance<br>Real-time parts flow monitoring and supply network modeling<br>Product configuration planning<br>Market pricing and planning<br>Capacity & Workforce allocation<br>Automated quality assurance<br>Predictive product quality<br>Workforce Monitoring<br>Connected cars |
| **BFSI** | **Retail** | **Healthcare** |
| Algorithmic trading<br>ATM service optimization<br>Intraday liquidity management<br>Intraday position management<br>Underwriting & Loss Modelling<br>Credit risk assessment<br>Anti-money-laundering & Fraud rings<br>Claims risk & Fraud detection<br>Customer 360<br>Information-based value-added services | Dynamic pricing<br>Dynamic forecasting<br>Market basket analysis<br>Shopping cart defection<br>A/B testing<br>Recommendations<br>Loyalty management<br>Multichannel location analysis<br>Counter-dynamic pricing<br>Fraud detection<br>Compliance Auditing | Integrated patient data<br>Assisted diagnosis<br>Clinical trials<br>Translational medicine<br>Remote patient monitoring<br>Hot spotting and Genomics<br>Personalized medication<br>Adaptive treatment planning<br>Patient flow management<br>Compliance Auditing<br>Drug and medical device safety<br>Clinical trial fraud |

Source: Rolta

# Challenges in Adapting Big Data Analytics

Companies have traditionally relied on data to control performance. Adopting Big Data Analytics is seen as a tall order not just because of the Big Data itself, but the information maturity and ability to strategize and implement the same.




Source: Rolta

**Table 1.** Characteristics of the Traditional Versus the Big Data Approach

| Traditional Approach | Big Data Approach |
|---|---|
| • Requirements-based | • Opportunity-oriented |
| • Top-down design | • Bottom-up experimentation |
| • Integration and reuse | • Immediate use |
| • Technology consolidation | • Tool proliferation |
| • World of data warehouse and BI | • "World of Hadoop" |
| • Competence centers | • Hackathons |
| • Better decisions | • Better business |
| • Enterprise focus | • Marketing/operations |
| • Rigorous and formal | • Exploratory and informal |

BI = business intelligence

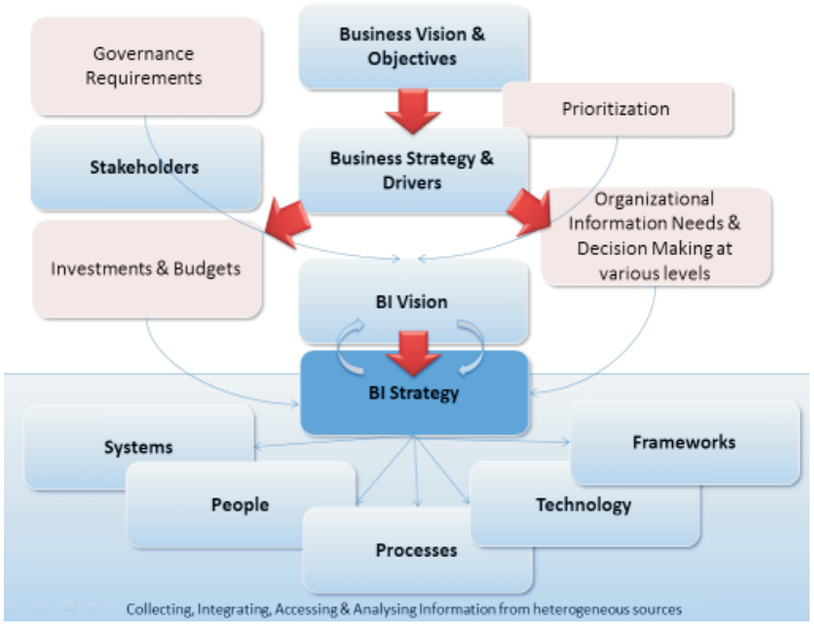
Source: Gartner Research Note G00252895 *Big Data Business Benefits Are Hampered by 'Culture Clash,'* Frank Buytendijk, Douglas Laney, 12 September 2013

Companies already have business applications – IT – and analytics derived from these systems. Several asset-intensive industries also have substantial operational systems that generate large amounts of data, whether from process control systems, historians, or other networks. Data from these two systems needs to be made available from a logical data model for any kind of unified insights to be possible. Separately, there is substantial information available in engineering design systems and GIS systems. In addition, the explosion of data from machine-to-machine logs, bio-informatics, social media, video, and other sources makes this both a substantial business and technological challenge but also a unique opportunity where the value derived from such insights can be a hundred times the investment made. The nexus of forces – Social, Cloud, Mobile and Information - is driving businesses to re-consider their fundamental value systems, including – organizational boundaries, stakeholders, strategies, etc. Whether enterprises are able to transform their businesses and emerge stronger from this digital disruption will depend on how well they are able to assimilate and extract value from big data analytics and this Nexus of Forces.

Source: Rolta

# Driving a Big Data Analytics Strategy & Roadmap

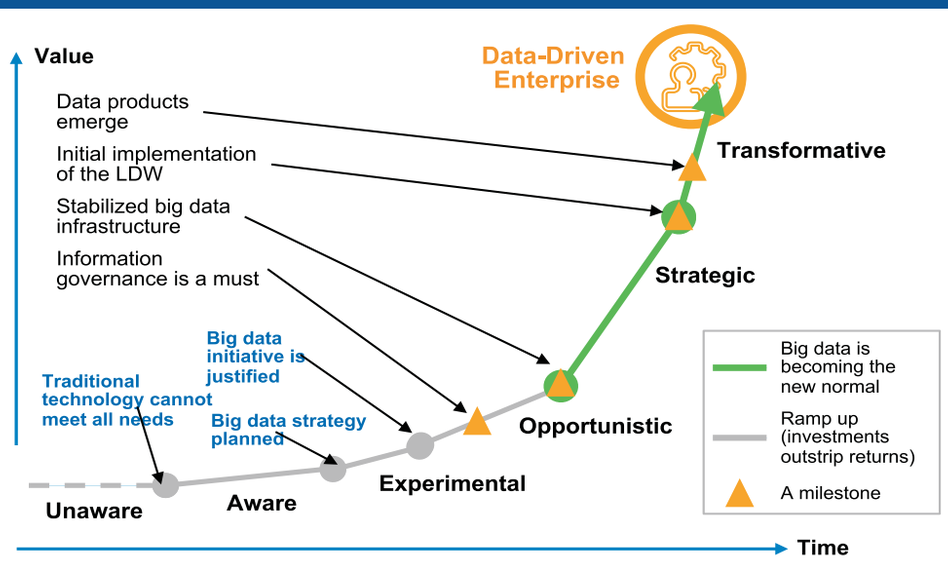
The key enablers of a successful analytics and big data strategy for an enterprise are: the Business Context & Required KPIs; Data & Metadata Availability Quality & Integration; Data & BI Architecture; Preference of BI & Analytics tools; Collaborative Information Delivery; and Data Governance Requirements tend to guide the Big Data Analytics Strategy.




Source: Rolta

**Big Data Analytics Strategy needs to evolve in synergy with current ecosystem**

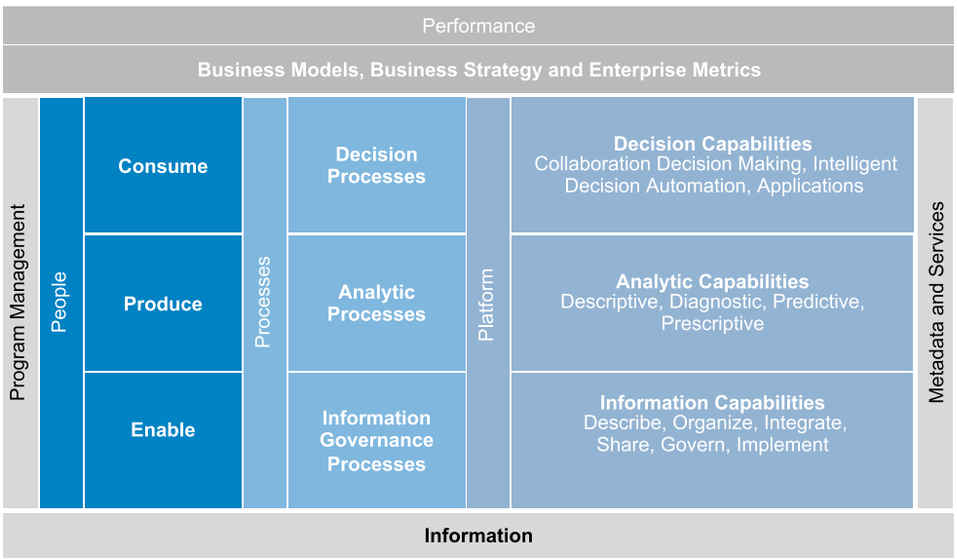
**FIGURE 1** Typical Stages and Milestones of Big Data Adoption




Source: Gartner Research Note G00254965 *The Road Map for Successful Big Data Adoption,* Svetlana Sicular, 19 August 2013

**Big Data Adoption Journey**

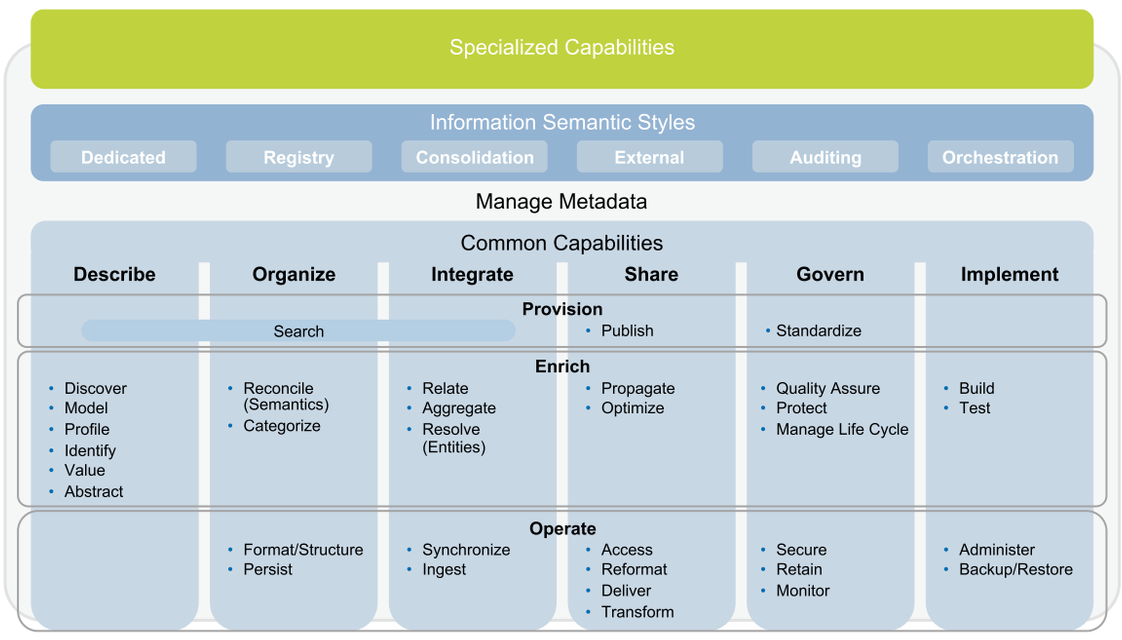
**FIGURE 2** The Gartner Business Analytics Framework




Source: Gartner Research Note G00219420 *Gartner's Business Analytics Framework*, Neil Chandler, Bill Hostmann, Nigel Rayner, Gareth Herschel, 20 September 2011

**Systematically weave in Big Data Capabilities, not just include as an after-thought**

**FIGURE 3** Information Capabilities Framework




Source: Gartner Research Note G00250586 *How to Expand Your Information Infrastructure for Analytics With Content,* Roxane Edjlali, Gavin Tay, Rita L. Sallam, 30 August 2013

**Systematically weave in Big Data Capabilities, not just include as an after-thought**

These drivers have to result in 360 degree insights that deliver integrated and actionable insights to the key stakeholders in an enterprise, calling for an unique solution.

**A number of problems encountered by big data initiatives demand higher levels of organizational enterprise information management (EIM) maturity. Companies must be at the level of their EIM maturity that allows them to proactively address the need to:**

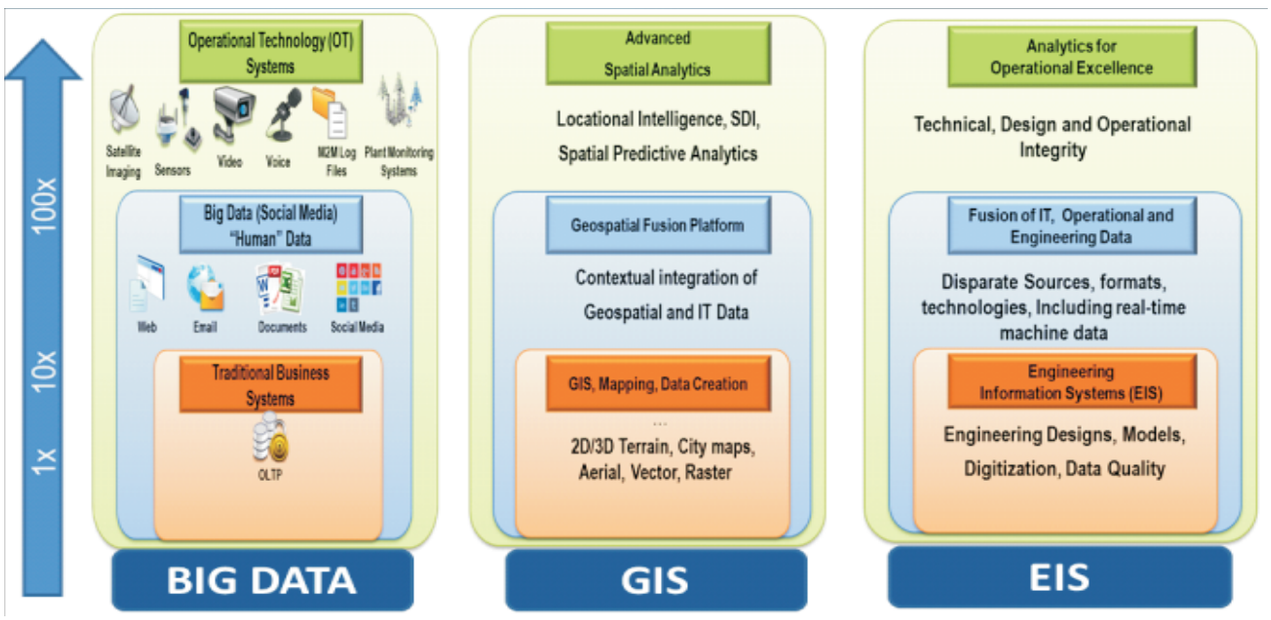
- Know and utilize internal and external data sources
- Resolve risk and compliance questions
- Establish trust models for big data sources
- Develop an enterprise-wide big data strategy

Source: Rolta

# Rolta Big Data Analytics Solution

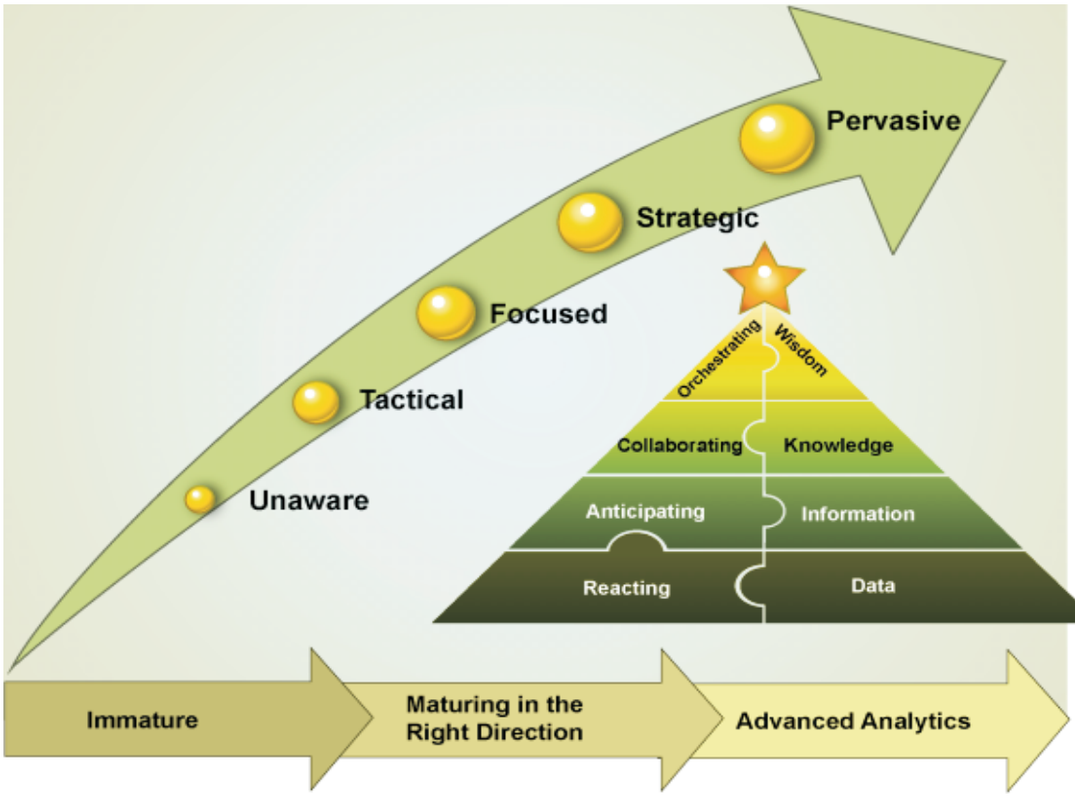
Rolta has been pioneering on providing comprehensive BigData Analytics Solutions across the industry verticals with its IP driven solutions. Unlike typical Big Data solutions which process data from business systems and combine it with unstructured "Human" generated, Rolta 's Big Data solutions takes this a level further by ingesting and analyzing "Machine Data" to truly unlock the business value. Rolta is a leading provider of innovative IT solutions for many vertical segments. By uniquely combining its 3 decades of expertise in integrated solutions. Thus, Rolta solutions enable enterprises to gear-up for riding the wave of nexus of forces, and exploit Big Data Analytics atthe zenith to gain maximum value.

Rolta helps accelerates Enterprise Big Data Roadmaps and enhances Big Data Analytics Maturity. A unique feature of this IP-based solution is that it ensures comprehensive coverage right from Assessment, data discovery, defining the information landscape, establishing the information




Source: Rolta

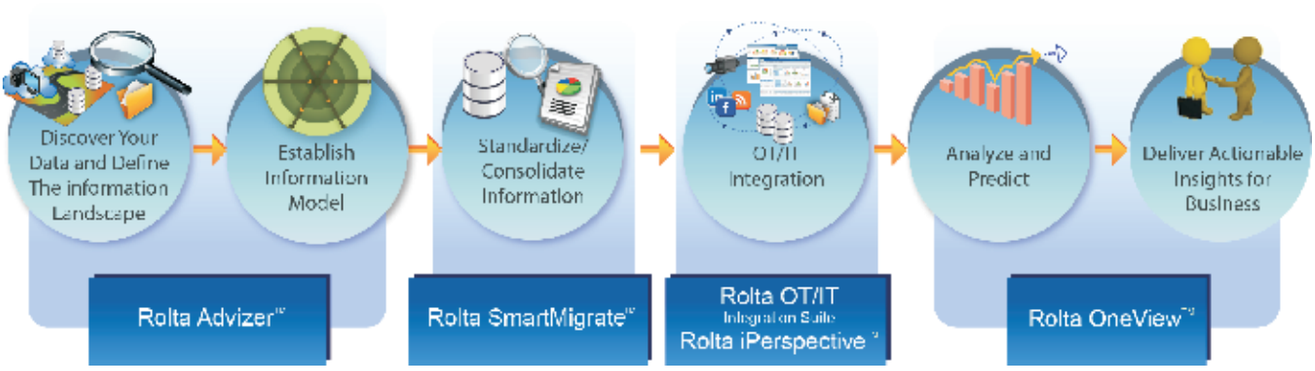
IT, Engineering and Geospatial domains, Rolta develops exceptional solutions for these segments, leveraging Big Data to provide Advanced Analytics. The Company leverages its industry specific know-how, rich repository of intellectual property that spans advance image processing and analytics, geospatial intelligence, BI& Big Data, IT-OT Integration, analytics, field-proven solution frameworks, and deep expertise in cutting-edge technologies like Geo BI, Cloud computing, Software Defined Infrastructure for providing sophisticated enterprise-level model, standardization and consolidation of the information platform, processing vast unstructured data through a Hadoop Big Data cluster and OT / IT integration to ingest machine data culminating with visualization of the Business Insights and Analytics. It provides role based actionable insights and addresses real-time analytics, performance management, strategy management, etc. The solution is based on open standards and is fully compatible with the platforms of globally leading OEMs, and Open Source Providers.




Not every enterprise is at the same state of maturity or capability when it comes to its information and analytics strategy. Enterprises typically need to progress through the stages.

Source: Rolta

**FIGURE 1** Rolta Big Data Analytics Solution – Typical IP-based Engagement Methodology




Source: Rolta

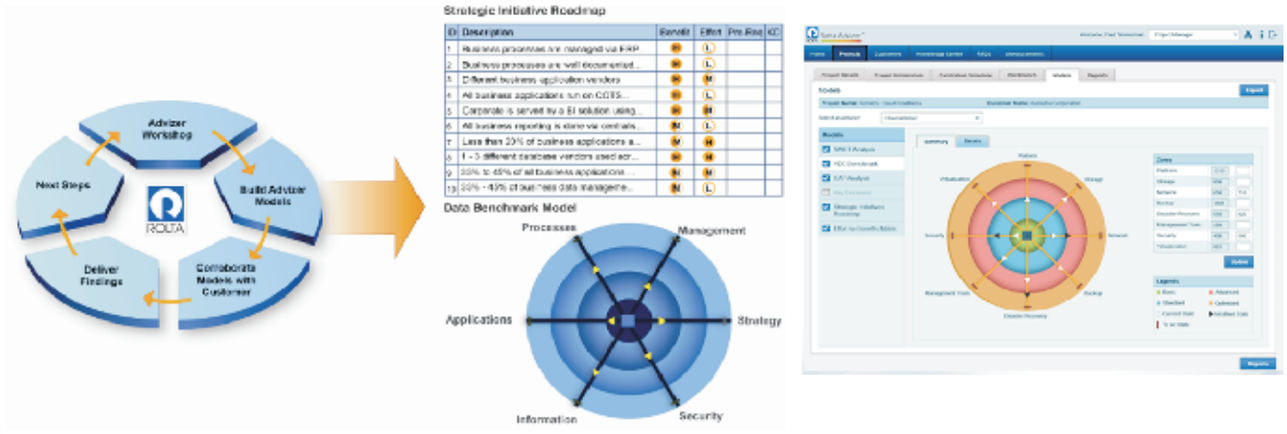
### Define Information Landscape, Discover your Big Data and Establish Information Model

Enterprises need to assess and evaluate their existing information landscape and plan a well defined roadmap for their maturity journey that is aligned to their near term and on term future business needed. For this it is important forthe assessment to happen in a structured and organized manner. ROLTA Big Data Advizer™, an innovative tool based structured advisory framework, helps on comprehensive "Plan" phase for the Big Data Analytics programs. Key aspects include

- Introspect and baseline the current infrastructure, data, analytics, security, application environments, assess their maturity level - Automated and consultative
- Perform SWOT analysis with the inbuilt knowledge model containing 300+ pre built characteristics from best practices, analyst recommendations etc
- Align to the business goals and objectives, Corporate Performance indicators to model the cost-benefit analysis, effort-ROI index
- Establish the roadmap and milestones that includes the end state information model, migration-consolidation of Data, Analytics and Application environments, implementing and adopting Pre-built Big Data Analytics Solutions. Change Management and roll-outs.

