Rolta OneView™ 6.0 for Chemicals

DRIVING OPERATIONAL EXCELLENCE

Through IT-OT Integration and Pre-Built Big Data Analytics

Changing Paradigm

Chemical companies face tremendous pressure in protecting margins in the midst of economic uncertainty and are extremely sensitive to fluctuating raw material costs. The distinctive nature of products that these industries produce means they face a set of unique challenges in the areas of asset management, operational optimization and regulatory compliance, which, in turn, need to be managed in specific ways. Volatility in demand for chemicals with stringent technical and environmental specifications and stiff competition will further challenge existing business models. Managing price and quality expectations of customers in this complex scenario necessitate chemical manufacturing companies to focus on spend analytics, cost reduction and process optimization.

Cross functional and comprehensive business intelligence integration in the business processes, enabled by digital technologies will go a long way in achieving and sustaining improvements in operating practices with consequent reduction in expenditure. Managing supply chains in a seamless manner is critical, with concomitant forward and backward integrations, where significant benefits can be accrued. Reducing downtimes besides recovery from unplanned events is a sine qua non for any improvement in this industry, having multiple touch points with markets. There is an ever compelling need to have greater visibility into asset analytics from a holistic perspective across the supply chain, through planning and scheduling, to marketing and trading and monitor key performance indicators that help unlock value.

Industry Challenges

- Significant changes occurring in global markets in general and US markets in specific with increasing demand on one hand and evolving environmental regulations on the other

- Sensitivity of the industry to undercurrents of global economics and price fluctuations, besides transportation costs demand higher agility in decision making

- Emergence of new cost effective feedstock markets and lower carbon footprint sources of energy like shale gas, rapidly changing business paradigms

- Increased focus on primary sector based markets, to reduce exposure on other businesses, grappling with weak demand and input cost pressures

Rolta's out-of-the-box solution

Rolta OneView™ 6.0 Enterprise Suite is a comprehensive solution that brings unique business value through role-based actionable insights and correlated operational & business intelligence. This helps drive organizational strategy across the value chain, through informed decisions resulting in desired business transformation.

Rolta OneView™ breaks down the fundamental barriers to achieving operational and business excellence, such as silos across operational networks, business networks, safety and sustainability networks and enterprise social networks. It provides a 360-degree view of the enterprise and touches the nerve center of all critical functions, quickly adapting to existing systems, instilling best practices and accelerating process improvement.


The enterprise solution provides role based KPIs and actionable insights to empower every role to achieve its individual and organizational objectives while ensuring that there is a 'single version of truth' across all those levels. Rolta OneView™ simplifies the information complexity in the enterprise by providing loosely coupled, yet comprehensive integration across the operation and business systems with "Integrate-Analyze-Deliver" approach built by leveraging best of breed platforms.

Rolta OneView™ rich knowledge model provides enterprise wide multi-site as well as cross function visibility across areas such as Operations, Assets, Maintenance and Reliability, Supply Chain, Health Safety and Environment, Projects and Business for effective decision making. Each of these modules is fine-tuned for the specific industry suite that it caters to, providing domain-specific KPIs. Different modules

focus on industry-specific key processes across the value chain, allowing seamless integration and cross-functional visibility. Rolta OneView™ thereby effectively delivers deep insights to facilitate tactical, operational and strategic decision-making and in-turn effectively supports a variety of enterprise initiatives such as Operational Integrity, Asset Integrity, Operational Excellence, Change Management, Risk Mitigation etc.