The 'Plan' phase focuses on capturing the as-is snapshot of a specific company scenario, performing in-depth analysis and recommending the optimal to-be state while providing a detailed roadmap to achieve the same. Rolta leverages its IP, deep Domain Knowledge, International Best Practices from solutions provided to over 3000 customers, deep Analyst research interactions, cutting-edge Centres of Excellence, and highly experienced consultants to comprehensively address complex customer scenarios.

**FIGURE 2 & 3** Rolta Advizer™ — IP-based Big Data Analytics Advisory




Source: Rolta

### Standardize & Consolidate Information Ecosystem

"Through 2020, more than 90% of big data implementations will not replace existing data warehouse and BI deployments, but augment them. Over time, data warehouse teams should embrace big data initiatives as part of their move toward the concept of the logical data warehouse (LDW)."[1]

Business intelligence and Analytics continues to remain a top most priority for CIOs. Companies have deployed a variety of business intelligence reporting, analytics, and self-service tools over the years, often driven by departmental considerations rather than a corporate-wide initiative. With the business dynamics, acquisitions and growth, these environments have turned to be very complex, but also into islands. In an increasingly competitive environment, companies need to continually harmonize their Data, BI and Analytics strategy and associated IT landscape. CIOs are under tremendous pressure to enable business agility still with constrained IT budgets, and standardize their company's Data and analytics platforms – often a single enterprise-wide business intelligence suite; and also sunset legacy and siloed BI applications. It is a critical step before establishing a Logical Data Warehouse (LDW) to accommodate Big Data. This allows an enterprise to lay the foundation for adopting new applications providing prescriptive and predictive analytical capabilities on a single platform. Furthermore, it enables companies to adopt emerging technologies like mobile, cloud, Big Data, and social applications and encompassing Big Data Analytics across this nexus of forces, to stay competitive. Without an analytics consolidation strategy in place, new initiatives like big data analytics will evolve in silos, resulting in sub-optimal outcomes for the enterprise.

**Rolta SmartMigrate™** is an innovative solution designed to simplify the migration and consolidation complexity and accelerate migrating to a consolidated BigData, BI & Analytics platform, with least effort of business user efforts. The solution, delivered through a fixed cost approach, involves a high level of automation combined with the expertise of subject matter experts to deliver complete, highest quality, with near zero business user timeneeds and substantial savings of migration and stabilization time, money, and resources, –results into highly predictable milestones and significant ROI at every stage.

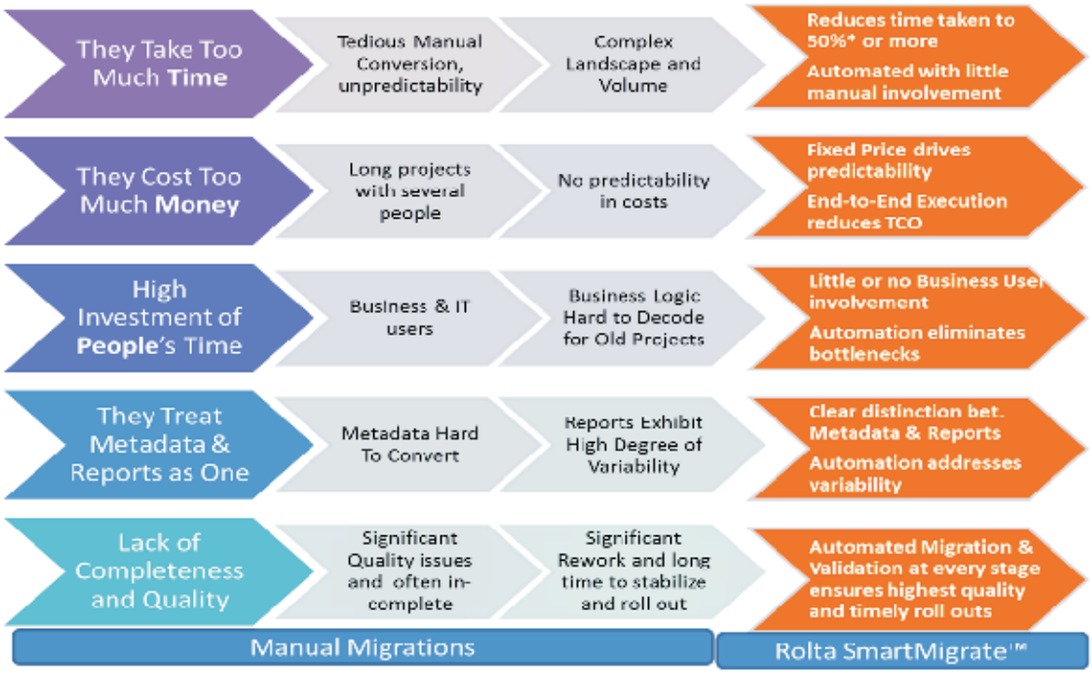
### Data, BI & Analytics Migration Challenges

Organizations linger consolidation efforts, due to varied reasons:

- **Time:** due to complexity and high volume of reports involved.
- **Cost:** due to long schedules, large IT teams, manual efforts / quality rework
- **Complex Business Logic:** Decoding calls for Domain / Functional SMEs

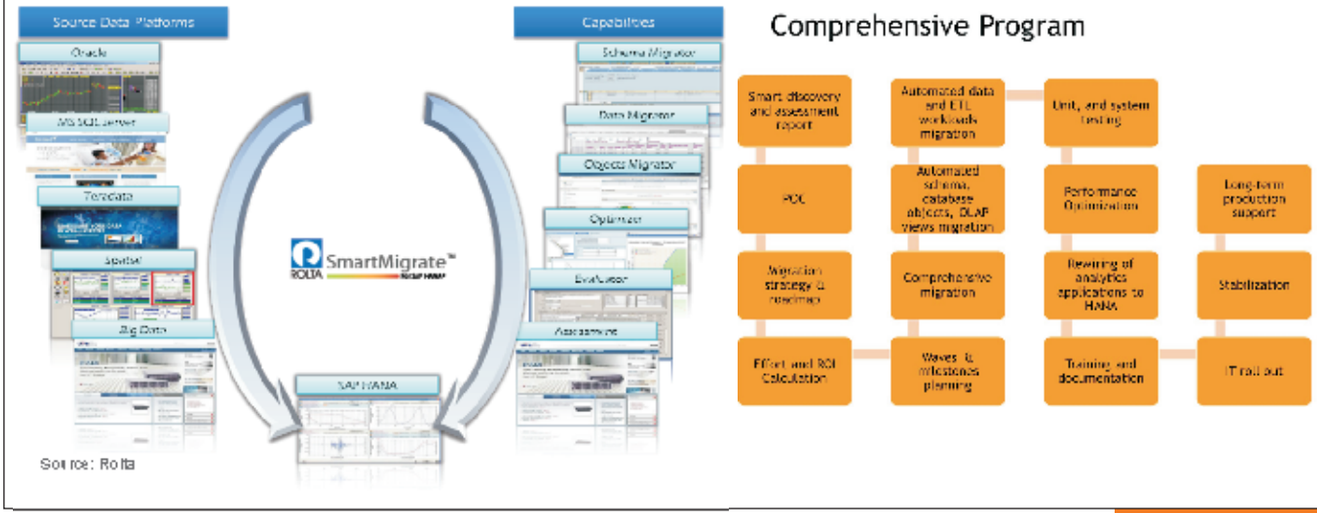
Failure in large BI migration projects are typically attributed to 2 key reasons:

- **Treating Metadata and Reports as same:** Metadata is harder to port, while Reports exhibit higher degree of variability.
- **Mixing Migration with Redesign:** Big bang approaches usually fail




**Rolta SmartMigrate™** solution backed up the automated IP tools helps customers to consolidate from various data platforms to in-memory and big data platforms such as SAP HANA, Hadoop, and Oracle Exadata. For instance, **Rolta SmartMigrate™ for SAP HANA** seamlessly migrates the data analytics and application environments to SAP HANA and enables the applications to exploit the power of in-memory columnar architecture & Analytical views to gain rapid performance and advanced Analytics capabilities.

**FIGURE 4 & 5** Rolta SmartMigrate™ for SAP HANA – Comprehensive Solution for Seamless Migration

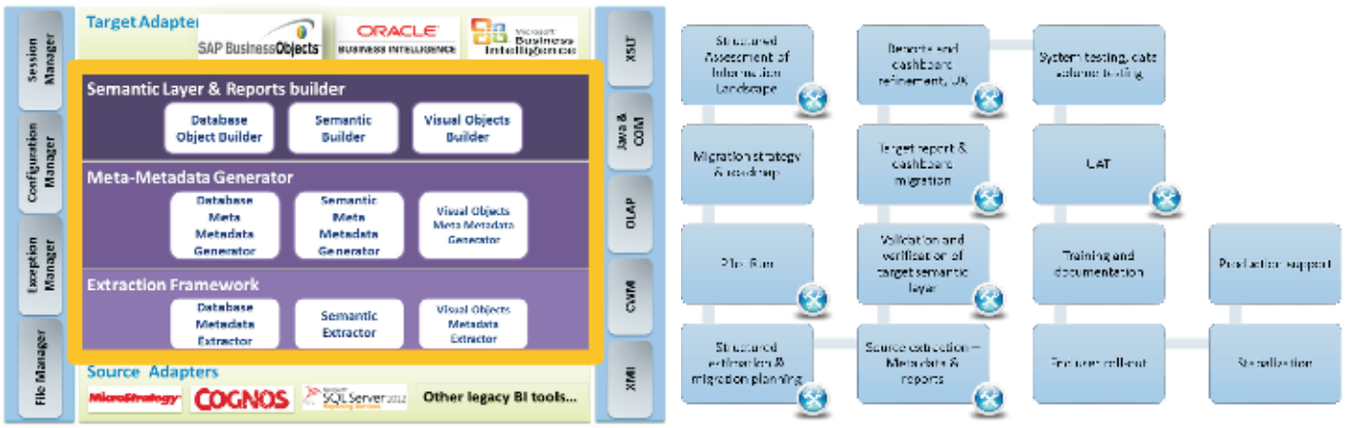


Self Service BI is critical for achieving the business Agility and enable powerful analytics on top of the Big Data Platforms. Rolta SmartMigrate™ for BI consolidation addresses the migration deterrents and provides an accelerated and highest quality migration and consolidation.
Rolta SmartMigrate™ uses a pluggable architecture to migrate and consolidate from a variety of analytical and reporting platforms to the customer's choice of best -of-breed BI platforms. Rolta SmartMigrate™ is an out-ofthe- box solution that provides a high degree of automation. The solution is capable of migrating from source platforms including Microstrategy, Cognos, OBIEE, Microsoft BI and SAP BO to target platforms such as SAP BO, OBIEE and Microsoft BI.
Rolta SmartMigrate™ adopts a pluggable, technology independent, architecture.
The core of Rolta SmartMigrate™ architecture is the Meta model, which stores the metadata extracted from the source-reporting tool. The architecture supports single and batch mode migrations. Out of the box Source and Target Adapters connect to the Semantic Layer and Reports Metadata Model allowing migrations between heterogeneous platforms.

## Contextual Fusion of Big Data - heterogeneous sources (Operational, Business, Spatial, Cloud, Social, Dark Data)

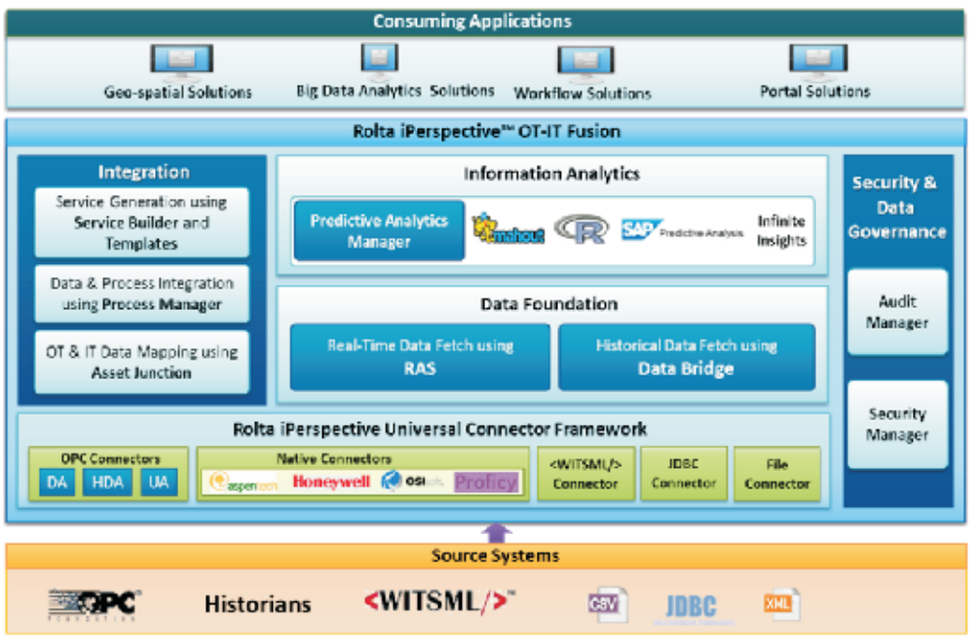
Big Data Analytics magnifies the complexity of integration. Given the characteristics of the data varies from the type - structured, semi structured and unstructured data, the velocity – time-series, streaming, event, batch and the source systems being Operational, Business, Spatial, Cloud, Social, Mobile etc. It warrants a contextual fusion of the data than just integration. Rolta OneView™ includes the patented IP ROLTA iPerspective™, which makes this contextual fusion possible.
With more than **80 pre-built connectors** spanning across operational, business, geospatial, engineering design and Big Data (Hadoop) systems that are proven to handle the volume, velocity and variety of Big Data typically encountered in large to medium enterprises. With its universal connector framework, Rolta iPerspective™ unparalleled power of accelerated fusion of heterogeneous source systems. Rolta iPerspective™ architecture is cloud enabled, which provides highest degree of optimization of consuming data sources on cloud.

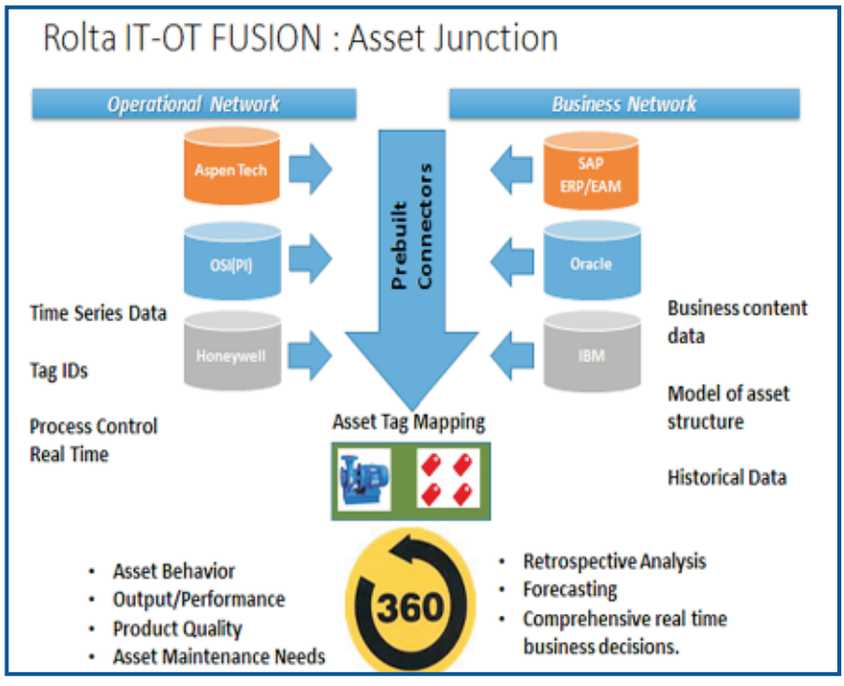
**FIGURE 6 & 7** Rolta SmartMigrate™ - Complete, Near Zero, Business User Efforts Automated, Highest Quality, Predictable Roll-Outs, Significant Savings




Source: Rolta

**FIGURE 8 & 9** Rolta iPerspective™ IT-OT Fusion




Source: Rolta

Rolta iPerspective IT-OT Fusion™ brings a cross-functional paradigm shift by integrating data from heterogeneous business systems in the organizational eco system. It has pre-built connectivity to IT systems such as ERP, CRM, EAM, SCM and Operational technology (OT) systems such as Historians, SCADA, Distribution automation, Intelligent Meters, Remote terminal units, PLCs, etc. based on standards suited to specific industry domain.

Rolta iPerspective IT-OT Fusion™ brings the assets data from the operations network such as Asset Tag ID, Time series data and maps to the information from the business network such as business content data, model of the assets, historical data of the assets etc. and provides comprehensive 360 degree view of the Assets including Asset behavior, Output/Performance, Quality, Asset Maintenance Needs and helps to do retrospective Analysis, Forecasting and enables comprehensive real time business decisions.

Interlacing operational technology and “big data” initiatives can generate lucrative supplemental benefits. Information strategists should plan to use OT-generated data to bolster analytics and exploit big data sources to enhance the performance of OT solutions.

Rolta iPerspective IT-OT fusion™ includes a patented OT Security layer ensuring that secure access and enabling a consistent security and data governance across IT / OT systems.

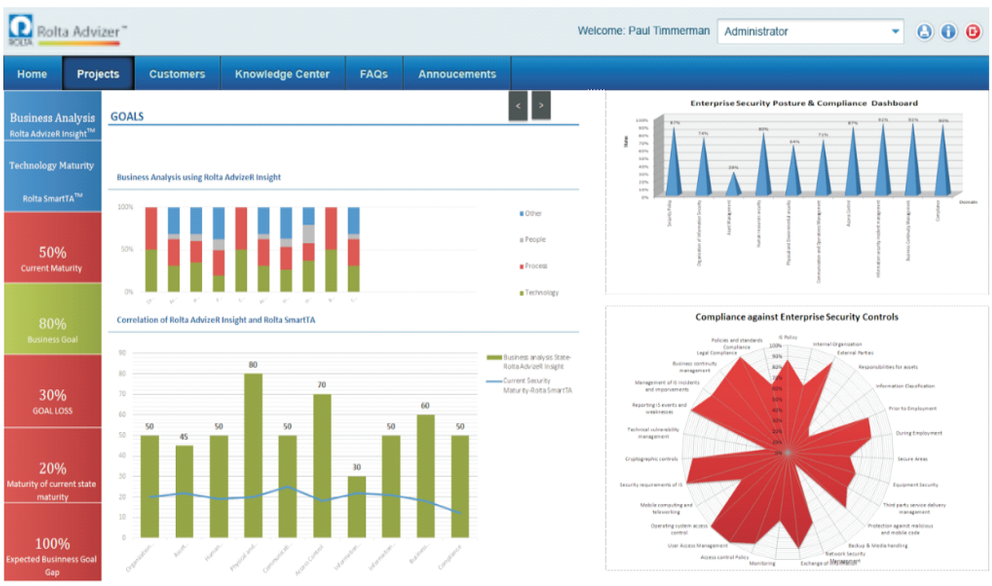
Big Data represents potentially sensitive data and knowledge assimilated across multi-disciplinary organizational functions and value chains. In essence, it either fully or partially contains, an organization’s secret recipes about the way it conducts business. Due care needs to be taken to ensure that only the relevant information is visible to the authorized pairs of eyes, and at specified timeframes. The challenges are obviously due the humongous volume, rate and variety of data. Rolta OneView™ uses its embedded Rolta iPerspective™, to provide stringent security to Big Data.

Rolta Security Advizer™ provides in-depth Security Advisory facilitated through assessments, suggestions and recommendations. This involves comprehensive vector-based thread coverage and supports all standard IT Security Mechanisms like Authentication, Non repudiation, Integrity, Confidentiality, and Audit at various perimeters woven around Big Data. We believe its security approach is compatible with Gartner Recommendations.

Rolta iPerspective™ addresses security aspects in all 4Vs of Big Data. Even complex data types like Spatial are supported through innovative mechanisms like Geo-fencing. It offers comprehensive IP-based GRC & Managed Services Framework; supported by IT transformation and Managed Services.

“Do not impose truth-based governance practices on new big data types of information, but use them where they make sense: in master data management (MDM), ERP, application integration or data warehousing, for example. Develop new trust-based models to deal with these new types of information.”[2]

**FIGURE 10** Rolta Security Advizer




Source: Rolta

**FIGURE 11** Example of Applying an Information Trust Model to Enterprise and Big Data[3]

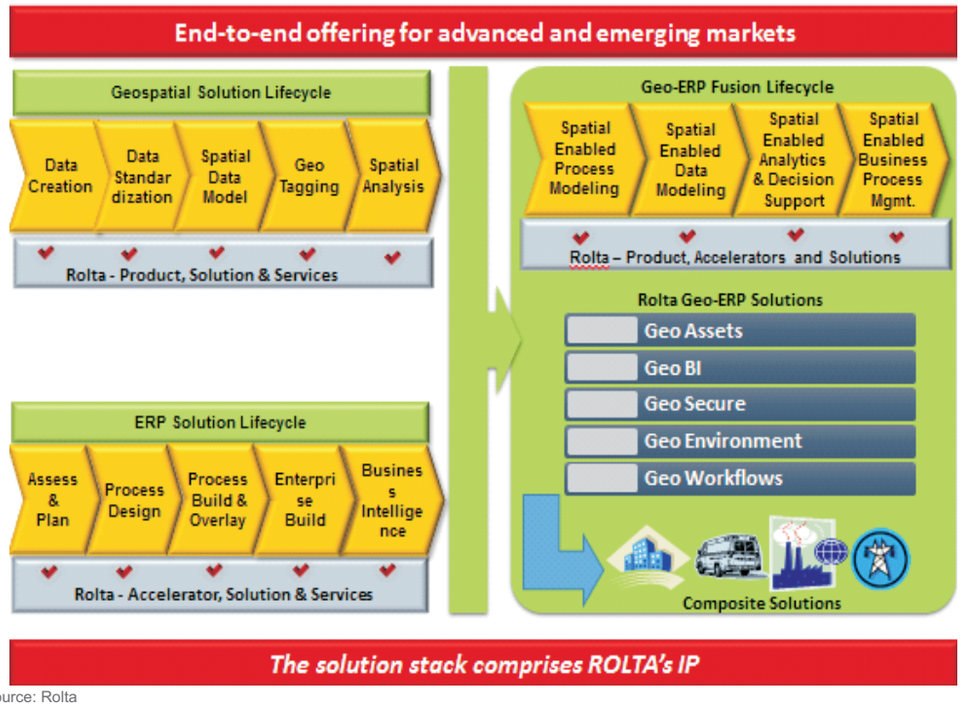
| | SF.COM | | CRM | | | ERP and SCM | | | | EDW | BI | External Sources | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trust Level** | Extended Prospect Data | Prospect Master | Sales App Data | Contracting and Pricing App Data | Customer Master Data | Procurement Application Data | Procurement Master Data | Manufacturing App Data | Manufacturing Master Data | Corporate Data Warehousing | Local Data Marts | Class A Customers | Geospatial Data | Face Campaign | Telemetry Data book/ |
| **Assured** | | | | | X | | X | | X | X | | X | | | X |
| **Affirmed** | | X | X | X | | X | | X | | | | | X | | |
| **Proven** | X | | | | | | | | | | X | | | X | |
| **Confirmed** | | | | | | | | | | | | | | | |
| **Asserted** | | | | | | | | | | | | | | | |
| **Unknown** | | | | | | | | | | | | | | | |

BI = business intelligence; CRM = customer relationship management; EDW = enterprise data warehouse; ERP enterprise resource planning; SCM = supply chain management; SF.COM = salesforce.com

Source: Rolta

**Spatial Data** itself is becoming Big Data in its own context. Rolta is a pioneer in the field of Geospatial Engineering & Analytics and has specialized compatible solutions to address niche requirements. Rolta's Geospatial Fusion™. Fuses the spatial data with heterogamous data sources and business systems and spatially enable the applications and provide contextual analytics. Enterprises can thus take quick and effective decisions by the ability to visualize the business and GIS data in a single dashboard.

**FIGURE 12** Rolta Geospatial Fusion™ — End to End Life Cycle

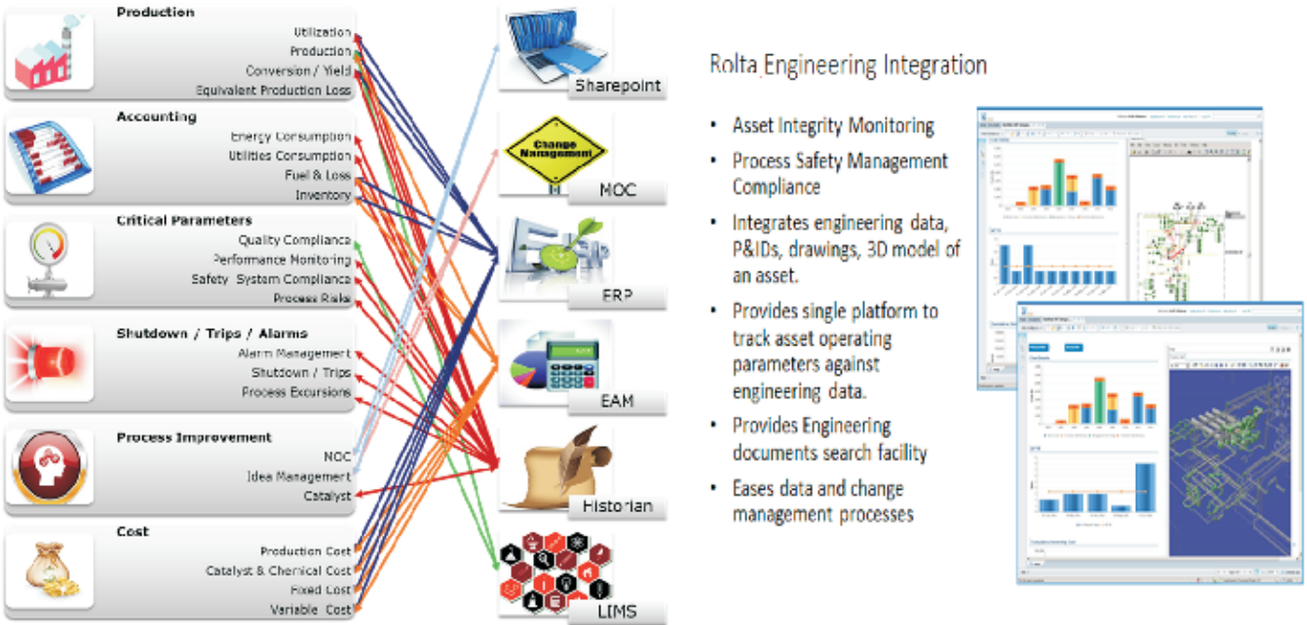



Source: Rolta


Rolta Engineering Fusion™ part of Rolta OneView Enterprise Suite ™ brings the ability to connect to Engineering design systems such as SmartPlant™ Foundation gives access to another category of Big Data – the engineering information, design data, relevant documents and the 3D Model. This helps to bring the design integrity while achieving the real time and predictive analytics for operational excellence. Which includes?

- Comparison of operating data with design data and necessary alerting
- Easy access to all design information and documents
- Abnormal situations management
- Reduce planning and scheduling effort
- Asset performance analytics
- Quicker response to enhance availability and increase uptime

**FIGURE 13 & 14** Rolta OneView™ Engineering Fusion




Source: Rolta

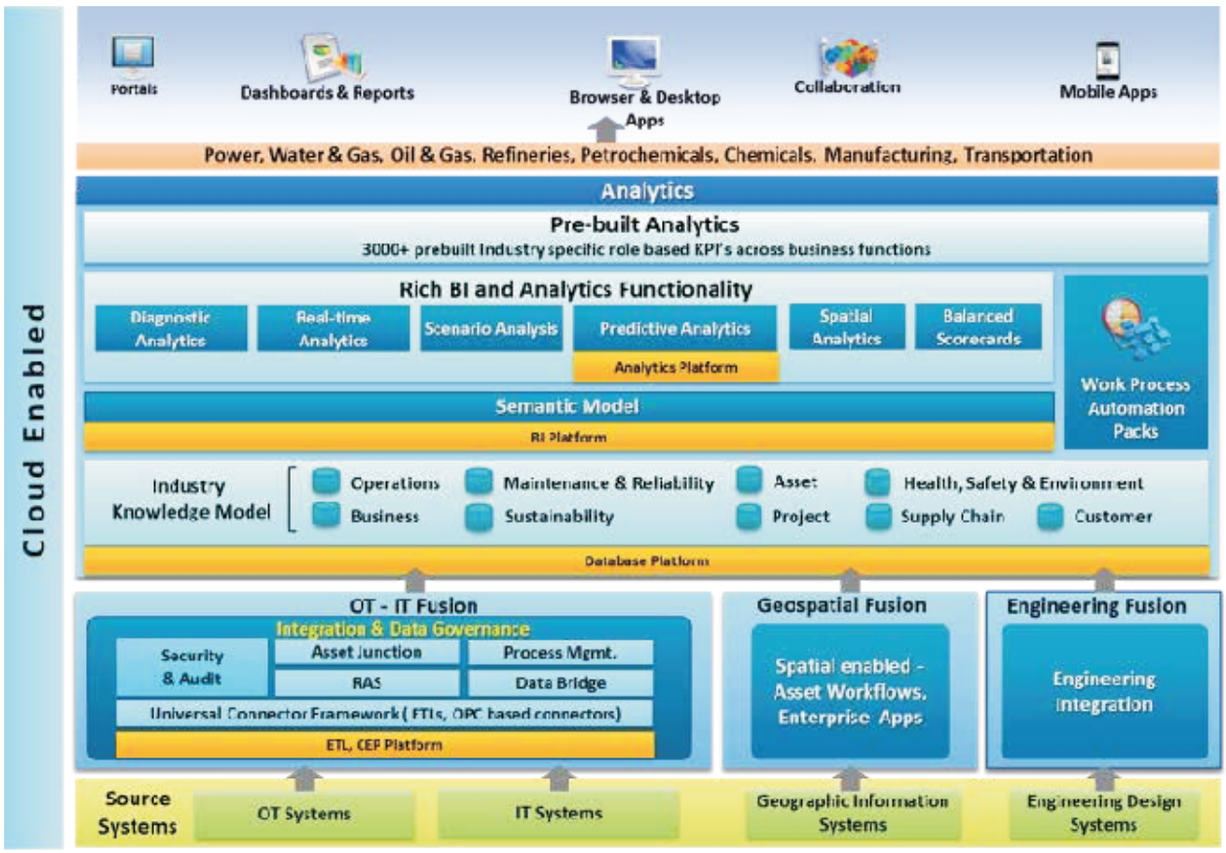
## Rolta OneView™ — Industry Rich Pre-built Big Data Analytics Solution

Rolta OneView™, unleashes powerful unified analytics leveraging industry-standards based core domain model, providing a single flexible platform for Big Data Analytics as well various other traditional types of analytics. Rolta OneView™ is an Enterprise Intelligence Solution featuring Big Data Analytics that brings unique business value through role based actionable insights and correlated Operational & Business Intelligence, which helps informed decisions and drives the business transformation. It is targeted towards the Process and Asset Intensive Industries and provides industry specific KPIs which are built using Rolta's deep expertise in these industries. OneView™ is an integrated framework of Realtime Intelligence, Performance Management, Performance Analytics and Strategy Management.

> "Business analytics, reporting, and data access collectively constitute business attempts to maximize the return on investment (ROI) of data management programs."[4]

Rolta OneView™ extends the EDW to LDW capable of handling the Big Data - humongous amounts of data, of heterogeneous types, at extremely high frequencies. One of the key distinguishing features of this comprehensive platform is its Vendor Agnostic Architecture for supporting emerging Big Data capabilities.

**FIGURE 15** Rolta OneView™ Architecture




Source: Rolta

Rolta OneView™ brings comprehensive functionalities Out-of-the-box that includes of pre-built connectors for IT and OT systems, prebuilt industry standard data/knowledge model, over 3000+ prebuilt KPI's, dashboards and workflows. The pre-built features and capabilities enable a rapid implementation and realizing faster ROI. Rolta OneView™ has an industry specific, extendable knowledge data model developed from Rolta' deep domain insights in specific industry verticals and the recommended best practices. It is industry standard compliant (e.g. PPDM, ISA-95, etc. based on specific industry vertical). The prebuilt knowledge model enables powerful cross-functional analysis to enable comprehensive and contextual monitoring of business performance. It delivers pre-built KPIs across the different business functions including Operations, Asset Management and Utilization, Maintenance and Reliability, Supply Chain, Health, Safety, Environment, Projects, Sustainability, Customer Management, HR and Finance. It breaks down the fundamental barriers in achieving operational & business excellence, across operational networks and assets, business networks, safety & sustainability networks and enterprise social networks to provide 360° view of the enterprise.

**"Not All Information and Analytics Should Be Treated the Same.**

Gartner's pace-layered architecture distinguishes between systems of record, systems of differentiation and systems of innovation, each with their own patterns of change. In the same way, information of record, information of differentiation and information of innovation can be distinguished. Typical information of record would be financial data; customer (interaction) data is a prime example of information of differentiation; and social media sentiment data could be information of innovation."[5]

Rolta OneView™ features all round pre-built analytic capabilities including historical, real-time, spatial, predictive and prescriptive. Rolta OneView™ uses best-of-the-breed BI platforms and provides the ability to analyze high volume historical, real-time data, big data and geospatial data to derive the predictive intelligence. Rolta OneView™ stands differentiated because it combines these capabilities in a single platform. The rich visualization capabilities such as interactive dashboards with drill down to details, cascaded balanced score cards, strategy maps are delivered through multiple delivery channels such as online reports, offline reports, portals, emails, mobile, alerts etc. Users can share information and take collaborative decisions thus allowing them to use advanced portal mash-ups, search, blogs, wikis, instant messaging and other cloud based social media capability. Rolta's approach allows organizations to choose and balance between real-time, big data and traditional BI-DW capabilities based on their specific needs and infrastructure capabilities, and flexible scale over time with improving technology capabilities. Additionally, the solution has been engineered for full compatibility with high performance and in-memory real time data platforms such as SAP HANA and Oracle Exalytics etc.

"Begin using big data as a core part of your analytical efforts, not just as a supplement, to gain an advantage over lagging competitors."[6]

Rolta OneView™ exploits the power of Big Data and simplifies the key capabilities such as Predictive analytics to business users. Its Predictive Analytics Manager provides a simplified model leveraging best of variety of predictive engines including R-Language, SAP Predictive Analysis, SAP KXEN Infinite Insights, SAS Analytics as well as variety of predictive models for complex requirements including, diagnostic plots using time series, auto-regressive models to time series, structural model for a time series by maximum likelihood, smoothing spline fit at new points, computation of predictions and prediction intervals for models fitted by the Holt-Winters & similar methods, Non-linear prediction models based on regression functions, etc.

Predictive Analytics adds new dimension to Big Data, allowing enterprises to leverage benefits at various levels including – Line Operations, Middle Management and Top Management. In-built knowledge model drives most relevant predictive analytics uses cases in a specific industry vertical. Additionally, flexible architecture allows addition of new and modifications of existing predictive analytics models, to suit tailored organizational requirements. Rolta OneView™ enables Real-Time Big Data Intelligence by filtering, corelating and processing data coming at very high rate. It permits evaluation of real time data against user defined business rules, augmenting data stream with data from other sources and event patterns. The solution supports technology options, including OPC, SOA, REST, etc. to ensure secure interoperability across the enterprise as well as the value-chain; while locking down data ownership.

Rolta OneView™ Suite also enables exploiting the Dark Data, which exists with individual users. This is facilitated through seamless integrations with Knowledge / Document Management System (K/D MS), Enterprise Portals, Social Media & Cloud integrations, etc. providing users an integrated interface to securely share their data / knowledge with other stakeholders. Collaboration and workflows are richly provisioned to ensure 360° communication along with relevant approval and feedback loops, and knowledge transitions.
Rolta OneView™ enables Big Data to aid Strategy Formulation, Mapping of Corporate Performance Indicators to Line of Business and operational KPIs & Percolation and Monitoring. Using Big Data, various Strategy Themes, Strategy Maps and seamless drill-down to pertinent Key Performance Indicators (KPIs) can be visualized to align Key Performance Drivers (KPDs) and Strategic initiatives with fast-changing organizational requirements, in highly flux value ecosystems.

Source: Rolta

1, [5] Gartner Research Note G00252895 Big Data Business Benefits Are Hampered by 'Culture Clash', 12 September 2013
2, [3] Gartner Research Note G00250592 Big Data Governance From Truth to Trust, 18 July 2013
4 Gartner Research Note G00234465 Business Analytics, Reporting and Data Access, 10 July 2012
6 Gartner Research Note G00258154 Predicts 2014: Big Data, 20 November 2013

# Conclusion

Nexus of Cloud Computing, Social Media, Mobility and Information are shaping paradigm shift in the Information Landscape across industries. There is a huge amount of data available that can be used for making better business decisions. Companies should make full use of their data-intensive environments to derive answers to previously impossible business questions. The real value of the Nexus of Forces can be harnessed through Big Data Analytics.

Before adopting a big-bang approach into Big Data Analytics, enterprises must assess their grass root realities and plan optimally to leverage maximum benefits. Such an approach ensures linkages with the over-arching vision and strategy themes / maps. Business Use Cases need to guide suitable technology investments, to ensure rapid ROI at lower TCO.

It is imperative to select a comprehensive, scalable, flexible and integrated underlying platform that can serve as a unifying platform across Big Data as well as Conventional Data initiatives. Ideally the platform should provide seamless end-to-end coverage: identification and prioritization of opportunities, defining strategies, real-time as well as batch big data connectors to heterogeneous systems & sources, data & information consolidation and integration, migration of legacy to latest analytics – e.g. predictive and prescriptive. Big Data programs are majorly business first and IT next. Rolta, with its strong combination of Domain expertise and IP, has Industry rich Big Data Analytics solutions that turn the Big Data into Business outcomes.

Rolta Big Data Solution helps the organizations to accelerate their Big Data journey from Plan – Advisory, Build – Consolidate/migrate/integrate, Optimize-Drive actionable insights. The solution includes, Rolta Advizer™ - a rich automated tool based structured advisory for defining the roadmap, Rolta SmartMigrate™ - IP driven automated migration & consolidation solutions, Rolta iPerspective OT-IT Fusion™ that rapidly integrates the data and application landscape, Rolta Geospatial Fusion and Analytics™, which fuses the geospatial data and drive contextual spatial enabled analytics and finally Rolta OneView™ - an industry rich pre built Big Data analytics solution which enables the enterprises to exploit the power of their information landscape and provide 360° actionable insights. With more than 3000+ prebuilt domain specific analytics providing Descriptive, Diagnostic, Real time, Predictive and Prescriptive Analytics along with the flexible customization capability, it brings the highest ROI, lowest TCO to the organizations. Rolta OneView ™on Cloud helps the LOBs to see the benefits without any CapEx investments. Rolta's strong domain experience of decades powers this solution in helping customers meet the challenge of change so that they can achieve business excellence, through this single-window Big Data Analytics Solution and assume cockpit-position in this digital voyage.

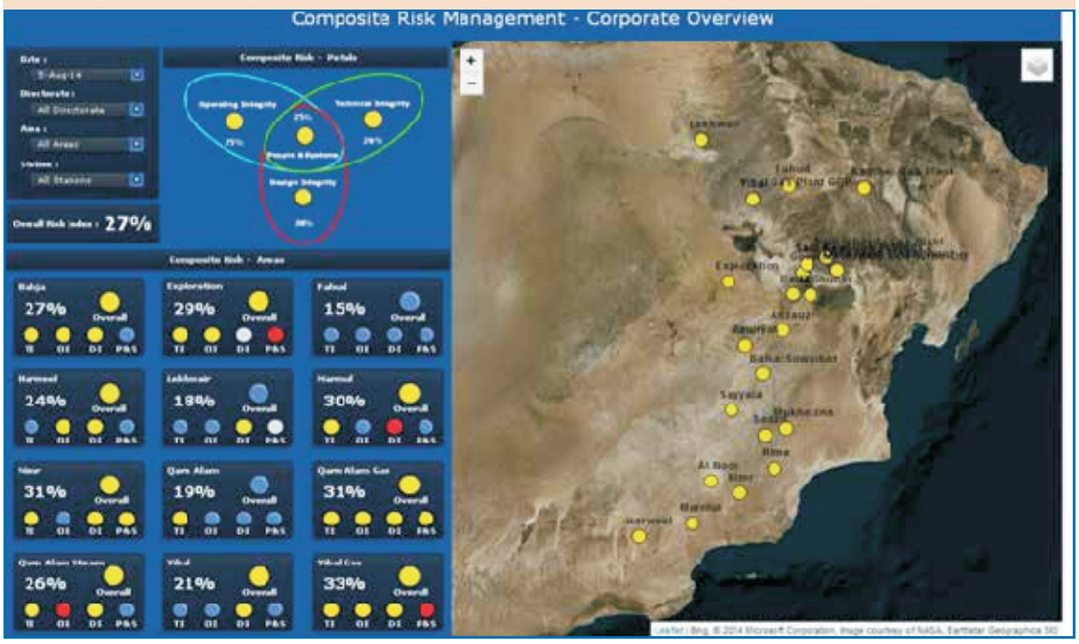
Source: Rolta

# Selective Industry Business Outcomes with Rolta OneView™ Big Data Analytics

### Oil and Gas Upstream:

Rolta OneView™ for Oil and Gas Upstream enables the analysis of data from several production data sources like WITS, OPC, Historians, as well as business systems. This data is then used to perform reservoir management, reservoir characterization and simulation, production forecasting, drilling parameter optimization, mitigation of non-productive time.