Rolta OneView™ 6.0 Enterprise Suite is engineered and certified on SAP HANA. It exploits the power of SAP HANA and provides in-memory computing, high performance, real time and predictive analytics capabilities. Rolta OneView™ Enterprise Suite has been architected and designed for multisite, multi-tenancy operations and can be deployed as a single server instance either in an organization's private, hybrid or a public cloud environment to support multiple geographically dispersed sites across the globe. Rolta OneView™ on Cloud helps the LOBs to see the benefits without any CAPEX investments.
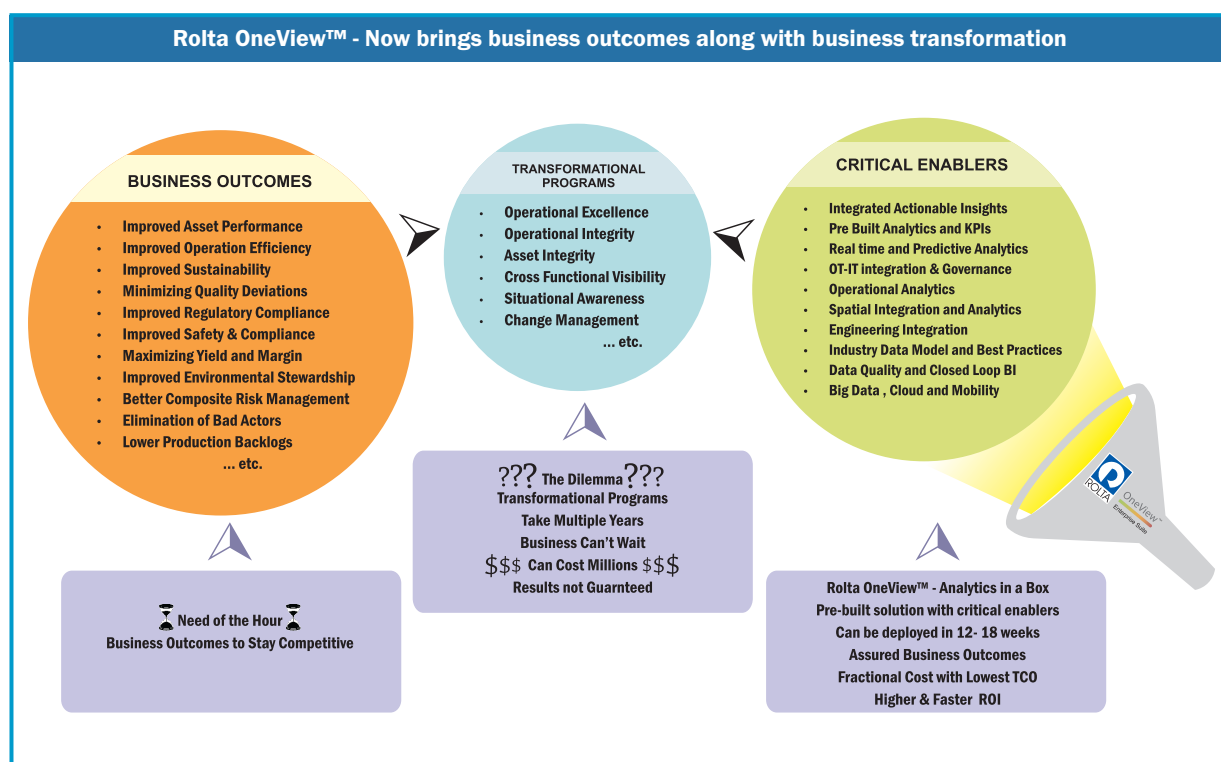
Pre-Built Industry Value Scenarios for Chemicals – Few Examples

Chemical companies operating in global markets continue to leverage technology to address business improvement needs to run, grow and transform their operations. Rolta OneView™ provides several value scenarios that are built, leveraging 400+ KPIs at all three levels – strategic, tactical and operational. These value scenarios and KPIs can be monitored on a continuous basis, built on industry specific data model and pre-built analytics with their cross functional linkages.

Operational Excellence

In increasingly competitive markets, chemical companies are looking towards Operational Excellence (OpX) as the key to drive long term success. OpX programs tend to require cross-functional visibility by drawing information from multiple functions like Operations, Assets, Maintenance & Reliability,

Health Safety & Environment, Projects, Supply Chain, Finance, Human Capital, etc. The key benefits of OpX value scenario provided by Rolta OneView™ include:

- Squeezing greater profits from the existing assets through entrepreneurial spirit amongst business functions with clear understanding of productivity targets by all stakeholders

- Measuring operational and maintenance metrics accurately with data driven decisions

- Aligning equipment non-availability at a micro level to top line impact at a macro level

- Integrated view of operations for people to collaborate, discuss and examine data together

Integrated view of methanol chemical plant production operational excellence score card

Rolta OneView™ provides an integrated and enterprise level view of chemical production. For example, this view shows methanol chemical plant production that includes key metrics like capacity utilization, production, specific energy consumption, with further drill down, analysis and alarm generation for KPI actual values deviating from plan or budgeted values.

For further analysis, this view provides drill down from previous production level dashboard with visibility of production on a monthly basis against the planned/budgeted targets. The dashboard also has day-wise production for the selected month by connecting from multiple applications like SAP on one hand and Historians on the other.

Methanol Production data analysis from multiple applications
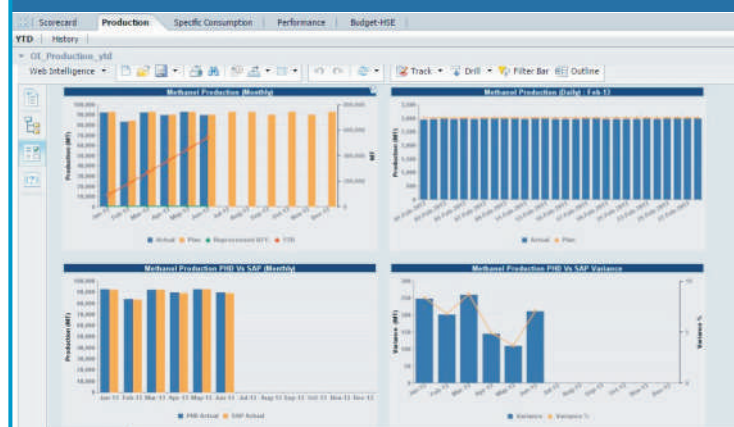
Overall Equipment Efficiency of selected Plant/Unit/Equipment
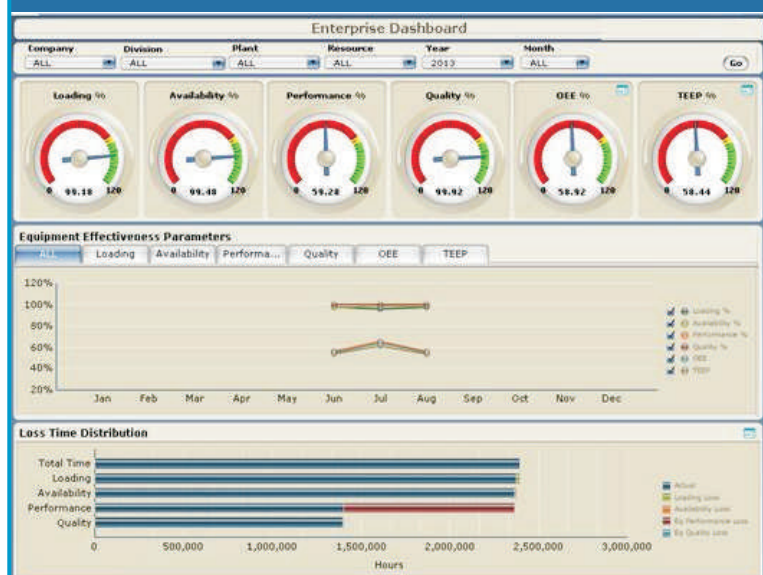
An important concept adopted by many successful chemical companies today is Overall Equipment Effectiveness (OEE). This view from Rolta OneView™ provides visibility into Overall Equipment Effectiveness and Total effective equipment performance of an asset or plant, while tracking major contributing parameters including plant loading, equipment availability, performance, quality and capacity utilization.