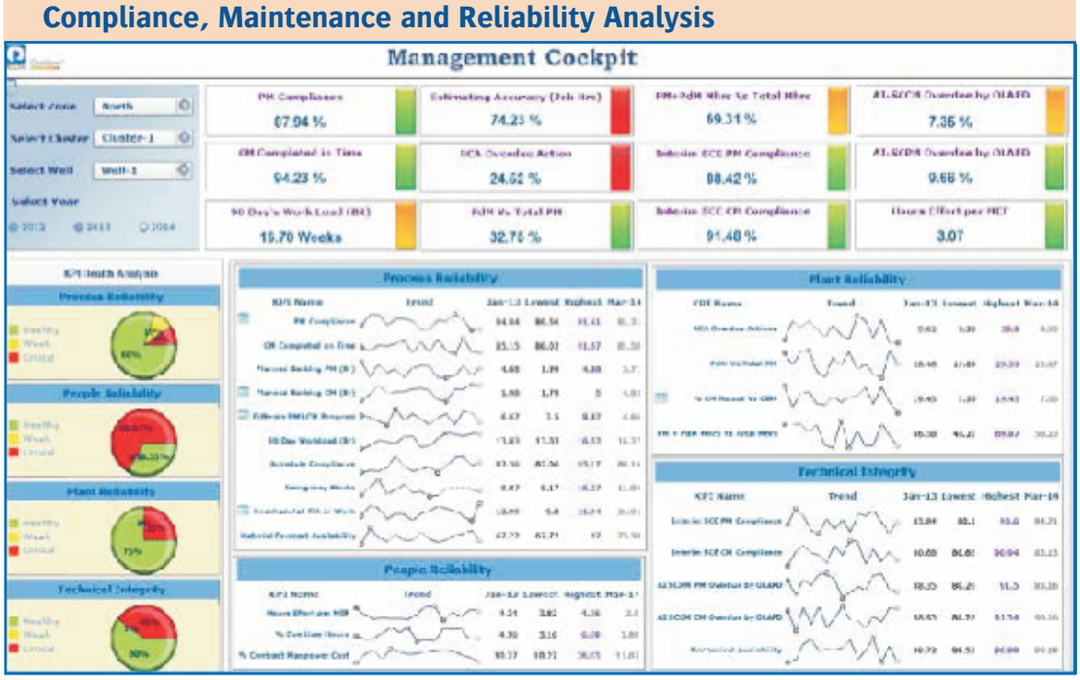
### Integrated Composite Risk Management with Geospatial Analytics




### Composite Risk Analytics at an Asset Unit Level

## Real-time and Historical Well Down-Time Analysis

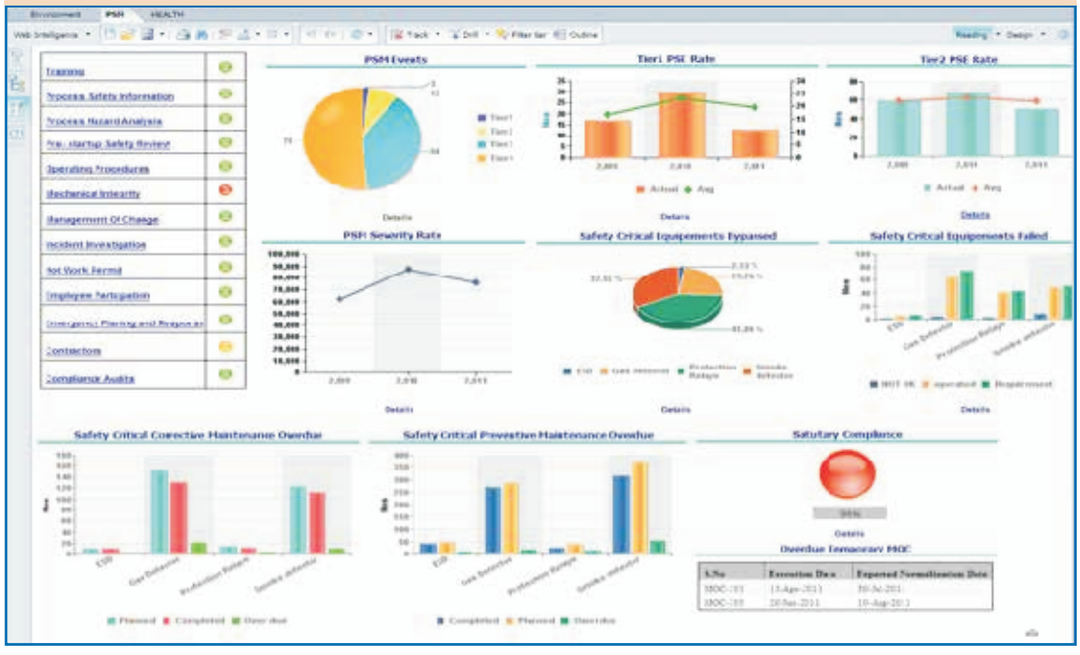

## Compliance, Maintenance and Reliability Analysis



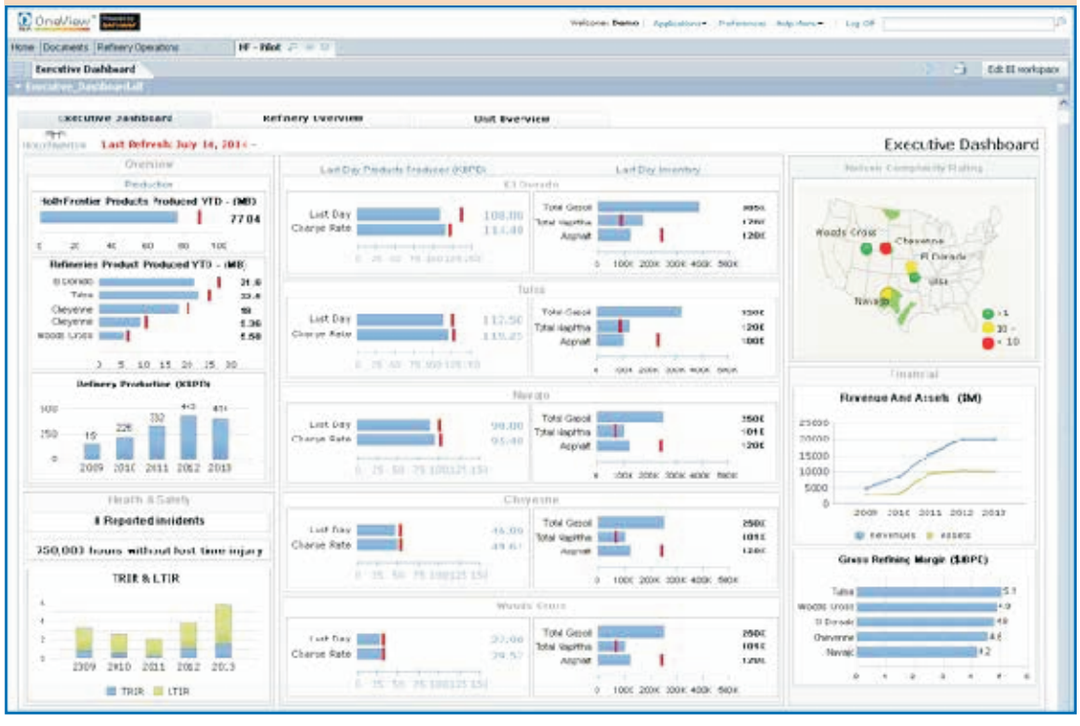
### Refineries:

Rolta OneView™ for Refineries enables companies in this industry to address the challenges faced by the exit of an ageing workforce on the one hand and the accelerated adoption of technology and deliver near real-time analytics couple with geospatial analytics. This delivers improved GRM, improved preventive safety management, reduction of lost profit opportunity.

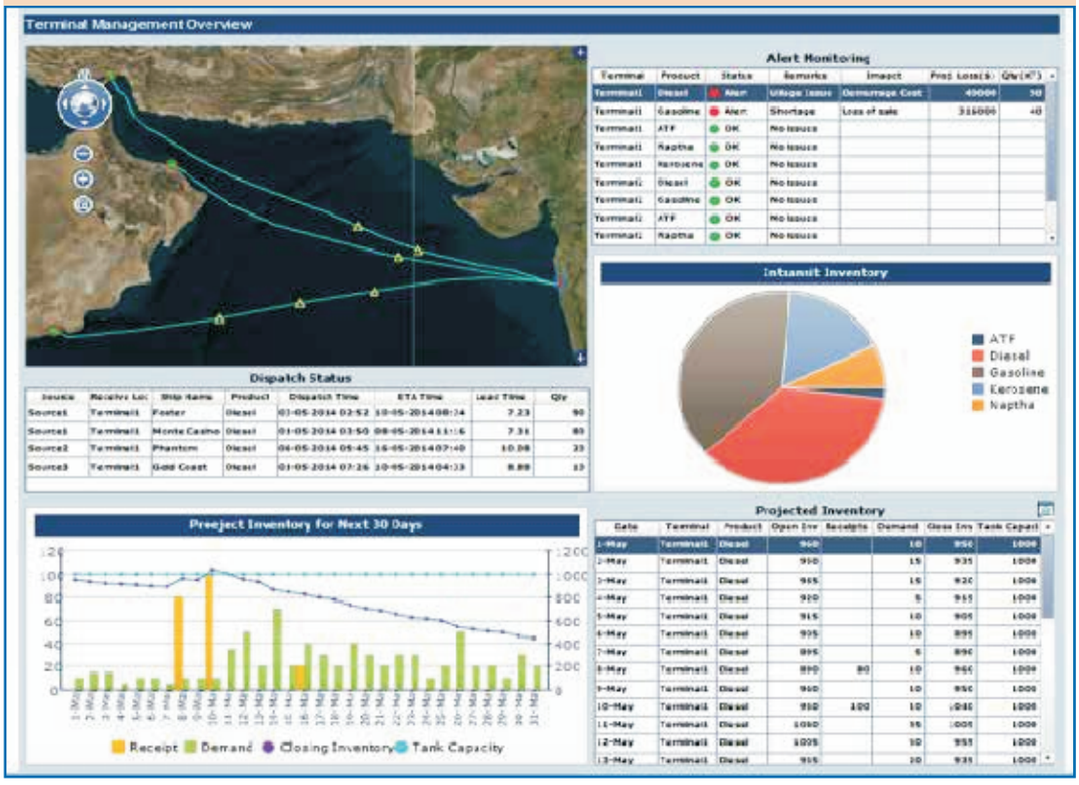
## Unified Analytics for Improved Plant Process Safety Management: PSM



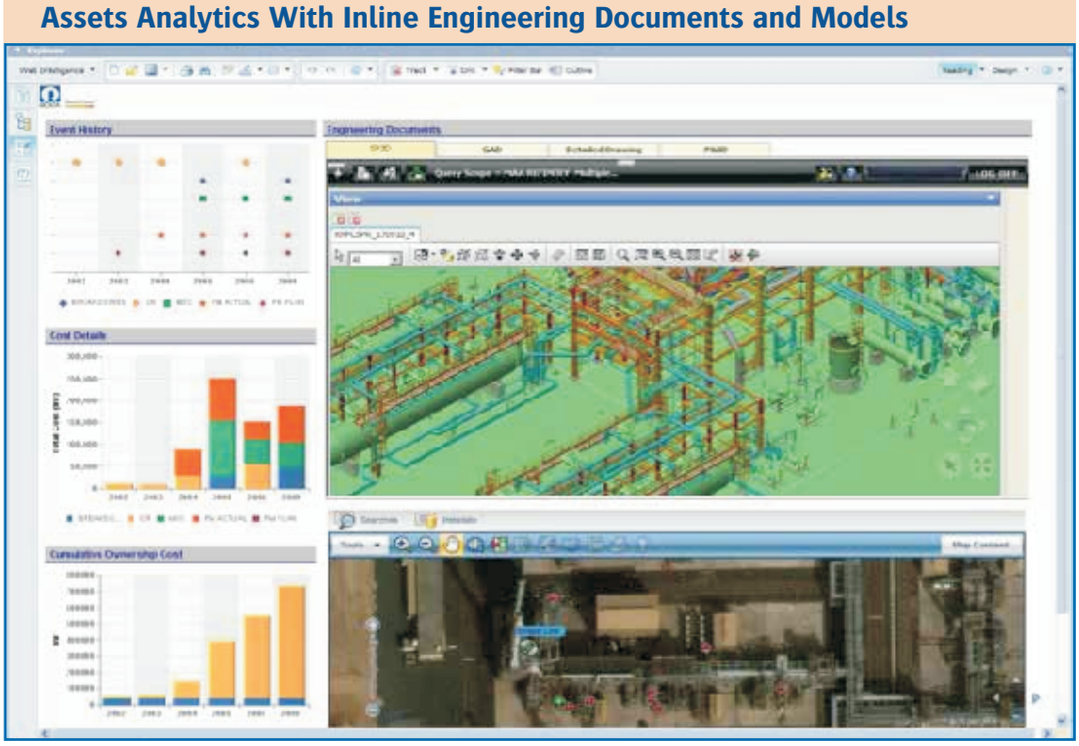

## Near Real-time Analytics on Operating Performance



## Inventory Projections and Geospatial Dispatch Tracking



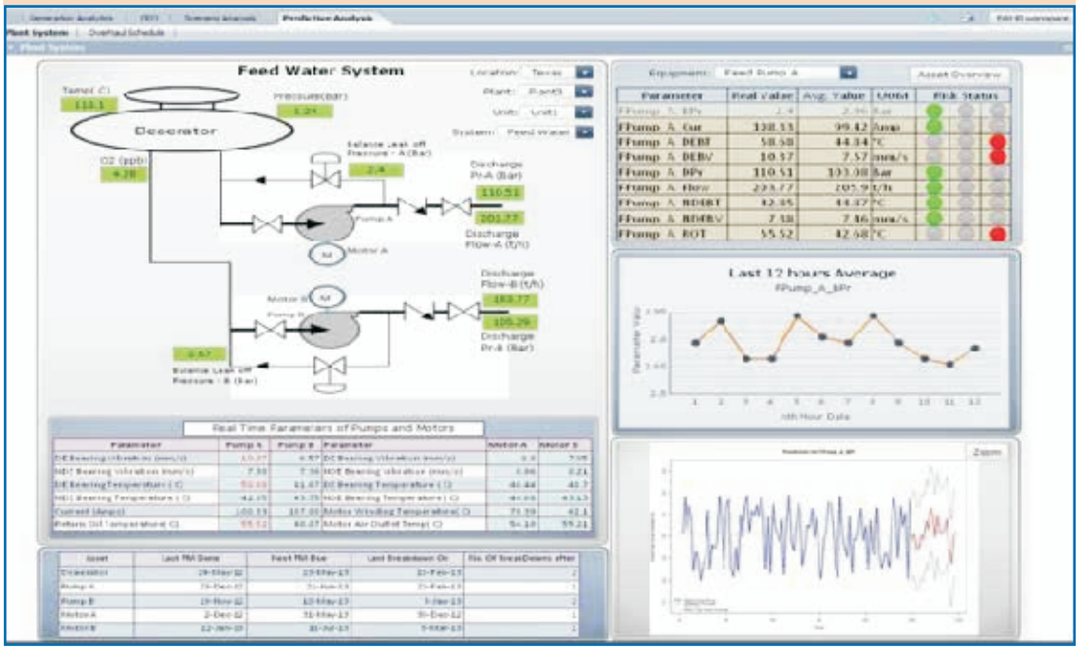

## Assets Analytics With Inline Engineering Documents and Models



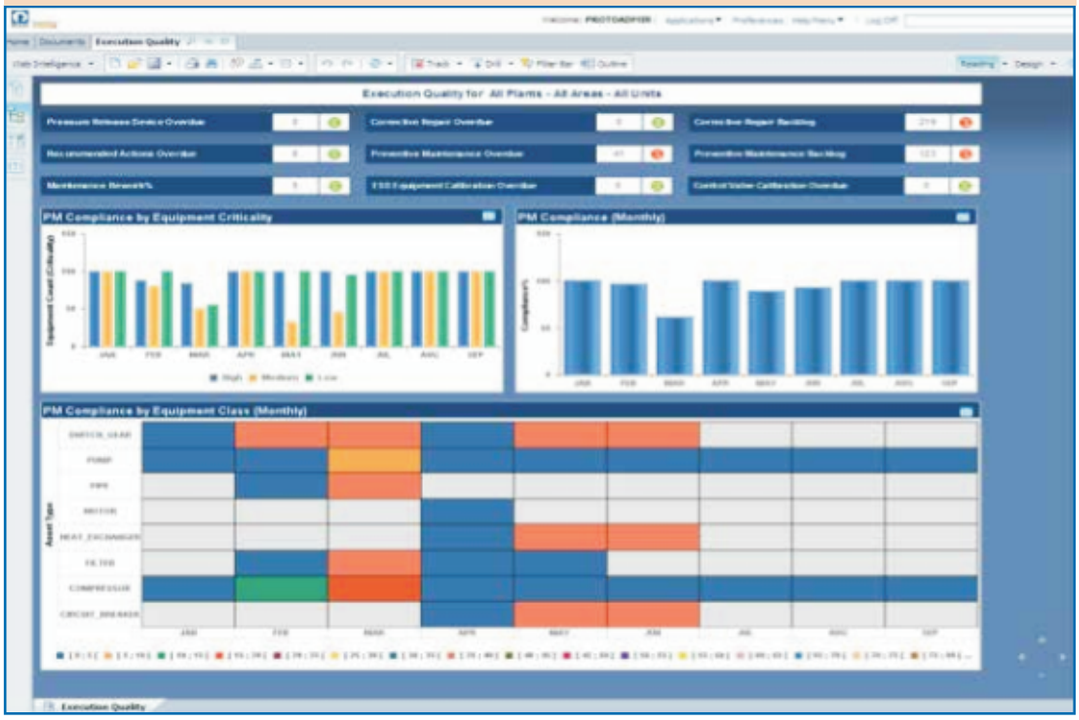
### Chemicals and Petrochemicals:

Rolta OneView™ for Chemicals and Petrochemicals tracks data from Historians, LIMS, SCM, and other systems to crunch and analyse very large amounts of data. Analytics and benefits range from analysing Overall Equipment Effectiveness, predictive analytics on asset performance and failures, help eliminate Bad Actors, better Emissions & Environmental Impact Tracking and Regulatory Compliance, etc.

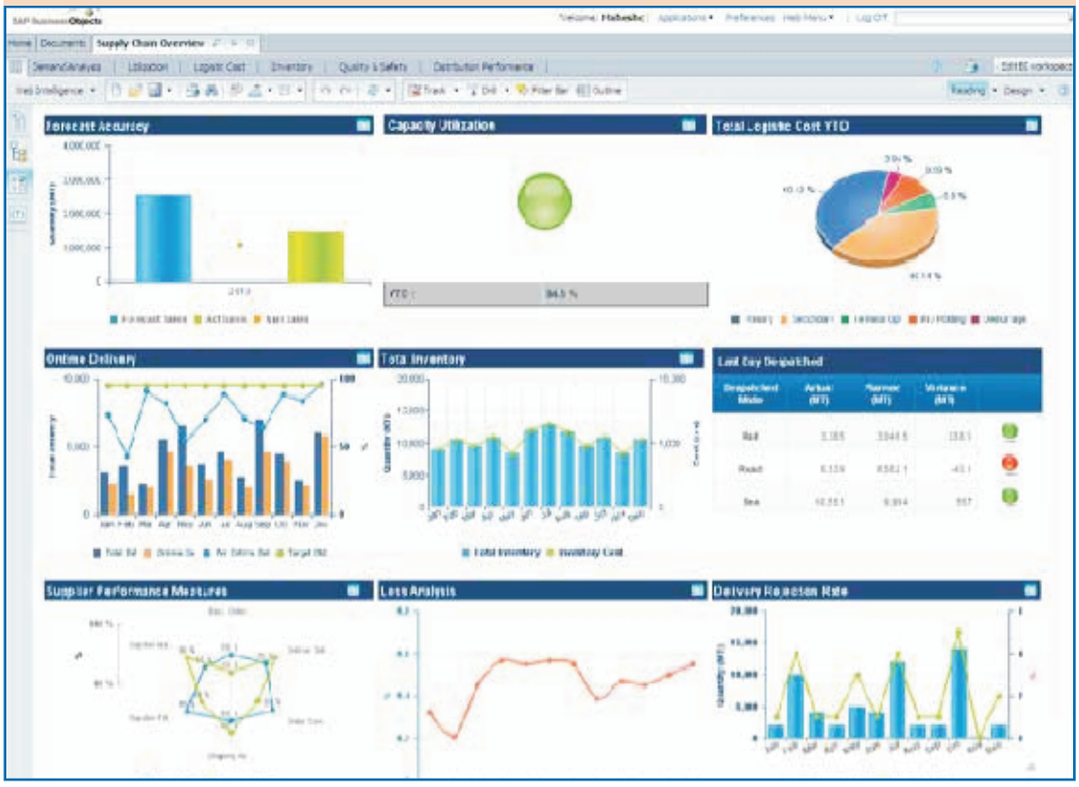
## Feed Water Real-Time Asset Monitoring and Predictive Asset Behavior



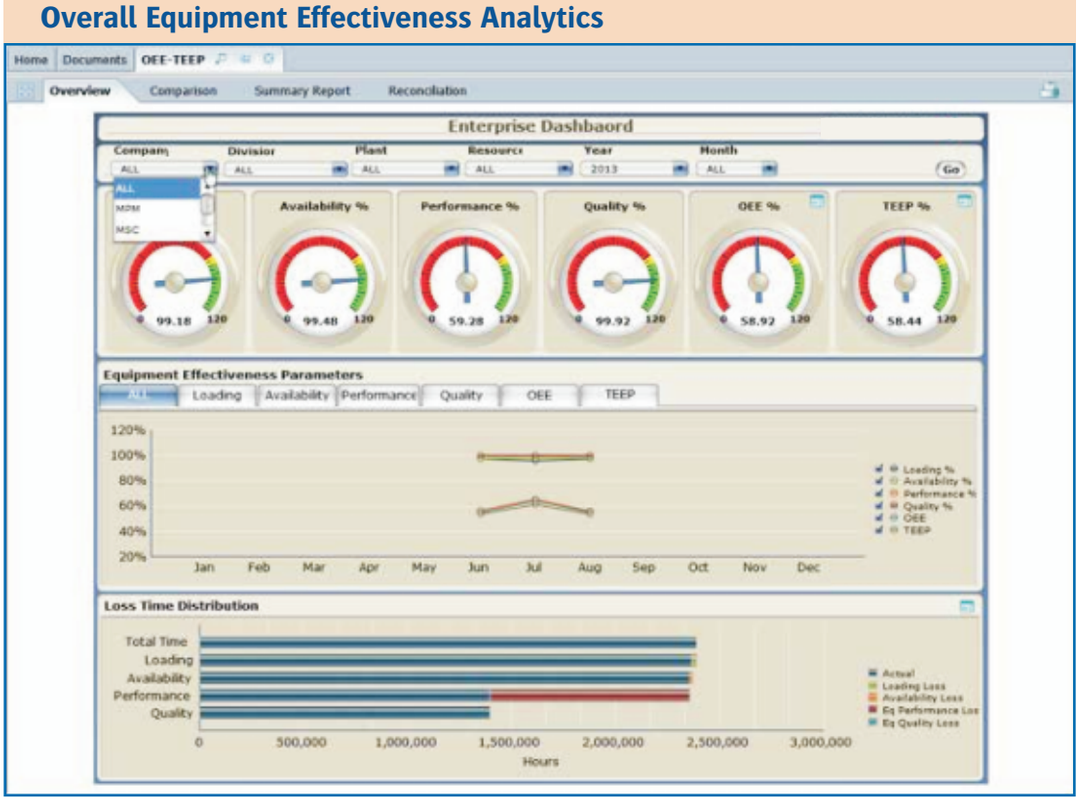

## Optimized Maintenance & Reliability by tracking Performance Monitoring compliance



## Supply Chain Analytics with Integrated Loss Analytics



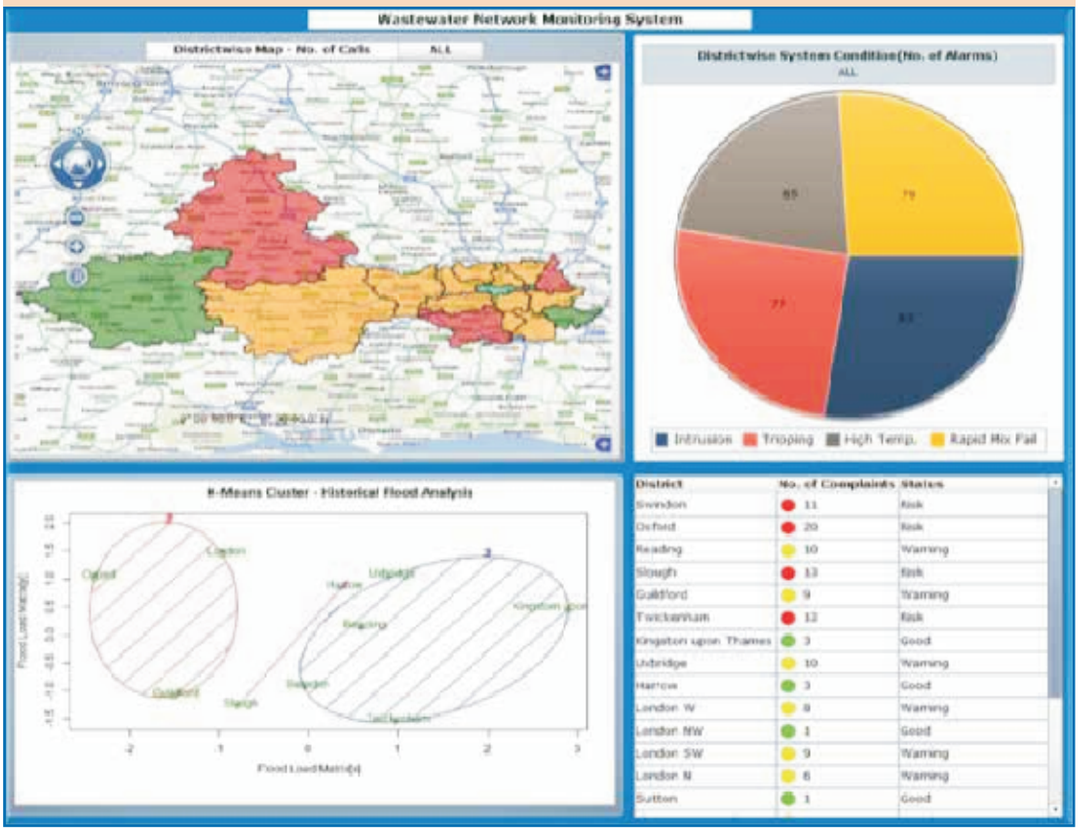

## Overall Equipment Effectiveness Analytics



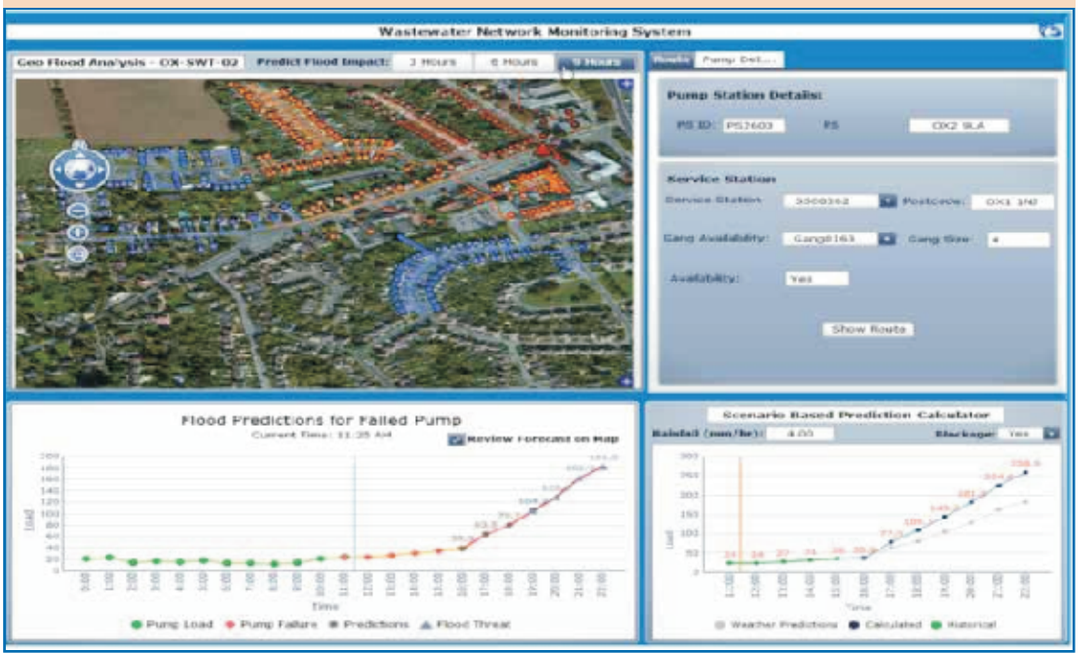
### Water Utilities:

Rolta OneView™ for Water Utilities is an advanced Big Data analytics solution that helps deliver flood modelling and predictions based on weather forecasts as well as geospatial-enabled network data models. Other analytics include improved customer satisfaction tracking, better monitor Distribution Performance, Asset Failure Scenario Analysis, etc.

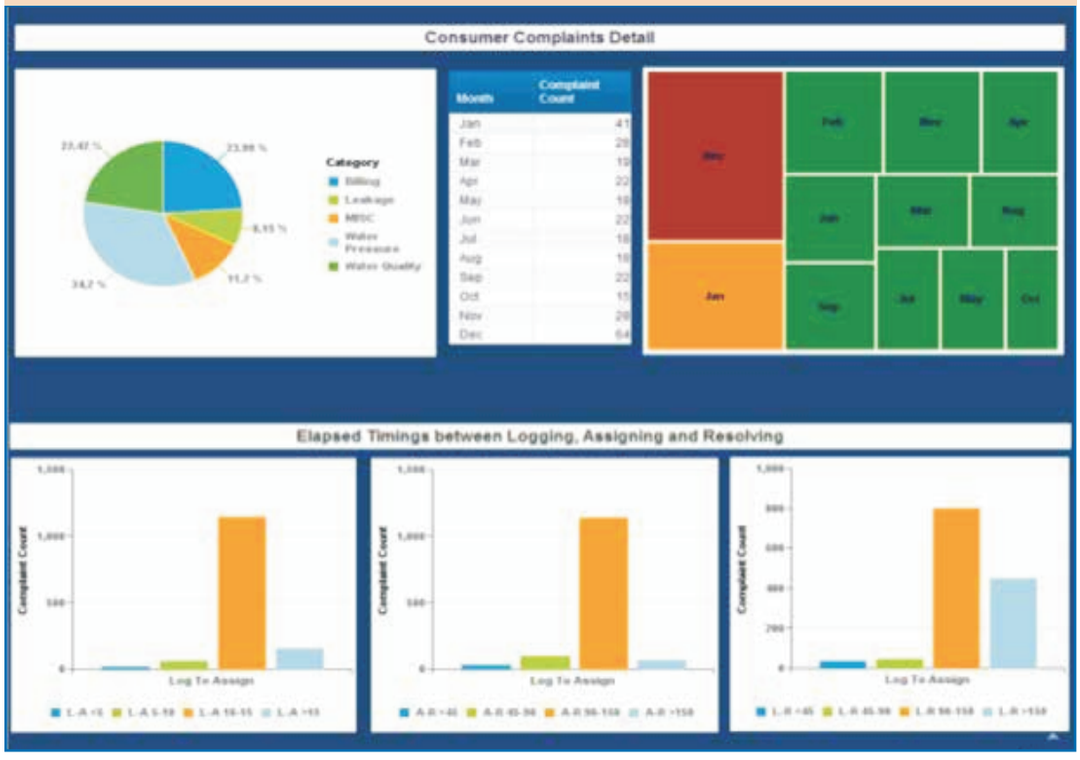
## Improved Disaster Management – Flood Predictions



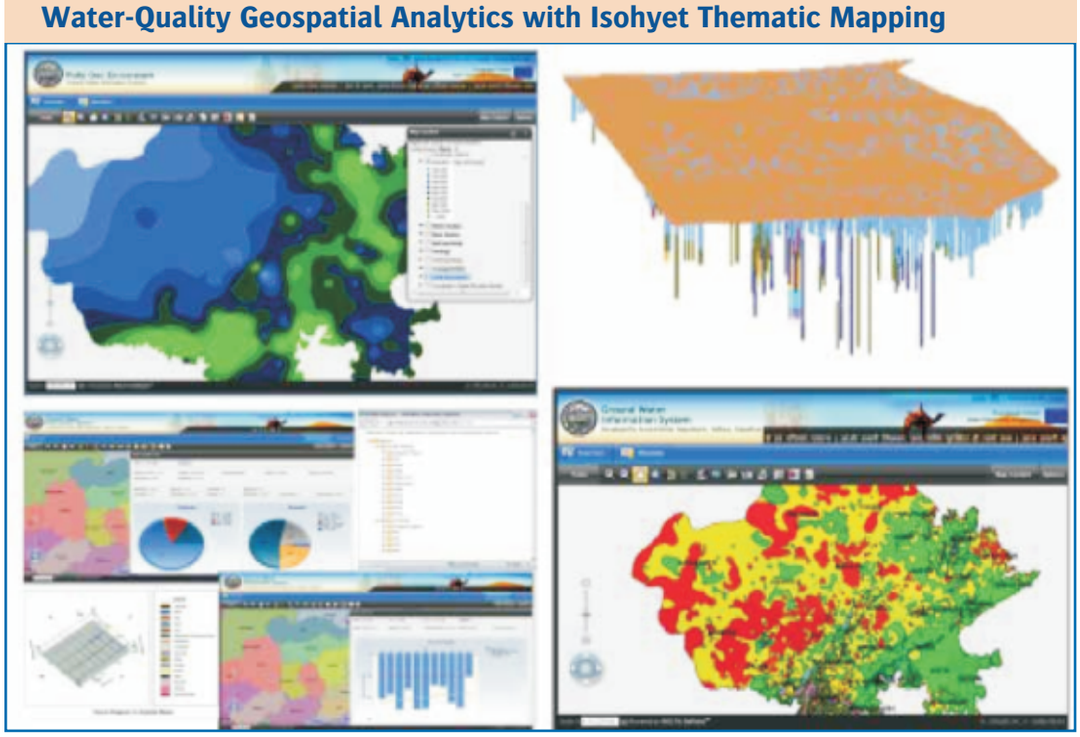

## Disaster Management with Flood Predictions and Potential Impact Analysis



## Customer Satisfaction Analytics with Temporal Tree Maps




## Water-Quality Geospatial Analytics with Isohyet Thematic Mapping

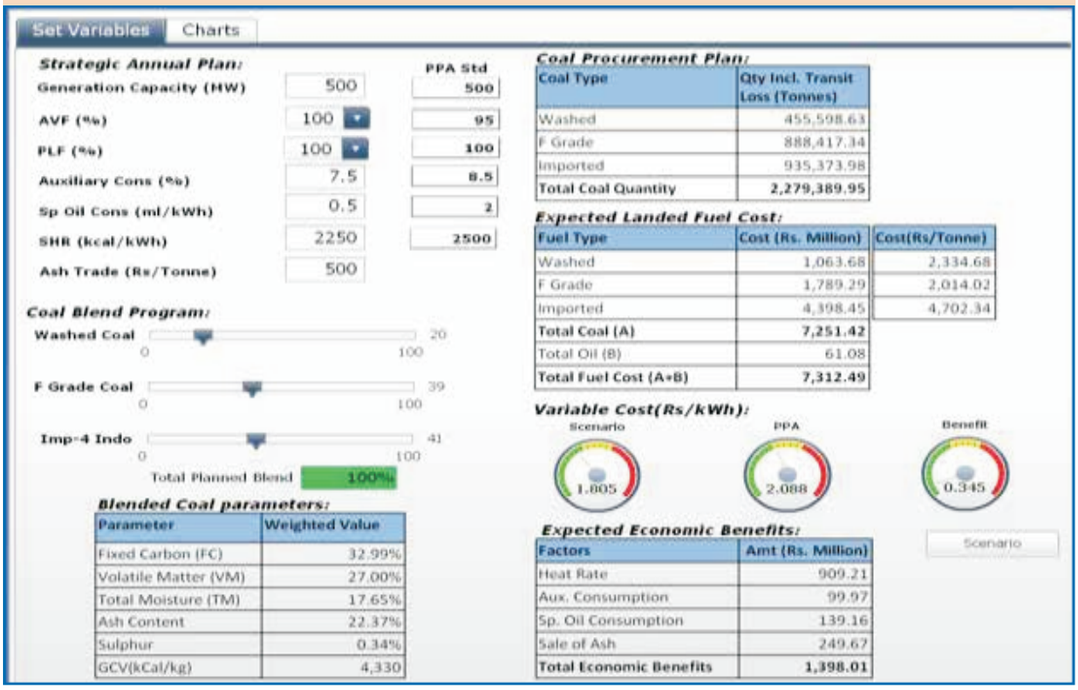


### Power Generation:

Rolta OneView™ for Power Generation integrates heterogeneous IT (ERP, Energy Trading Systems, etc.) and OT (Historians, SCADA, etc.) data sources across the plants, to help analyse multi-dimensional parameters for providing specific recommendations about - Improvement in Heat rate, Improving the Plant load factor and Availability factor, Generation loss tracking, Lowering of Auxiliary consumption, Fuel supply / Inventory management, managing unscheduled interchange, better Grid Performance and Demand management.

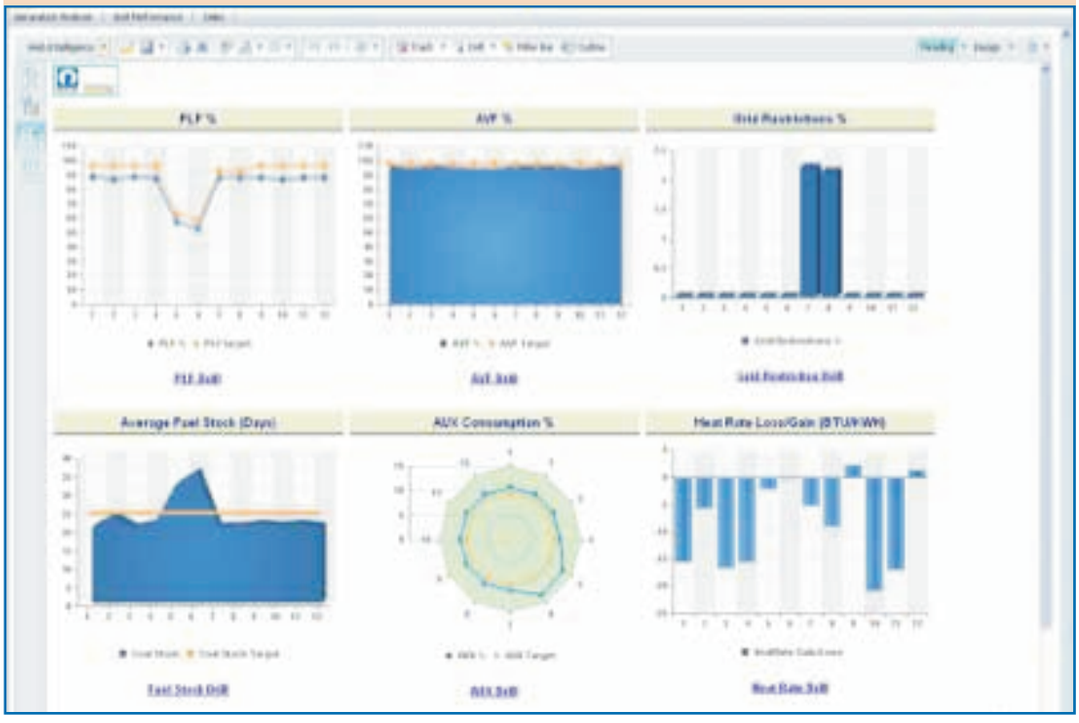
## Financial KPIs and Project Analytics


## Fuel Purchase Optimization Scenario



## Smart Grid Performance Optimization

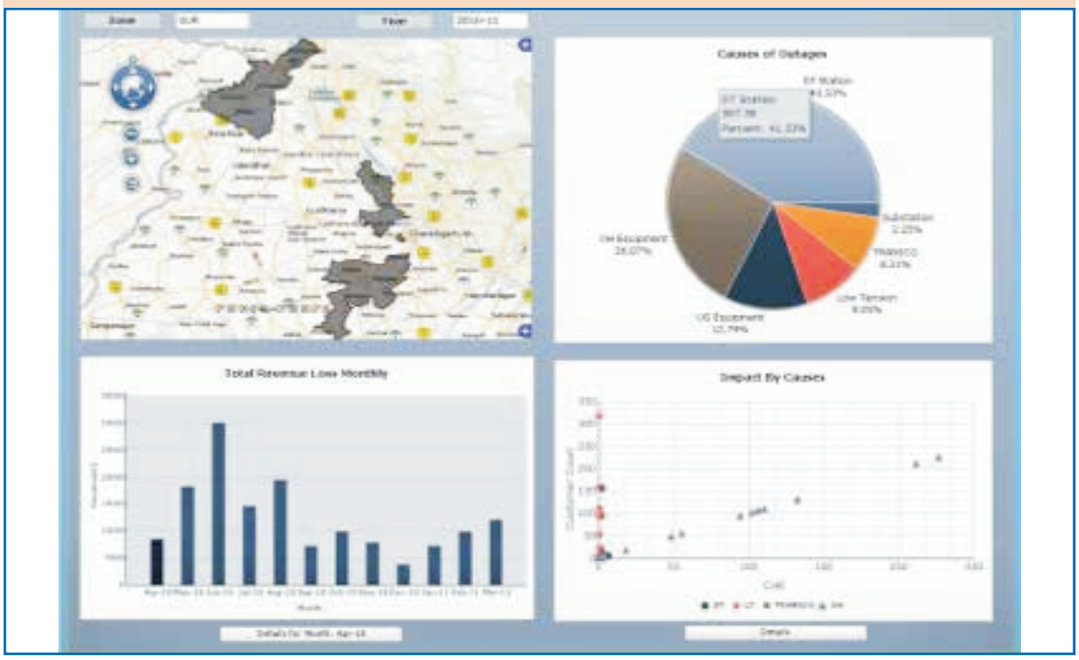
## Heat Rate Analysis – Plant Load Factor, Availability Factor & Heat Rate



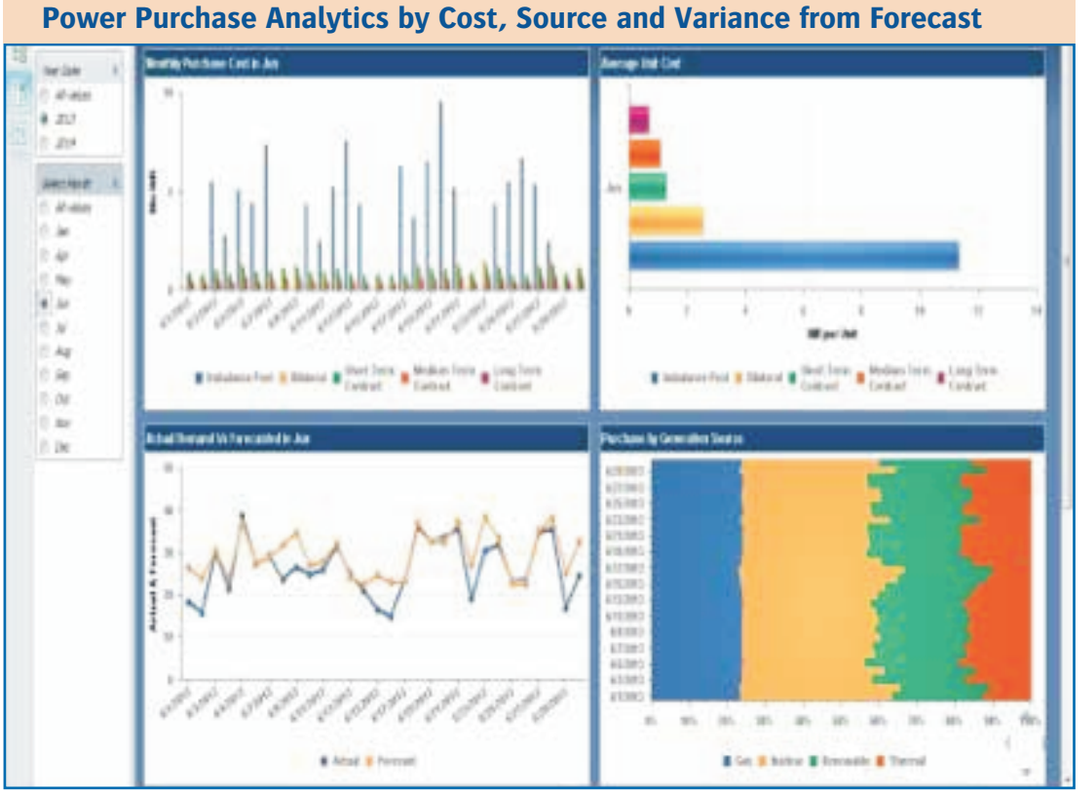
## Power Distribution:

Rolta OneView™ for Power Distribution is a powerful analytics and big data solution. It connects to such diverse systems as enterprise asset management, engineering network systems, linear referencing system for distribution lines and assets, etc... This enables powerful analytics for Fraud Detection, Compliance Auditing, computation of standard indices like SAIDI, SAIFI, CAIDI & ASAI, and much more.

### Accessing Customer Impact and Causes from Revenue Losses Against Outages

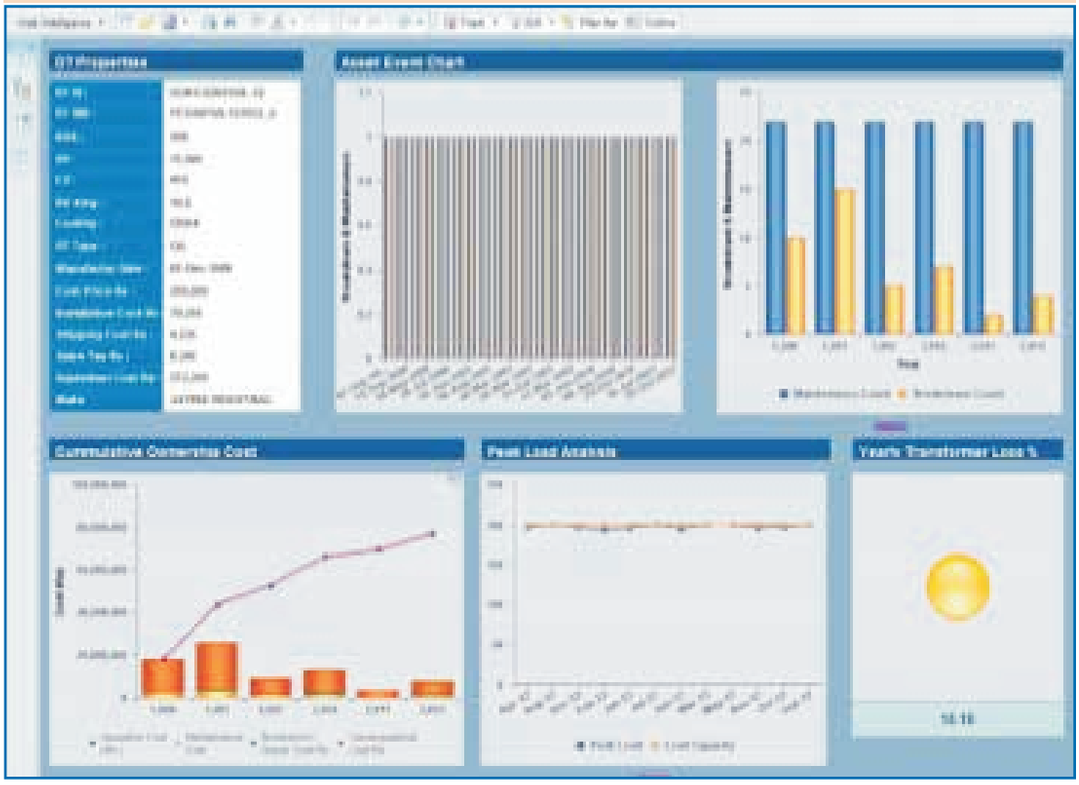



### Power Purchase Analytics by Cost, Source and Variance from Forecast



## Power Distribution Performance Scorecard


## Decision Support Based on Transformer Engineering & Maintenance History Analysis

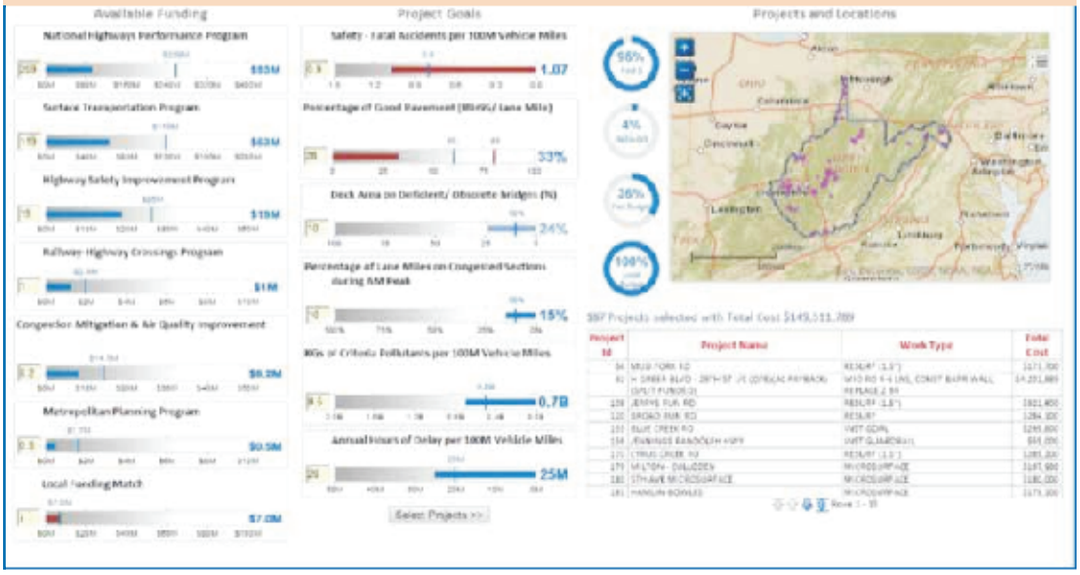


### Transportation:

Rolta OneView™ for Transportation unifies data from such diverse data sources such as electronic toll systems, traffic counters, automated vehicle monitoring systems, etc... to deliver big data analytics on congestion metrics, visualize speed flow curves, analyse volumes over user-defined screen lines, etc.