For additional analysis, further drill downs provides visibility into various underlying parameters e.g. loss time analysis indicating the running hours of various equipment and enables identification of lagging metrics that, in turn, will form the basis for operational improvement programs.

Note : The above dashboard views contain mock data and are shown for illustrative purposes only.

Production Capacity Utilization of selected Plant/Unit/Equipment
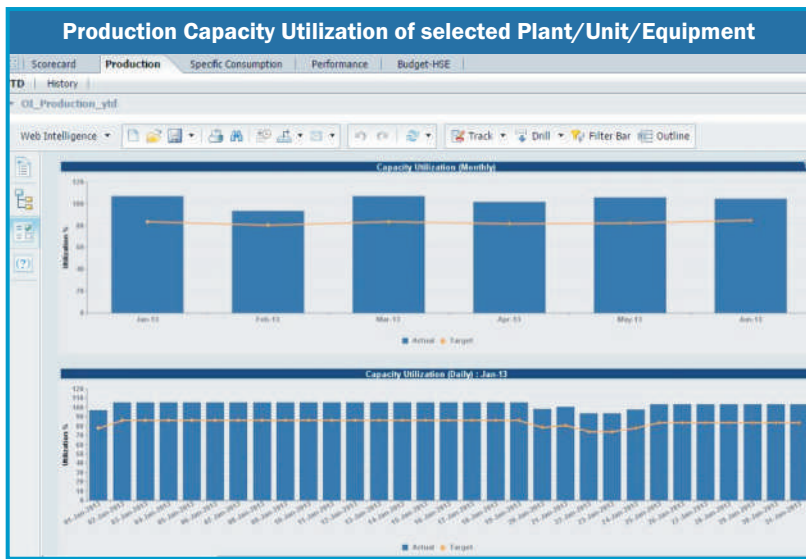
Drill down views provide visibility into multiple aspects of the OEE dashboard. For example, this view shows Performance/capacity utilization with drill down to the plant level and unit level for capacity utilization with a provision to select plant month-wise performance and analyze plant utilization for specific periods.

Similarly, this view provides visibility into the OEE dashboard for the quality KPI, with real time quality parameters for the selected plant, specifying the upper and lower limits, actuals against plan values, besides drawing the attention of the plant manager to any breach in these values. Rolta OneView™ has alerts and notifications engine that facilitates convenient escalations and provides appropriate workflows to trigger suitable actions.

Real Time monitoring of Production Quality parameters
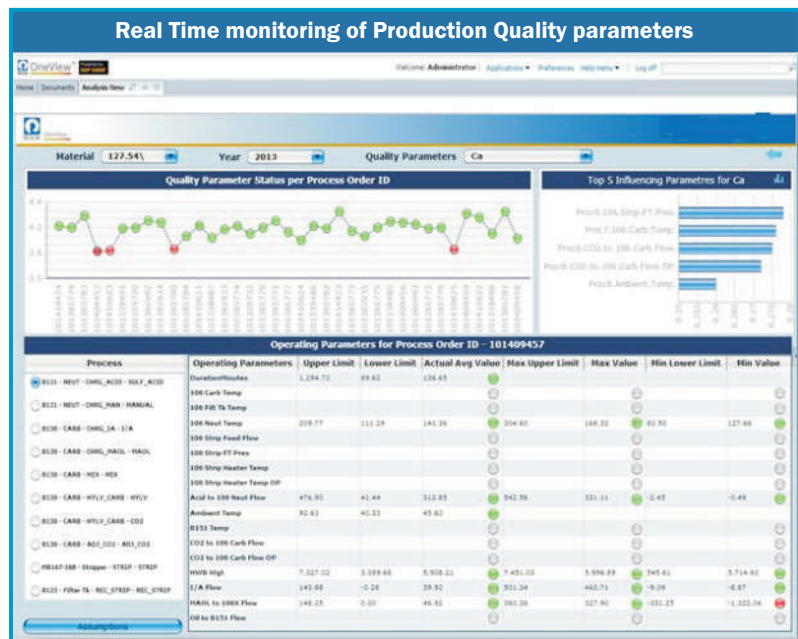
Asset integrity

Asset Integrity Management (AIM) is a crucial function in asset intensive industries, with significant impact on production, costs and profitability. Rolta OneView™ helps chemical companies gain greater contextual visibility into their asset integrity programs, providing benefits like:

- Adequate visibility into asset performance and reporting operational and maintenance costs

- Aligning asset performance to corporate objectives with clarity of ownership

- Establishing baseline capacity for maintenance and ensure assets are not over-maintained

- Maintenance efforts to be accountable, coordinated, condition based and proactive

- Leveraging systems perspective to know inter-connectedness of multiple business functions

- Monitoring wrench time for crews with scientific tool time analysis and productivity metrics

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Corrosion threats monitoring of a selected plant

For example, Rolta OneView™ provides visibility into inspection status of corrosion loops in a plant, unit wise, and also provides alerts in case of not meeting the MAT (Minimum allowable thickness) for different equipment, with drill down provisions.

These drill downs into the corrosion loops indicate finer details like Line number, Point number, Line description, Standard thickness, Corrosion allowance and Minimum Allowable Thickness for the line, which has a breach, to monitor trends with time. Such actionable insights help experts in planning various preventive / corrective maintenance activities by delving into more details.

Detailed corrosion analytics of the selected asset/loop of a plant

Supply chain efficiency

- One of the crucial strategic elements in chemical industries is the supply chain, which can affect the overall organizational performance, costs and profitability. Rolta OneView™ features Supply Chain value scenarios providing benefits like seamless supply chain visibility with holistic view of assets and touch-points across value chain

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- Ensuring supply chain metrics, inter-dependencies and bottlenecks are transparent and visible

- Understand the inter-play and trade-offs between inventory levels and costs

- Spend analytics to reflect the influence of non-availability of critical spares on top line

Enterprise view of supply chain distribution performance analytics


Rolta OneView™ provides visibility at enterprise level into the supply chain performance through KPIs like on-time shipment, transit delay, order status, order fill rate, product shortage, perfect order fulfillment, cycle time and average turnaround time. This also helps to track targeted times with actuals, and helps in identifying areas of deviations with a drill down provision.

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Transit delay performance overview of supply chain
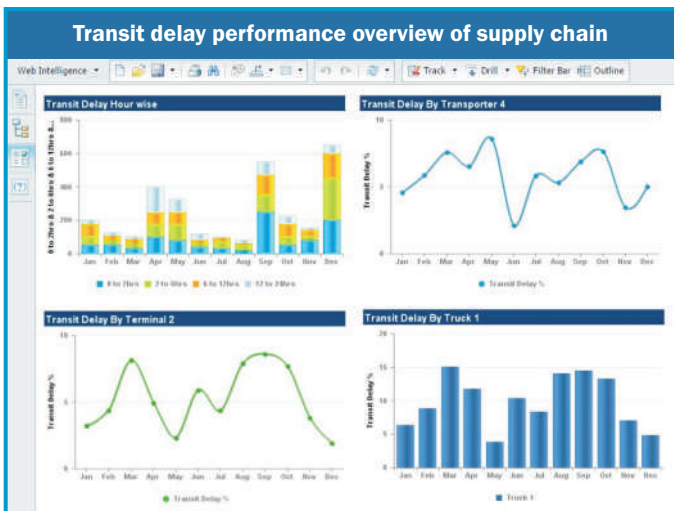
More granular analytics is facilitated by views that provide drill down into the enterprise level supply chain indicators with visibility for selected plant on parameters like transit delays.

Additional views provide drill downs into the logistics with visibility of material stock performance for the current month, which can be compared with historical performance for previous months. The reasons for stock-outs can also be analyzed, which can guide in process improvement efforts.