## Transportation Planning & Management with Congestion Maps, Normalized Distributions and Reliability Indices


## Integrated Geospatial Visualizations, with Bullet Chart-based Tracking



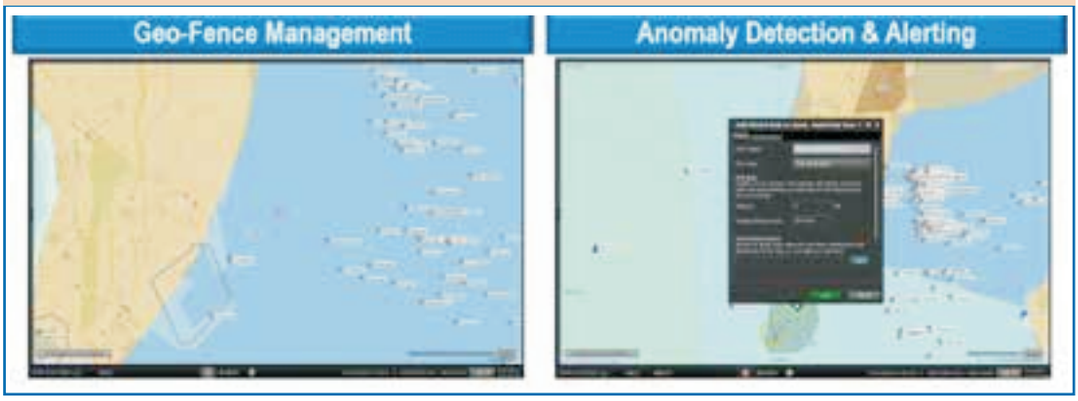
## Length of Stay Based Heat Maps


## Public Mass Transit Congestion Analysis

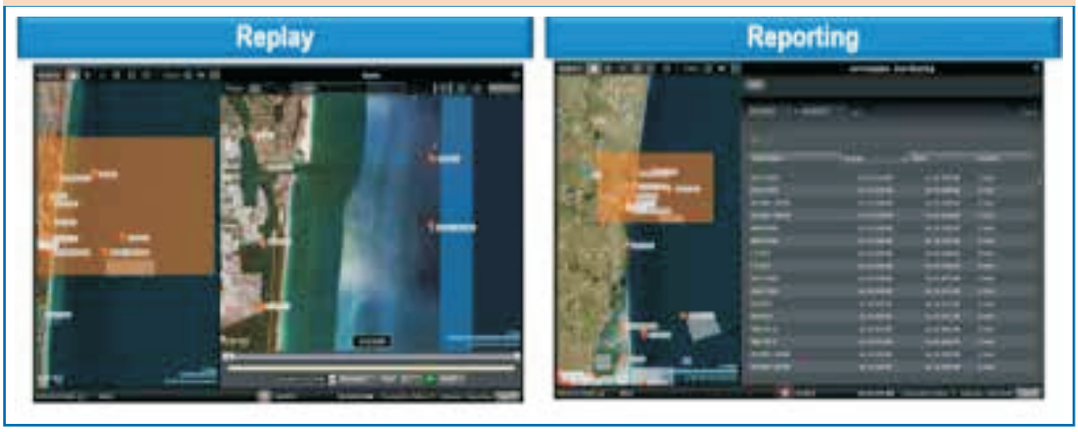
**Smart Security:**

Rolta's Smart Security Solutions collate data from sensors (such as access control systems, thermal cameras, radar, etc...), GIS systems, incident management systems, and more to deliver coastal and homeland security management, multi-agency emergency management, perimeter intrusion detection capabilities, etc... Big data and unstructured data analytics to deliver smart and safe city solutions.

**Force multiplier by enabling a state-of-the-art detection system in a spatially enabled environment**




**Effective tools for root cause analysis**



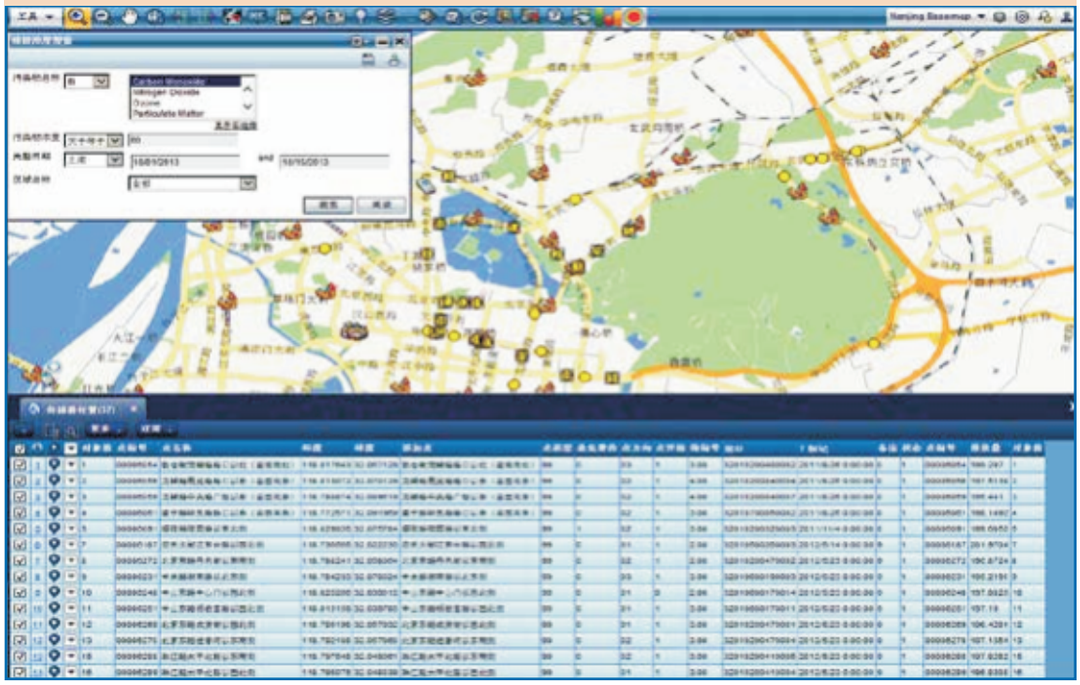
## Fine-grained geo-fencing

## GIS Crime Analysis for effective monitoring and patrol planning

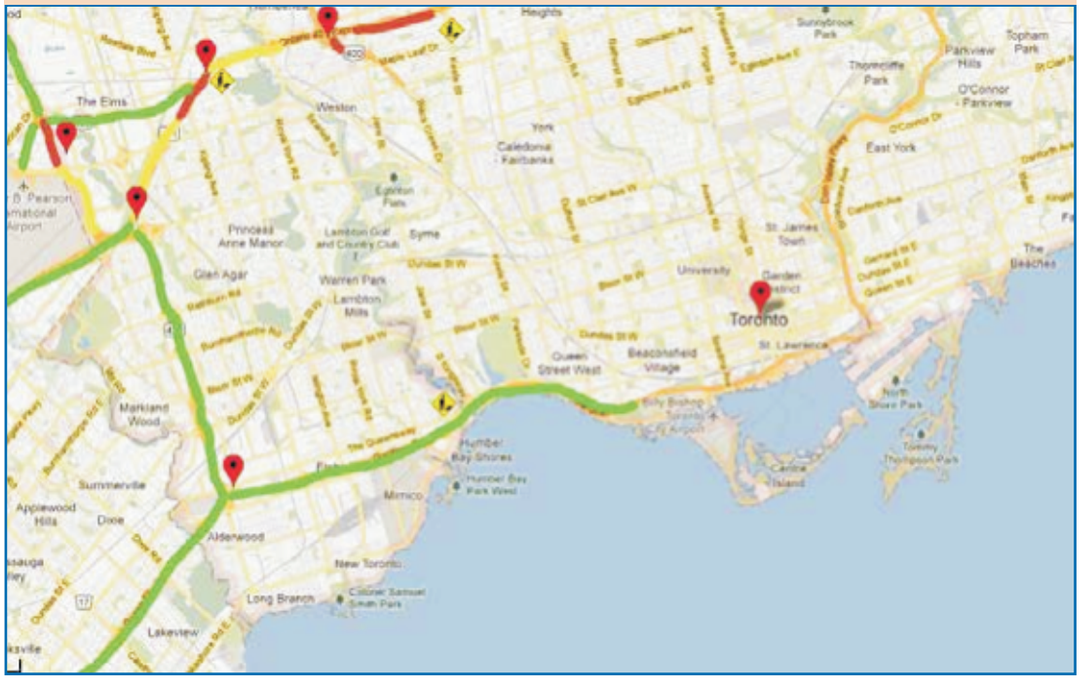
**Environment:**

Rolta's Environmental Solutions bring together powerful GIS capabilities that are integrated with information from multiple databases, and feeds from sensors to provide analytical capabilities such as Vehicular Pollution Monitoring and Geospatial Thematic Plotting by Emissions. Multi-parameter isohyet geo-spatial analytics draws on the integration of geospatial analytics from Rolta Geospatial Fusion™.

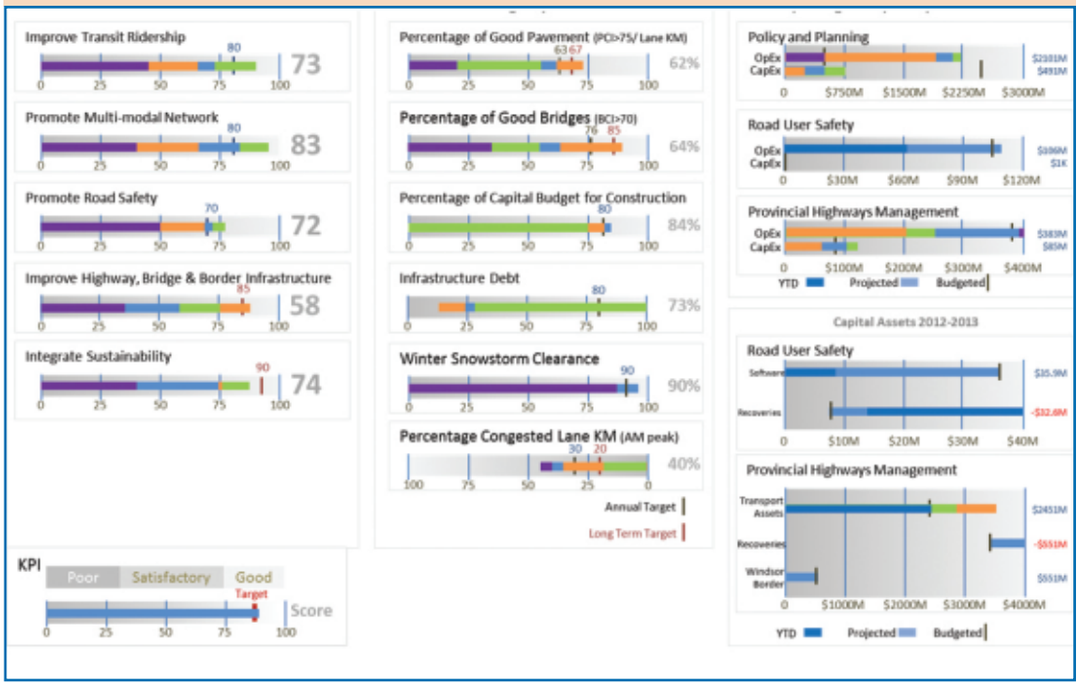
## Vehicular Pollution — Geospatial Thematic Plotting by Emissions



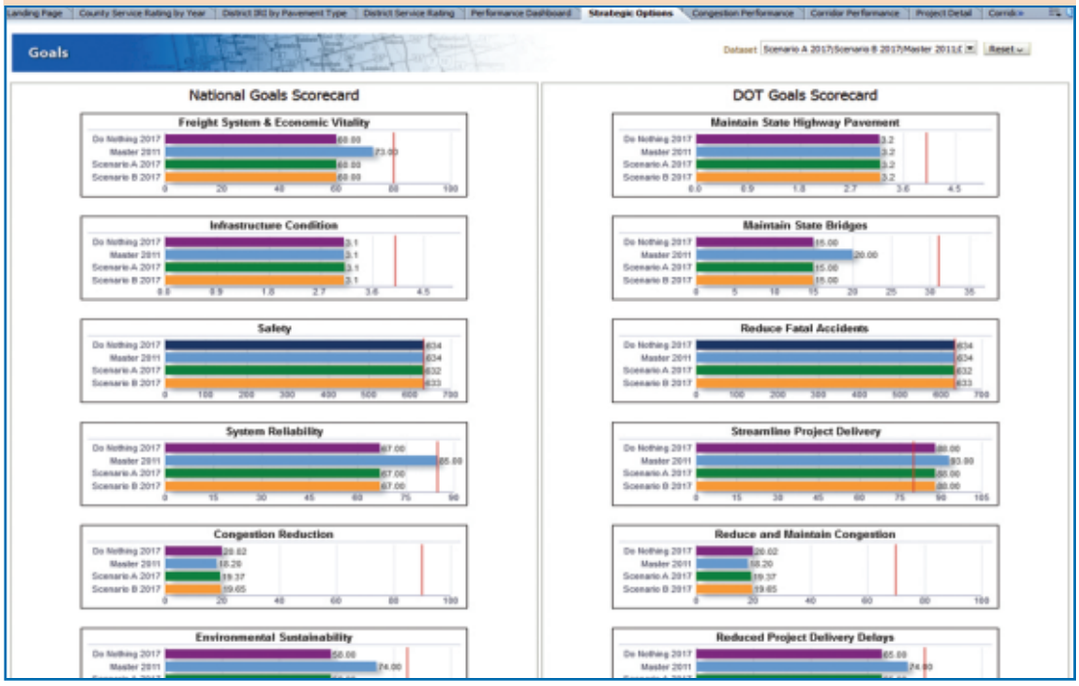
## Traffic Congestion and Temporal Patterns by Section



## Traffic Analytics, Patterns and Trends



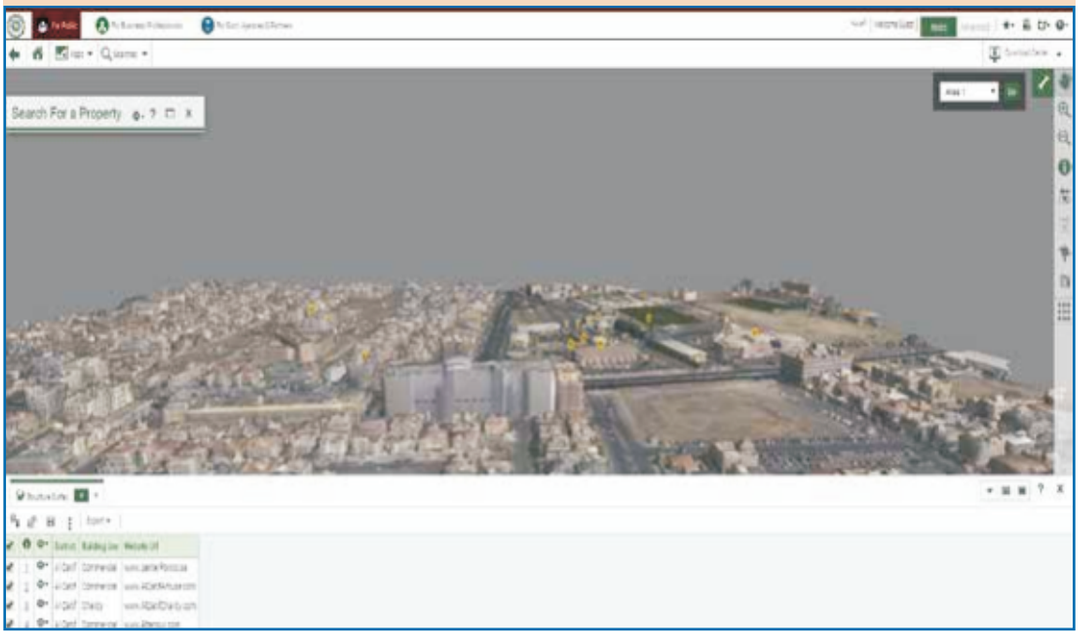

## Comparison of Performance Against National Goals for Congestion, Projects



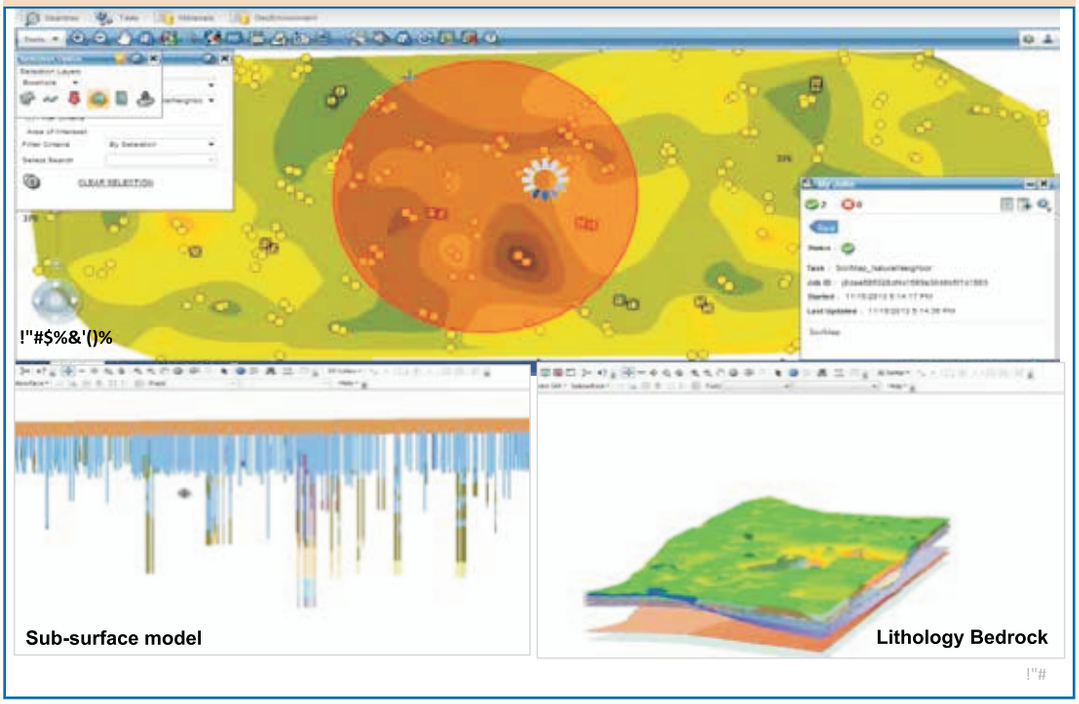
## Urban Planning:

Rolta's Urban Planning Solutions lay the foundation for intelligent Smart City initiatives. These integrate 3D Mapping and visualization capabilities with local asset and land databases and demographic datasets to enable authorities to make better city planning decisions, prepare for disaster response and mitigation, asset protection and deliver carbon foot print monitoring.