Stock out analysis of supply-dispatch performance of selected terminal/storage
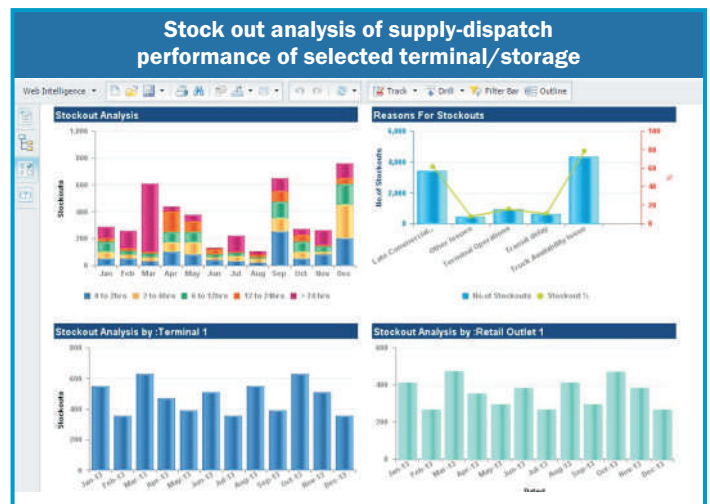
Predictive Maintenance

While descriptive and diagnostic maintenance analytics help drill into past performance, it is critical for companies to leverage past learning's, analyze real-time data, and proactively identify potential hazards and execute preventive maintenance activities to avoid costly failures. Some of the key benefits of Predictive Maintenance capabilities supported by Rolta OneView™ include:

• Monitoring real time performance of hundreds of critical assets with thousands of variables

• Reduce unscheduled failures and interruptions that affect topline, people and process safety

• Proactively identify incipient events before they grow in proportion and impact performance

• Leverage enterprise data landscape for developing insights and generating alarms as needed

• Balancing corrective and preventive maintenance tasks to reduce backlogs

Real time monitoring with smart alerts for a captive power plant with various systems
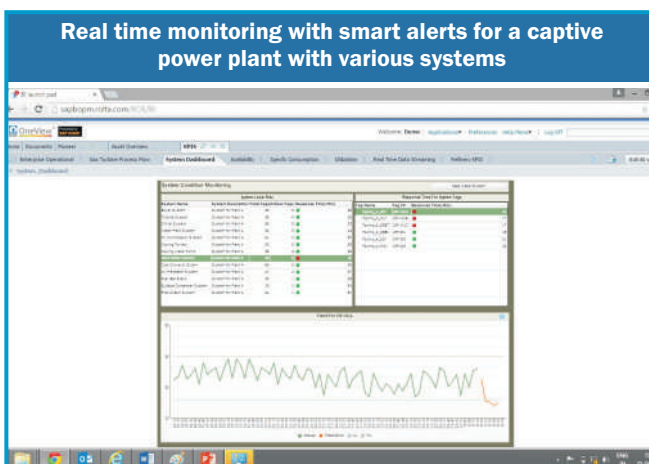
Rolta OneView™ provides predictive insights at various levels of granularity. For example, this view shows insights into a captive power plant for a large chemical plant, where internal power generation takes place to meet the plant requirements. The solution provides risk status of the systems on a real time basis using predictive models for multiple systems like Boiler water system, DM water system, Feed water system, Turbine system, Cooling towers, Fuel gas etc. The chart contains actuals versus predicted performance for the selected system. The solution allows users to drill down further into selected systems.

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Boiler feed water system predictive analytics

For example, this view provides drill down into one of the systems with visibility into the system parameters for the selected system, in this case - the feed water system.

Alarms are generated in real time as an early warning, by leveraging statistical diagnostic and predictive models. This view captures the schematic of the selected feed water system, indicating the parameters like bearing vibration, bearing temperature, return oil temperature, discharge pressure and temperature, flow rates etc. Risk status shown on a real time basis in the event of the parameters breaching thresholds.

Similarly, Rolta OneView™ provides drill down from the predictive maintenance dashboard, into other specific systems like the steam turbine system, shown here. Alarms are indicated in real time as an early warning, by leveraging statistical diagnostic and predictive models. This view captures the schematic of the selected turbine system, indicating relevant parameters like bearing vibration, bearing temperature. Appropriate personnel for this system, are notified on a real time basis in the event of the parameters breaching thresholds.

Steam Turbine predictive analytics

Managing safety and risk

Appropriate and timely risk management is critical to ensure continued business sustainability. Risk value scenarios supported by Rolta OneView™ support:

• Unified view of risk management encompassing multiple processes and systems

• Rigor in understanding integrity barriers and discipline in adhering to pre-set targets

• Identification, monitoring, and managing bad actors on a continuous basis

Enterprise wide view of process safety management

The system provides enterprise level view into the process safety management KPIs of a selected plant, including process safety management events, Tiers 1 and 2 PSE rates, Process safety management severity rate, Safety critical equipment's bypassed, Safety critical equipment's failed, Corrective maintenance overdue, Preventive maintenance overdue, Statutory compliance status etc. Alerts are generated for safety area that is violating the targets. Drill down is available for any of the areas and KPIs.
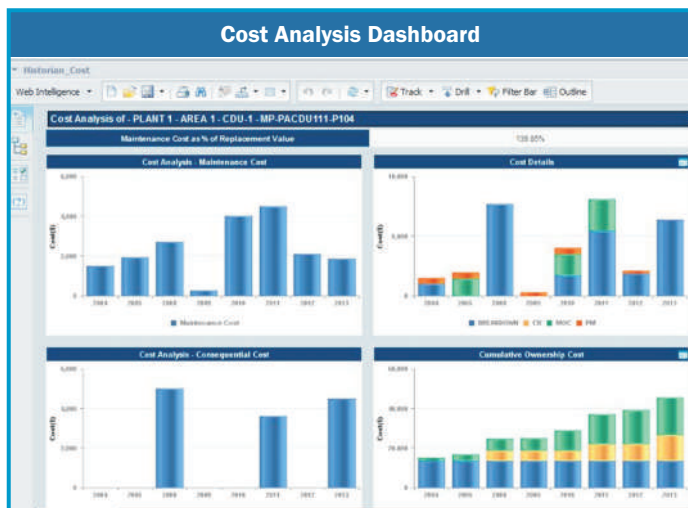
Note : The above dashboard views contain mock data and are shown for illustrative purposes only.

Rolta OneView™ provides insights by drilling through the visually rich risk dashboard, with risk status of the safety barriers of technical integrity. All elements including structural integrity, process containment, ignition control, detection systems, protection systems, shutdowns, emergencies, life savings and overall are covered. A selection of the individual barrier provides the PM/CM compliance overdue status and the risk index for the past several months.

Technical integrity risk monitoring with various safety barriers for a selected plant

Cost containment

Reducing costs are key to improving business profitability. The key benefits of this value scenario include

- Critical Repair vs. Replace decisions for assets based on lifecycle costs

- Monitoring Planned vs. Actual expenditure on near real time basis

- Seamless alignment between finance and operations metrics for work prioritization and optimization

- Transparency and awareness on specific production costs

Cost Analysis Dashboard

Rolta OneView™ provides enterprise level view with visibility into various costs incurred under various heads and also generates alarms for cost items exceeding plan values. KPIs included are per hour costs incurred in heads like maintenance services, contractor support, materials, recruitment, training, procurement, finance, HR operations. The Solution also helps analyze the direct cost summary, loaded cost summary, and overall summary of actual costs versus planned costs.

Authorized users can further drill into detailed Maintenance Cost expenditure from the enterprise level dashboard. The view provides activity rates across the selected plant for maintenance activities and generates alerts for any activity that is going over the budget numbers. The top 10 cost drivers are also indicated based on real time computation of activity costs incurred. This view can be further drilled down going right up to lowest level of granularity.

Maintenance Cost Analysis

Note : The above dashboard views contain mock data and are shown for illustrative purposes only.