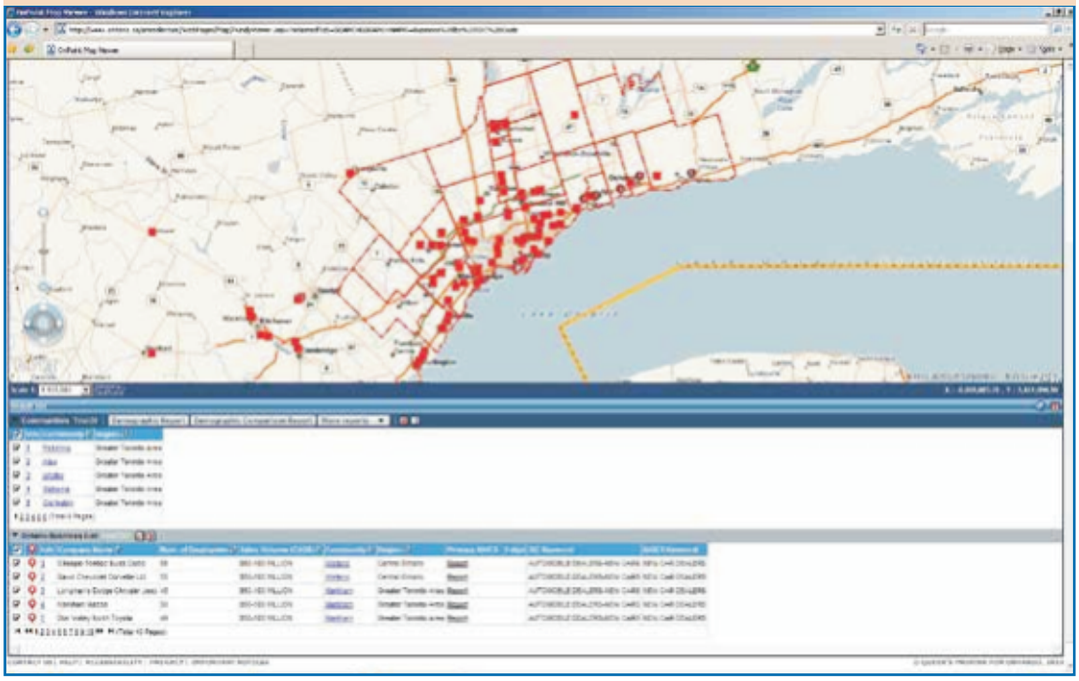
### Integrated 3D Mapping for Building Information and Planning



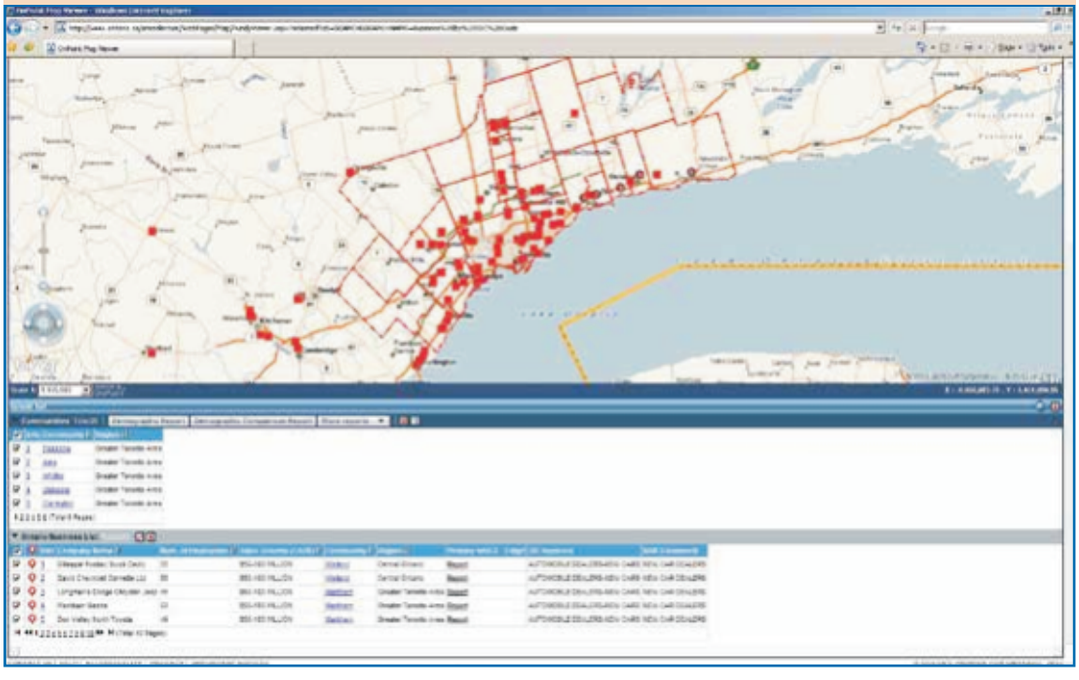

### Spatial Predictive Analytics for issuing building permits



## Site Selection Analytics Criteria: Automotive Industry with Specific Sales



## Socio-Economic Classification Based Community Search Criteria



Source: Rolta

**From the Gartner Files:**

# Big Data Analytics Will Drive the Visible Impact of the Nexus of Forces

Innovators successfully take advantage of converging forces — information, mobile, social and cloud. Information will be the most visible force to end users. Big data analytics maturity built on the Nexus of Forces foundation will be key to enabling transformative business model disruption.

## Summary of Findings

Bottom Line: The Nexus of Forces — information, social, mobile and cloud computing — is an ultimate context for big data analytics. Convergence of the forces creates new conditions and disrupts traditional assumptions in enterprise information management (EIM) and business analytics.

Context: The Nexus of Forces offers organizations increased business value through the ability to transform industries and unlock innovation. To discover key insights and critical success factors, Gartner interviewed 33 innovators who had successfully implemented real-world projects to take advantage of the converging forces.

Take-Aways: Combined, the four nexus forces deliver a much greater value than each one of them individually. Any big data analytics strategy will be incomplete if developed without consideration of the convergence of information, social, mobile and cloud computing that is already happening, but many enterprises do not consciously identify with it.

The two main surprises the Gartner research revealed were:

- User experience is a focus and an overarching theme of convergence. User experience requires trade-offs in implementing each of the nexus forces for the sake of the better whole.
- Information is a single force that gets to the foreground over time while other forces, once implemented, become less visible. All interviewees consistently indicated their plans to further advance their information maturity, by means of analytics and information management, because the nexus is transforming organizations into informationdriven companies.

The information force of the nexus is not homogeneous; it includes data as the force enabler and analytics as the main value proposition of the force. For the information force to fulfill its mission, information governance and information quality are critical:

- Data is the enabler of the sustained success of convergence. Many participants described their work with a plethora of new data sources, yet most people did not consciously associate this work with big data, while indeed it is. Big data is characterized by:

  **Volume** — Companies produce, receive and store more data than they can process.

  **Velocity** — Many participants indicated the need for real-time analytics and for combining multiple data sources for new insights. Mobile and social data present real-time analysis challenges, and thecloud faces challenges of combining data sources created and changed in varying tempos.

  **Variety** — Unstructured data is the product of the Nexus of Forces. It comes from mobile devices, social interactions, and cloud storage and collaboration.

- Analytics is a long-lasting upshot of convergence. Analytics possibilities seem limitless, and ever-growing data sources present more opportunities to innovate through holding novel insights.

Personal analytics is a noteworthy and totally new type of analytics, quite distinct from the well-known business analytics or business intelligence. Personal analytics empowers individuals to make better decisions in their private lives, within their personal circumstances, anytime, anywhere. Cloud, social and mobile solutions make personal analytics possible.

- Traditional data quality is ripe for disruption. New information quality approaches are needed to facilitate big data analytics and to address the high-volume, velocity and variety characteristics of big data.

- Information governance is a way to derive value from information by keeping an eye on the whole landscape of data sources. Governance is a unique mechanism to resolve data ownership and responsibilities among many parties brought together by the nexus.

**Conclusion:** Companies implementing convergence projects found that the projects delivered significant business value; but more importantly, the Nexus of Forces transformed organizations and industries through data-driven insights and a user-centric focus.

## Analysis

The convergence of four powerful technological forces drives new business scenarios and empowers individuals. Data is at the core of the nexus. Information patterns derived from it change status quo, disrupt industries and affect lives.

The consumerization of IT and the ubiquity of connected smart devices have ignited the convergence of the forces in many organizations. Gartner conducted field research to interview enterprises that had successfully implemented real-world nexus projects.

## The Nexus of Forces Is the Context for Big Data Analytics

Big data analytics is the crown jewel of the Nexus of Forces and the ultimate value proposition delivered by the information force. Convergence is turning enterprises into information-driven companies, and mature big data analytics is a way to get there. A stand-alone big data analytics strategy would be inadequate if developed outside of the context of converging forces — each force plays a unique role in an effective implementation of big data analytics. The interplay of data, analytics, information governance and information quality with respect to the Nexus of Forces is the deciding factor for big data analytics success.

## The Dynamics of the Converging Forces

Many organizations run stand-alone initiatives to implement social, mobile, cloud and big data. While these individual initiatives bear fruit, the forces combined are of greater value to the enterprise than the sum of the parts. For example, a remote sales rep enabled with cloud solutions accessible via a mobile device can sell on the spot by showing a benefits analysis to the client. If a client has questions, the rep can tap into a social network and get immediate help from colleagues.

Currently, most organizations struggle with big data or postpone their big data analytics projects under the more urgent pressure of implementing cloud, mobility and social computing, as well as basic information management and analytics. Gartner found that in addition to the four forces, user experience is the focal point and the overarching theme of convergence. Mobility and cloud computing are becoming less visible when they reach implementation maturity. Social computing is sometimes not very visible to the user, and sometimes it is part of the user experience. Mobile is a “force multiplier” of social, generating new data of high volume, variety and velocity. Once implemented, the three forces launch a rocket ship: the informationforce. Big data and analytics become a long-lasting focus of convergence (Figure 1). Analytics delivers breakthrough insights to the companies that harness the Nexus of Forces and turns them into information-driven enterprises.

**FIGURE 1** Big Data Analytics Is a Rocket Ship Fueled by Social, Mobile and Cloud Forces


Source: Adapted from NASA (February 2014)

This convergence makes surprising turns: The use of nexus-enabled products may unexpectedly shift from the way a company originally intended to new uses that involve various kinds of analysis. For example, a product developed for one constituency could be adopted by a wider audience, and this will drive additional types of analysis to satisfy new users and new ways of consuming the existing insights. Organizations should expect the use of data for new purposes because data — not application architecture — is becoming a starting point for new projects:

***"It's not about architecture anymore; it's about the data."***

The expansion of analytics into unconventional areas and new fields is driving the implementation of new technologies. Rapid technology innovation is now cost-effective and sensible because of new realms: Cooperation of many people and organizations on open source allows rapid solutions that a single company cannot deliver; the cloud infrastructure eliminates lengthy ramp-up time and enables wide experimentation without costly investments; cloud elasticity makes possible complex computations that are prohibitively expensive otherwise.

For the first time ever, smaller companies disrupt industries: One innovator told us that his relatively small company changed the key performance indicator (KPI) of his industry because of its ability to conduct big data analytics and get to the more granular insights from the new types of data.[1] The following equalizing effects alter markets:

- The ability "to stand on the shoulders of nexus-enabling companies" — leveraging what is already done by others.
- More is available to each individual.
- The network effects lead to a higher competition for desirable outcomes.
- Social technologies cause flattening of organizations internally and their ecosystems externally.
- More is available to each individual.
- The network effects lead to a higher competition for desirable outcomes.

Mobile devices play a significant role in data gathering, especially when it comes to the new types of interesting data for analysis: geolocation, images, video, social interactions. Mobile devices also dictate usability requirements for consuming information, analysis and insights.

**FIGURE 2** Word Cloud Made of Gartner Interview Notes


Source: Gartner and www.wordle.net (February 2014)

Many interviewees report advantages of the cloud in monetizing data and analytics (see The Value of Information section). The cloud facilitates joint ventures through information sharing — for example, a collaboration of multiple companies on building a skyscraper — by providing a common place to store and exchange information. An additional benefit of the cloud is that it allows various analyses of the same data by different parties. Analysis often involves supercomputing, which in the past was available to very few organizations but is now more accessible with cloud elasticity.

***"New types of analytics are becoming possible with [cloud] elasticity."***

Companies implementing cloud computing see indirect benefits of this technology too: disaster recovery, reliability, high availability, elastic compute power or direct feedback from customers. Nevertheless, cloud is a player but not a leader: no company yet has offered a full-fledged data warehouse or end-to-end analytics solution in the cloud. The customers are required to package all their data and combine various offerings into business solutions.

***"Amazon Redshift — brilliant, but it's a first glimpse."***

With convergence, organizations learn about new issues and limitations — privacy, spamming of followers, network bottlenecks, API deficiencies, migration from one cloud to another.

## The Information-Driven Enterprise

The key to deriving value from the Nexus of Forces is big data analytics. The testimony to this is the big "data" shown in the word cloud that Gartner created from all the interview notes (Figure 2). The interviewees told us about data:

**FIGURE 3** Four Pillars of Business Analytics Define the Information-Driven Enterprise


Source: Gartner (February 2014)

***"It's the ability to look at things wildly different."***

"Now we have real data coming out. Our next step is big data, data we can start analyzing and processing and find new insights."

Considering the information-driven enterprise as an ultimate goal adds structure and clarity to a big data analytics strategy. "The Road Map for Successful Big Data Adoption" explains how to get there. Expect big data to become the new normal when your organization learns to take advantage of nexus technologies. Like most successful innovators, build your big data analytics strategy by planning improvement targets for the four fundamental pillars of the information-driven enterprise (Figure 3).

**Information Management Foundation (the data pillar)** — Data, and the unique insights gathered from it (i.e., analytics), were identified by the interviewees as the true gem of the nexus projects.

This brings EIM to the forefront of the nexus readiness. Information governance was sought as the best mechanism of deriving value across disparate data sources and organizational silos.

***"It feels like out of all the things, the data usefulness/benefit/opportunity is the hardest problem to solve. This needs governance."***

**Organization (the people pillar)** — Identifying the right people and skill sets is paramount to success of nexus projects. Information management professionals bring to the table their in-depth EIM experience and strong data culture that no external consultant can match, because data is unique in each company. However, information management professionals must also be versatile because the Nexus of Forces requires not just technology knowledge but also soft skills such as communicating among multiple parties with different backgrounds,

community organizing or digital anthropology. Getting outside of internal IT and business silos and understanding what exists externally are key to ensuring that innovation occurs.

***"I am pushing my architects to become more versatile and to understand how architecture impacts the business."***

**Fact-Based Decision Making (the process pillar)** — The value of the nexus-fueled analytics is twofold. First, it empowers the organization to make decisions based on trends and facts that were never before known. Second, it enables new business models by giving organizations the opportunity to sell their data or insights. Convergence, like a magnet, integrates other processes in the enterprise.

***"A combination of analytics and human decision works better than only analytics or only human decision."***

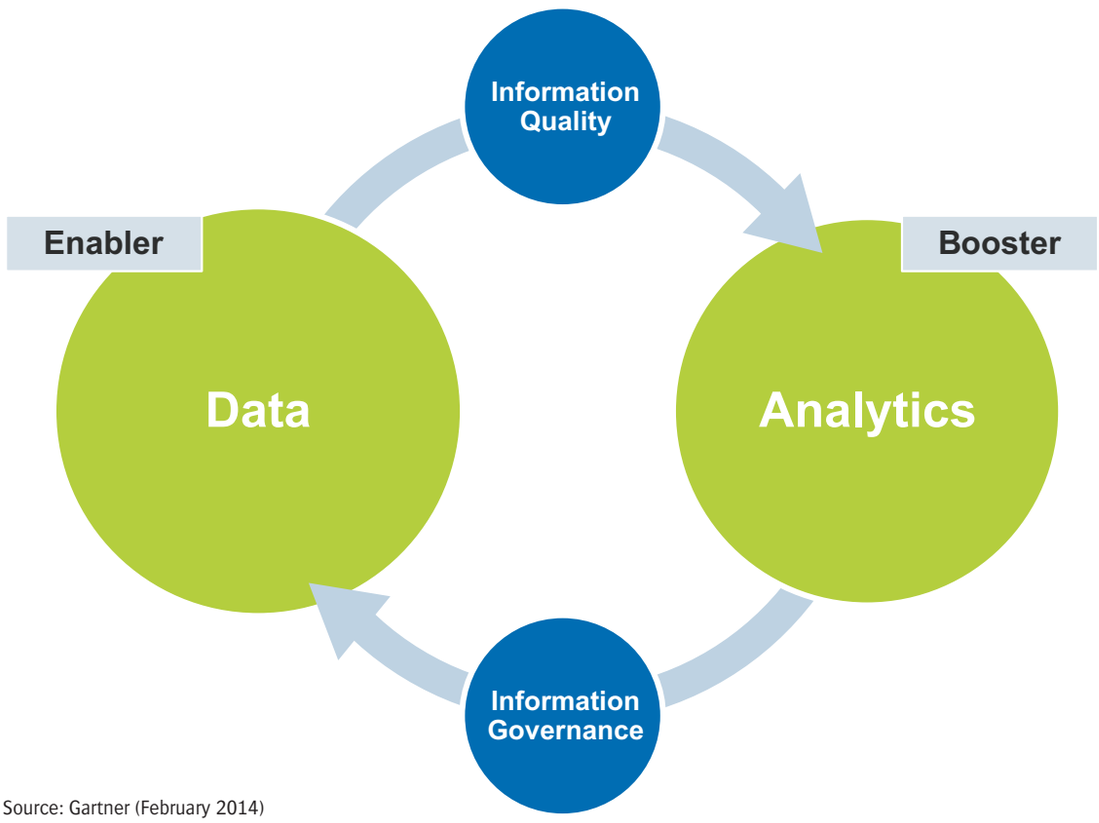
**Appropriate Technology Platform (the technology pillar)** — The technological forces converge to empower individuals as they interact with each other and their information through well-designed ubiquitous technology.

***"We can ride the technology churn rather than fight it."***

***"Let the user have access to the full power and strength of the [technology] platform and audit it if you want."***

If your company is more advanced with some of the pillars than others, your improvement planning should aim to align all pillars rather than to develop a single dimension. Strive for optimization and tradeoffs of individual pillars for the best whole, bringing it all together for your particular circumstances. Carefully evaluate your requirements, and do not over-engineer your analytics solutions: Plan what makes sense for your unique business.

**FIGURE 4** The Information Force




Source: Gartner (February 2014)

## A Close Look at the Information Force

Each technological force plays its own distinct role in the Nexus of Forces. And each force is an aggregate of components, not a homogeneous force. The information force components — data and analytics — are the core of the information-driven enterprise (Figure 4). Data and analytics are two sides of the same coin. There are no reliable, let alone new, insights without reliable data and analytics. Conversely, analytics unsheathes the value of data and dictates data collection requirements. Organizations take advantage of the information force in its enabling and boosting forms. The holy grail of the information force is big data analytics.

***"Most important is the [big] data analytics— not just improvement in training but in actual scenarios."***

The challenge of enabling information is managing a plethora of data sources with new characteristics, originating in the Nexus of Forces. To take advantage of various data sources and to conduct sophisticated analyses, building a next-generation data warehouse — a logical data warehouse (LDW) — is necessary. The LDW is the information platform for big data analytics in the new economy, where a culture rewards and encourages an information-driven work style. "Solution Path for Building the Next-Generation Data Warehouse" provides step-by-step guidance for planning and executing a successful LDW strategy.

The challenge of boosting the value of information is to get reliable insights from the data that are easy to consume. The growing demand for analytics drives the use of mobile devices for collection and manipulation of the data for analysis. Gamification (for gathering and consuming data) and visualization (for aggregating data and presenting analysis) are two significant methods for boosting value derived from information.

When building out the information-driven enterprise, organizations are facing eternal information management demands; but in light of convergence, new approaches are required for information quality, information governance and data integration. The challenge is getting beyond the accessing of the data sources to really understanding the data. Converting data into trustworthy analysis demands decisively new information quality approaches (see The Importance of Information Quality is Growing section). Organizational transformation into the information-driven enterprise, especially with participation of multiple internal and external parties, requires strong information governance (see Information Governance is a Necessity and a Challenge section).

## The Value of Information

The value of information is in both data and insights. Organizations find truly creative ways of using data internally or as a means of communicating with their partners and customers.

The majority of the interviewees told us that their companies monetize their data or have plans to do so. Data monetization comes in raw and aggregated forms. Aggregation is a predominant way of monetizing anonymized data to comply with privacy regulations in different locales. One organization told us that they do not sell their raw data so they can prevent competitors from seeing patterns in the data. However, they sell access to their analysis, thereby commercializing the intelligence inferred from the data. Organizations monetize data directly by selling it or providing it to their partners and ecosystem to gain business benefits.

The crown jewel of the information force is analytics. The nexus enables new kinds of cross-organizational insights; for example, the cloud provides a neutral place where business partners can collect and analyze data of common interest. This can lead to new performance benchmarks of specific job roles or units across their industry.

***"We can show employees and companies how they rate against industry averages."***

The long-term value of analytics is still evolving. What is clear is that the impact will be huge: Companies are already deriving great benefits from analytics, and all organizations want more.

***"We have a vision as to how we can better use and combine analytics data in the future."***

Technology professionals tend to provide solutions rather than ask what solution the business needs. Business leadership is the key to successful big data analytics. Innovators often make the mistake of evaluating all big data analytics ideas equally instead of distinguishing game-changing opportunities from business-extension opportunities and then treating them appropriately. They should approach game-changing ideas according to their potential for breakthroughs and evaluate business extension initiatives based on their predictable costs and benefits. Successful big data analytics initiatives usually start with business-extension use cases and progress to game-changing solutions after the value of big data analytics has been demonstrated.

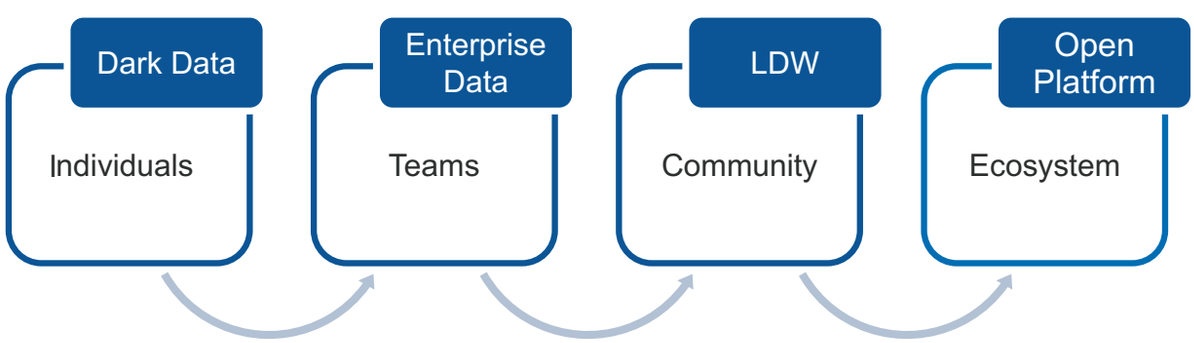
## Cooperation Accelerates the Use of Information

The use and viability of the nexus technology products greatly depend on the sophistication of the users, teams, communities and ecosystems. One innovator commented on the uneven technological abilities inside his industry to derive value from nexus products:

***"Everybody has a watch, but time management is individualized."***

Data accessibility mirrors the degree of convergence. The higher the degree, the stronger the interest in data and in nexus technologies. Accessibility starts with dark data — data that exists in the organization but to which very few people have access. For example, most companies don't think of human resources systems as being inaccessible. However, they really are only used by a handful of people. One interviewed company opened its HR data and used it for new purposes: testing facial recognition against employee badge photos, detecting customer gender by knowing a name/gender relationship of its employees, and for employee social engagement by using the HR information at scale.

**FIGURE 5** Cooperation over the Information Force




Source: Gartner (February 2014)

The next step in accessibility is sharing data from various teams, for example, as a single source of the truth.

***"Traditionally our systems have been a data-hording exercise (bring everything into a single system). It tries to become the source of truth. With social, we are recognizing there are multiple systems, how to integrate this into a single view of a project or product."***

The next step is to form internal employees' or external users' communities around convergence projects. Participation in the community demonstrates viability of the convergence project. At this point, nexus products are stable and they see the benefits of community involvement.

***"Community increased 120x the performance on the known algorithm and additionally gained accuracy."***

Finally, when products lead or disrupt industries and markets, an ecosystem is formed around them because the product is vital to many participants who also want to take advantage of the nexus. Ecosystems especially thrive on open source and open data.

***"If local government shows they are open to sharing data, they will be approached by companies wanting to commercialize it."***

When developing your big data analytics strategy, pay attention to building a community around the goals of your convergence project. Plan to evolve the community into an ecosystem when your convergence initiative expands.

### Companies Collect a Plethora of Structured and Unstructured Data

Data is one of the most ubiquitous — yet one of the most unique — assets of a company. The real-world nexus projects work with a plethora of data sources. Data enables innovative solutions. It is instrumental in bridging all kinds of silos — information, clouds, people, departments, organizations, industries and even markets. One interviewee told us that the innovation was in releasing data, not in building apps or providing analysis. Personal mobile data dominates the participants' interest because it is directly related to user experience.

***"Flexibility allows people to innovate — balance between mandated solutions and 'How do I know what to do with the data?'"***

Social solutions contribute unique data; they also present privacy and ownership challenges. Dark data, especially about people, is of substantial interest to organizations, so data liberation from various silos is one of the key efforts of information governance.

***"Information should be free."***

***"One of our goals with our social platform was to integrate tacit and explicit information."***

Big data is a current challenge of nexus projects, mainly because of immaturity of big data technology solutions. Interviewees specified security, lack of metadata and the shortage of analytical skills as barriers to big data adoption. Nevertheless, big data solutions, such as Apache Hadoop, are getting in place. People find open source attractive because of its accessibility and communal innovation.

***"Big data is a huge opportunity and challenge."***

### Structured Data Is the Source of Innovation

Liberated structured data is the main enabler of new insights. Many companies are sophisticated in working with structured data. Counterintuitively, big data is currently predominantly structured (such as data for compliance and performance purposes).

***"Applying big data technologies with unstructured data is several years out. It requires a mental shift … structured data is better understood."***

Open data sources are growing. Open data is a great example of innovative use of structured data. For example, one might determine the quality of living in a neighborhood by combining local crime statistics with aggregated student test scores across local schools.[2]

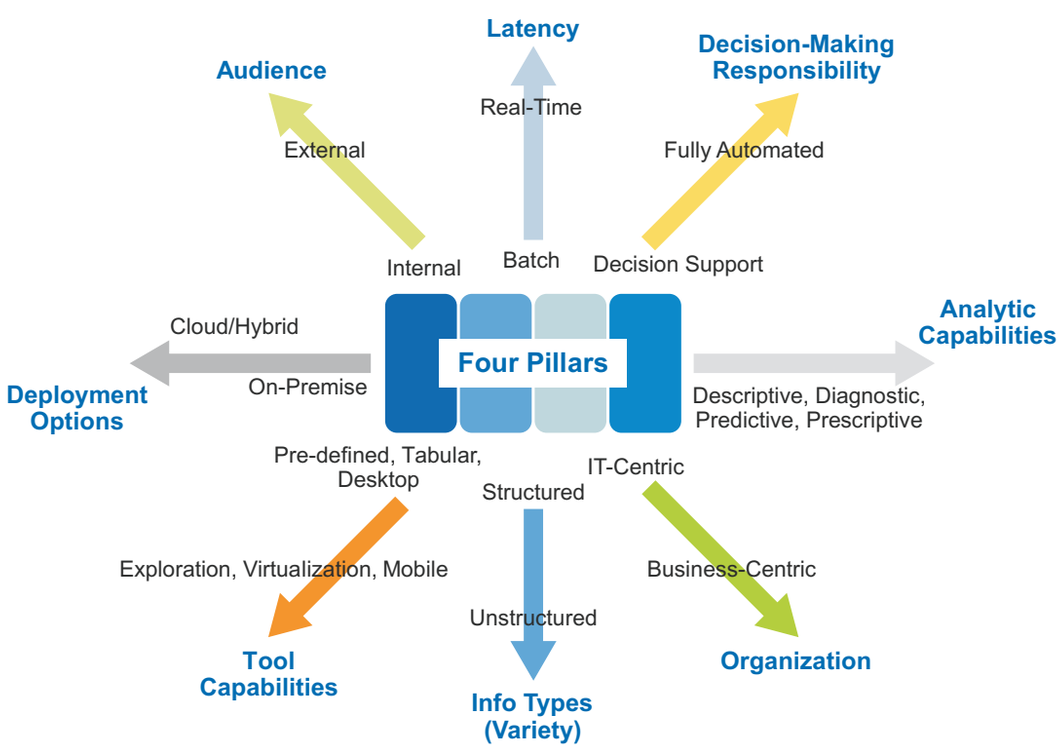
***"Most customers of open system preach to each other — look what we have done!"***

### Unstructured Data Is the Product of the Nexus

One more point became clear to Gartner: Unstructured data is the product of the Nexus of Forces. While information professionals have experience in managing structured data, unstructured data is new and challenging to them. The new-generation data warehouse — LDW — is the solution that brings structured and unstructured data sources together to enable new insights.

Unstructured data originates from all forces of the nexus. Mobility is closely related to geolocational data. Social computing is about social data — media and networks. Cloud is about data that concerns multiple parties and the data that was not stored before because of the infrastructure limitations — for example, individuals can now collect and access their wellness information. And of course, the information force makes all this data useful; it also provides the ability to mash up various data sources — structured and unstructured — for new insights.

**FIGURE 6** Eight Dimensions of Business Analytics




Source: Gartner (February 2013)

The interviewees reported their innovative work with text, video, audio interviews, photos, documents, music, articles, geolocation and machine data. In pursuit of personalization, data that provided local context was instrumental.

Organizations should identify the unstructured data sources most important to their business, and start with analysis of one new unstructured source. For example, sensor data in healthcare, text in the financial industry or social network data in retail could be good starting points. IT professionals must think about big data analytics by considering the complexity of analysis in relationship to the complexity of data. An increase in data and analysis complexity leads to higher levels of investments in people and process to deliver big data analytics.

### Logical Data Warehouse Is the Solution to Effectively Use All Data

Organizations seek new data warehouse solutions to keep up with convergence. They see demand to integrate data. They want to stitch together multiple data sources to fuel new analysis. They have to create new content because of the demand for new insights. They need to bring together islands of data that reside in different products and areas, in different repositories and with different taxonomies, even in multiple disconnected data warehouses.

Many companies are already consolidating data in the LDW. Interviewees reported that their IT organizations run initiatives for consolidating data warehouses; they also create data virtualization solutions or a virtualized semantic layer.

***"We see data virtualization as a big win for us when we can get there."***

Consolidation gives the following advantages:

- Rapidly bring data together to analyze it faster than other companies in the industry that do not have data virtualization.
- Reveal business opportunities in the form of mobile KPIs/dashboards or cross organizational service interfaces.
- Use the same data and same tools as a result of having a single place that holds all of the aggregated data.
- Aggregate content around user experience (event or personality).

### Analytics Is a Key to Nexus Solutions

All companies we interviewed reported that analytics unveiled new insights and opportunities. This required a combination of in-house and outside experts, business domain knowledge and IT technology expertise, and most of all, the ability to focus on a single goal — creating the optimal user experience.

Participants told us that analytics is a key to their nexus solutions:

***"Analytics is important. Our customers have very little time to devote to processing data."***

Most companies already enjoy the benefits of analysis: new business models, new insights into customers and partners, the ability to do things faster, cheaper and more efficiently. Eventually, that's why they undertake nexus projects.

Convergence gives a new slant to analysis. It enables new kinds of cross-organizational insights, such as analysis of distributed processes, collaboration on large-scale initiatives, business aha's from granular customer analysis, high levels of personalization and generalization. One innovator who opened the data told us that someone outside the organization built a website with an analytical application based on this open data: The website addressed a long-standing need the innovator's organization had. This new analytics capability made all of the organization's efforts worthwhile.

Participants' big data analytics strategy development was very similar to the Gartner's model of analytics dimensions in Figure 6 and described in detail in "Why Business Analytics Projects Succeed: Voices From the Field."

Dimensions in Figure 6 shape a big data analytics strategy. The strategy should take into account some or all of these dimensions depending on the goals you set. Most successful big data analytics implementations tended to progress outwards in this figure, but for most of them, it is still a work in progress.

***"The infrastructure accommodates different processing requirements: data processing in real-time ('quick and dirty') in the field and more detailed in non-real-time in the data center/cloud."***

***"We distill intelligence from social media. We do not provide predictive analytics."***

The danger of big data analytics is a disconnect from other organizational initiatives and projects. To survive, a big data analytics strategy has to relate to other information sources, to other forces of the nexus, and to be tied to business goals and objectives. As the strategy rolls out, big data becomes the new normal on the way to the information-driven enterprise.

## Future Success Depends on Further Analyzing the Data

There was no single interviewee who expressed complete satisfaction with current insights from their data. Convergence leads to collecting and storing more data than companies can process. This in turn leads to a desire for more analytics and to novel ideas based on data ("We will start looking at using more analytics over time"). Often, ideas for new analytics come from outside: Unexpected use of the of nexus products transforms business models and the vision for analytics.

***"We were surprised that large customers adopted our SaaS product. We thought it was going to be a low-end product for small customers."***

***"Customers used the product the way it was designed. And then the focus shifted to analytics and to data."***

Consumerization demands new, easy-to-use forms of analysis and analysis delivery. Companies want to make sure their products respond quickly and their analytics are meaningful. Given the volume of data and the user experience focus, visualization is a way of engaging analytics consumers. For instance, maps create common context and uncover new insights, such as new kinds of customer clustering.

It is not necessary to build everything from scratch when certain use cases, such as sentiment analysis, are well-discovered by third parties.

## Personal Analytics and the Shift to the Individual

The Nexus of Forces is shifting focus from the enterprise to the individual, with the emphasis on user experience. This shift leads to a totally new type of analytics — personal. Quite distinct from the well-known business analytics and business intelligence , personal analytics empowers individuals to make better decisions in their private and professional lives, under their personal circumstances, anytime, anywhere. Cloud, social and mobile solutions enable personal analytics. For example, healthcare organizations give wearable devices to their employees and members and use the collected data to provide lifestyle improvement objectives in a gamified fashion. The more data they collect, the more precise their analysis and recommendations.

Personal analytics, in turn, leads to new levels of sophistication in mobile and wearable devices, to new angles of social interactions and to innovative uses of the cloud for the benefit of individuals.

Personal analytics can grow fast "on the shoulders" of business analytics; its challenge is in serving an order of magnitude larger audience. Moreover, personal analytics is about individualized incentives and engagement. It's like running a club: If members do not have a good experience, they leave.

***"We need to help people make better choices while having fun. Once the customer is connected, the user experience must be easy."***

***"In the end of the session all data is sent to the cloud for additional analysis. Now you can see over time how a person can improve."***

Personal analytics does not have to be perfect or complex to be engaging. Surprisingly, descriptive (What happened?) and prescriptive (What should I do?) are more popular types of analysis than diagnostic and predictive analytics. For example, a wellness app gets back to an individual by reporting that she walked 60% of her daily goal and suggesting it would be good for her to go to bed 15 minutes earlier.

New personal analytics vendors and solutions have yet to come and disrupt present-day analytics markets.

### The Importance of Information Quality Is Growing

Information quality for transforming data into insights is an increasingly important subject, not to be confused with traditional data quality that is ripe for disruption. The Nexus of Forces liberates data, which means more people accessing and changing it. Innovative information quality approaches — visualization, exception handling, data enrichment — are needed to transform raw data into a trusted source suitable for analysis. For example, some companies use crowdsourcing for data enrichment and validation. Consequently, the quality of crowdsourcing is another new task.

Convergence presents new requirements — getting the right information to the consumer quickly, ensuring reliability of external data you don't have control over, validating the relationships among data elements, looking for data synergies and gaps, creating provenance of the data you provide to others, spotting skewed and biased data.

Big data technology capability to combine multiple data sources creates new expectations for consistent quality; for example, to accurately account for differences in granularity, velocity of changes, life span, perishability and dependencies of participating datasets.

Convergence brings a huge focus on testing. This requires a lot of planning to ensure that no one thing is tested in isolation. Many nexus projects involve people of different languages and cultures, producing data and consuming analysis via diverse mobile devices. Social platforms provide a crowdsourced approach to cleaning up data and facilitate finding testers of diverse backgrounds. Big data is a way to preserve context that is missing in the refined structured data stores — this means a balance between intentionally "dirty" data and data cleaned from unnecessary digital exhaust, sampling or no sampling.

***"With a virtualized approach, you cannot hide how your bad your data is."***

***"People have to spend a lot of time learning taxonomy of data, peer connections, politics in the company. A centralized social network speeds up this process by providing a mechanism."***

***"Our customers view us as the 'source of truth.' Therefore, we have to work harder to validate our content before it is published."***

### Information Governance Is a Necessity and a Challenge

Information governance is becoming more important under conditions of convergence. There is a continuous loop between data and analytics: data enables analysis, and when the organization gets to appreciate analytic insights for competitive advantage and new revenue streams, it wants more of it. Subsequently, requirements of new data, more data and better data arise. At some point the organization realizes that data growth and utilization cannot go uncontrolled due to high regulatory risks, conflicting assumptions about information and an unrealized potential to derive great value from data assets. They turn to information governance as a decision-making framework for assigning rights, responsibilities and authorities for assuring that an enterprise, its regulators and it shareholders receive reliable, authentic, accurate and timely information.

***"Grappling with a data governance mechanism that has some teeth, we are a distributed culture, distributed ownership."***

Gartner observed that new opportunities and business models brought about by the Nexus of Forces put an emphasis on delivering value through big data analytics and data monetization. This is different from the focus on compliance in many traditional information governance programs.

Convergence brings specific information governance challenges:

- Uncover dark data for analysis, which is possible with new technologies. Many innovators indicate that bringing dark data from the enterprise silos to light is a high priority.

- Get a clear picture of external sources: Assess the trustworthiness of data that originates and changes outside the enterprise, and risks associated with this data.

- Make decisions on data relevance: Collect appropriate data and recognize and reject extraneous data that just adds more noise.

  ***"Not just about finding the needle, but getting the hay in the stack."***

- Resolve data ownership, accountability, responsibilities and the access privileges among many parties brought together by the nexus.

- Resolve ownership and accountability for derived information. For example, when one party creates analysis on data from other parties and sells it: Who owns what? Some interviewees have postponed these decisions.

- Expand the information governance purview to the broader scope of information management in the cloud and hybrid environments; account for privacy and ethics in social and mobile context; manage risks associated with exposing corporate information through social, mobile or cloud channels.

- Evaluate the risk of new users, such as marketing departments, inadvertently violating laws, regulations and security requirements.

Information governance is a way to derive value from data by keeping an eye on the whole picture. Governance is a unique mechanism to resolve data ownership and responsibility among many parties brought together by the nexus.

Organizations should not assume that the perceived value and urgency of nexus opportunities outweigh the need for clear-headed information governance, because doing so would heighten liability risks and lead to possibly incorrect insights from big data. "Information Governance in the Age of Big Data" provides guidance on how to derive value, minimize risks, and ensure reuse and compliance of data and analysis.

## Strengths of the Information Force of the Nexus

Data — Data is driving innovative solutions and new business opportunities. Organizations take advantage of data they already have in the new way. They also collect new types of data — geolocation, social interactions or images — for new purposes. Data is the source of innovation when others innovate on your data.

Data is instrumental in bridging silos of information, clouds, people, departments, organizations, industries and even markets.

Data monetization is a direct value derived from selling the data or an indirect benefit from providing data internally and externally.

Organizations find truly creative ways of using data internally or as a means of communicating with their partners and customers. Data will become an even greater focus over time.

**Analytics** — Big data analytics is the greatest value proposition of the Nexus of Forces. The nexus enables cross-organizational insights and industry performance benchmarks through cloud and data at scale. Organizations implementing nexus projects have had a glimpse of what analytics can do: new business models, new insights into customers and partners, an increased ability to do things more efficiently, quickly and economically. That's why they have much greater plans to further exploit the power of analytics.

Often, ideas for new insights come from outside: Unexpected use of the of nexus products transforms business models and the vision for analytics to a much greater benefit for the company.

Personal analytics is a new kind of analytics. First movers have a chance to dominate a new market for delivering analytics to individuals similar to business analytics delivered to enterprises.

**Amplification effects** — Each nexus force amplifies and creates demand for others. Mobile is a force multiplier of social; cloud is the meeting place for people, teams and companies. Combined, they can achieve more than each force individually.
The growing demand for analytics drives the use of mobile devices for data collection, visualization and manipulation. Amplification effects, therefore, accelerate big data analytics. They make more information available to each individual and make each individual more accessible.

**Leveraging what is already done by others** — Standing on the shoulders of nexus-enabling companies accelerates opportunities to create new business models. It's about reusing what other brilliant organizations have done and building upon that to achieve your unique business model.

**Communities and ecosystems** — Internal and external communities that expand into ecosystems around viable convergence projects sustain the projects' strength and longevity. They deliver benefits of information products' development and support at little or no cost. Sometimes ecosystems disrupt industries and markets, allowing particular nexus products to lead the market. Ecosystems especially thrive around open source and open data.

### Weaknesses of the Information Force of the Nexus

Information quality — Research participants pointed to information quality as a weakness in their overall nexus strategy and implementations, as well as in their big data strategy. Convergence presents new requirements, most of which do not have established solutions — getting the right information to the consumer quicker, ensuring reliability of external data the organization doesn't have control over, validating the relationships among data elements, looking for data synergies and gaps, creating provenanceof the data provided to others, spotting skewed and biased data. Big data technology capability to combine multiple data sources creates new expectations for consistent quality of participating datasets: to accurately account for differences in granularity, velocity of changes, life span, perishability and dependencies.  Quality of crowdsourcing is another new task. Convergence brings a huge emphasis on testing; this requires a lot of planning and making sure no one thing is tested in isolation.

**Information governance** — Often, the perceived value and urgency of nexus opportunities outweigh the need for clear-headed information governance that provides a decision-making framework for assigning rights, responsibilities and authorities for assuring that an enterprise, its regulators and it shareholders receive reliable, authentic, accurate and timely information.
Neglecting information governance heightens liability, compliance and privacy risks, and leads to possibly incorrect insights from big data. Challenges come not only from new data sources, but sometimes from traditional, familiar EIM, which can become intimidating under the circumstances of convergence.

Organizations that focus primarily on data challenges often ignore or de-emphasize governance. However, they should determine data ownership among many internal and external parties — an individual, a group, an enterprise, or a vendor or service provider that creates derived data.

**Lack of skills** — Finding the right people with the right skills is critical, yet they are hard to come by. IT can grow and transform its own skills, but it takes time. IT versatility — combined with specific domain knowledge and the soft skills required to become an advisor, broker and community organizer — is key to succeeding in nexus projects.

The use of the same nexus technology will greatly depend on sophistication of the users — consumers and groups. Getting the external audience to the right skill level is even more challenging than doing so inside the enterprise.

## Recommendations

Participants in the Gartner interviews overwhelmingly stated that data and analytics were the biggest benefits from their nexusrelated projects. Any big data analytics strategy will be incomplete if developed without consideration of the convergence of information, social, mobile and cloud computing.

## Always Include Data and Analytics in a Nexus Project

Participants stated that even when they started their initiative by focusing on some combination of cloud, social and mobile, they always ended up with data and analytics being a critical part of their success. Therefore, bring data and analytics into the forefront to accelerate project benefits.

## Use the Four Pillars of Analytics to Accelerate Benefits of the Nexus Through Big Data Analytics

Data: Gather data and analytics requirements related to the nexus forces even though these might be stand-alone initiatives at your organization. Start information governance if you don't have a program already.

IT professionals need to get ready to support convergence by further advancing EIM and analytics maturity and developing their own information architecture skills. At the same time, they need to grow IT versatility to become an active contributor, advisor and broker capable of handling the information force in the context of the nexus forces.

**People:** Identify change agents in your organization to initiate convergence. Define roles involved in convergence and map them to the people in your enterprise. Engage them in brainstorming, such as innovation workshops, to start conversations among people who wouldn't have come together in day-to-day life, but will work together on convergence. Encourage participants to look beyond here and now, imagine what the future will look like and share what they dream about.

To be successful with nexus implementations, work differently: Acquire new skills, transform IT into a broker and advisor, and leverage what is already achieved by others. Plan to develop your IT skills toward greater versatility, so IT can become an advisor and a broker for technologies associated with the Nexus of Forces.

Build a community around the goals of your convergence project. Plan the community to evolve into an ecosystem when your convergence initiative expands.

**Process:** Success factors of the nexus projects are not directly tied to technology: Executive vision, passionate leadership and results-driven funding should be top priorities of big data analytics.

A successful new project begins with the selection of an area of focus; usually that area is user experience, which has a direct impact on big data analytics across all eight dimensions depicted in Figure 6. For example, user experience affects how the data is gathered and presented, whether it is delivered in real-time, and even what real-time means in a particular user situation. Your focus on user experience will define tradeoffs that are hard to make, but necessary for the better whole. Reject attractive opportunities if they derail you from staying focused.

**Technology:** IT must get ready for the growing demand for the information management, data architecture and analytics expertise.

Revise your architecture and tools and find which ones don't meet your new needs. You could start your modernization from these inhibitors.

Design solutions to simplify complexity — assume superiority of user experience. This means that users could be remote and mobile, non-technical and experienced with other nexus offerings.

Study the effects of the nexus forces on EIM and analytics. Informal networking and less formal, more ad hoc architecture are characteristics of advanced nexus projects.

Expand to unconventional areas and to new fields if you want to be ahead of the competition. Seek opportunities to pivot, to reinvent yourselves and to insert disruptive technologies in a timely way.

One innovator concluded:

***"We aren't just going to make the same mistakes. Instead, we are going to make some new ones. Fail fast, learn fast."***

## Evidence

[1] See "Gartner Keynote: Harness the Power of IT Convergence" for a detailed description of the convergence.

[2] See "Open Data Is Coming to the Enterprise" for an in-depth look at open data innovation.

Source: Gartner RAS Research Note G00251118, Svetlana Sicular, Larry Cannell, Paul DeBeasi, Kyle Hilgendorf, 28 February 2014

# About Rolta

Rolta is a leading provider of innovative IT solutions for many vertical segments, including Federal and State Governments, Defense, Homeland Security, Utilities, Oil & Gas, Financial Services, Manufacturing, Retail, and Healthcare. By uniquely combining its expertise in the IT, Engineering and Geospatial domains, Rolta develops exceptional solutions for these segments. The Company leverages its industry-specific know-how, rich repository of field-proven intellectual property that spans photogrammetry, image processing, geospatial applications, Business Intelligence, Big Data analytics, Cloud computing, and Software Defined Infrastructure for providing sophisticated enterprise-level integrated solutions. Rolta is a multinational organization headquartered in India. The Company operates from 40 locations worldwide through its subsidiaries, and has executed projects in over 45 countries. Rolta is listed on the Bombay Stock Exchange and National Stock Exchange in India. The Company's GDRs are listed on the Main Board of London Stock Exchange. The Company's 'Senior Notes' are listed on Singapore Stock Exchange.

ROLTA

INSIGHTS. INNOVATION. IMPACT