Asset/Plant level cost analytics integrated with 3D Engineering drawings enables selection of assets to provide cumulative ownership cost along with breakdown, thereby providing insights into the cost drivers for the selected plant.

Managing critical projects

In large asset intensive and complex environments fraught with several risks, managing projects is always challenging. Rolta OneView™ supports such value scenarios providing:

- Visibility into project progress on near real time basis and controlling overruns - CPI and SPI

- Enabling macro levels re-planning aligned to field challenges and developing alternate schedules

Asset/Plant level cost analytics integrated with 3D engineering drawings

Corporate view of project fund allocation and performance
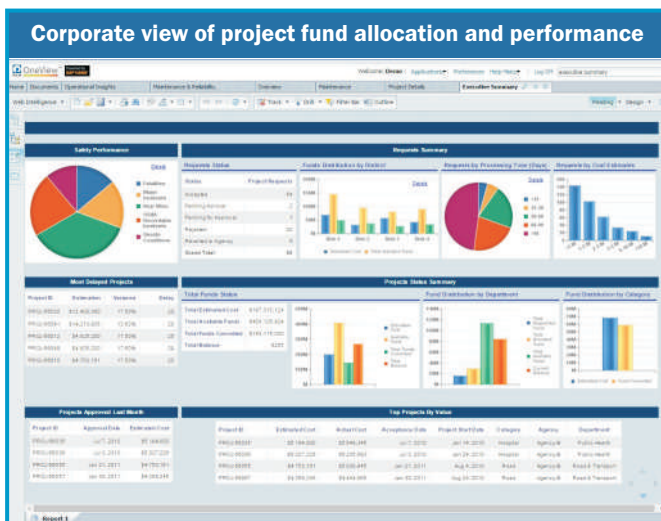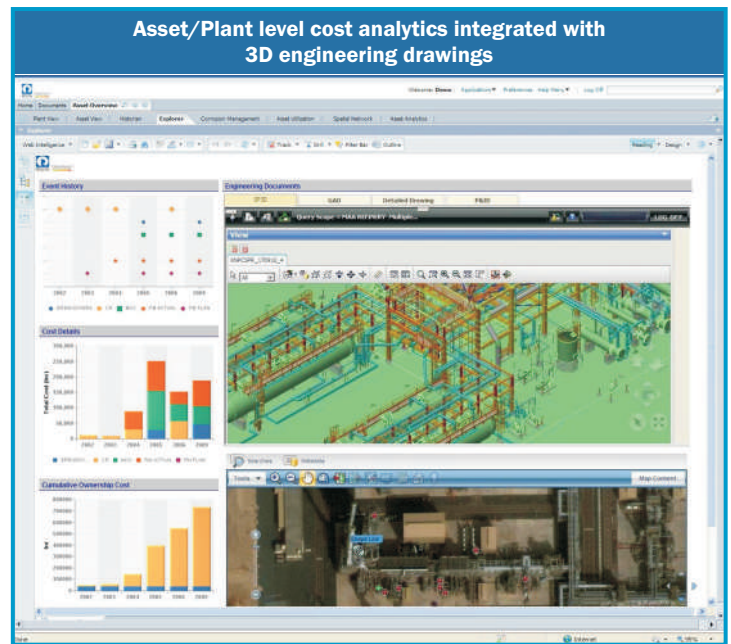
Delving deeper provides enterprise level view into the visibility of the project fund allocation and status of funds availability, number of approved projects and list of high value projects. It also has project request status, projects processing time, most delayed projects, project distribution by department, function, company, etc. This view can be further drilled down for a more detailed analysis on projects.

Energy efficiency

In chemical industries, it is critical to optimize energy efficiency. Rolta OneView™ features energy efficiency scenarios that provide key benefits like:

- Understanding energy generation and consumption actors and their efficiencies

- Leveraging margin pricing, wherever appropriate for augmenting power generation

Probing further provides enterprise level visibility into the energy consumption patterns for different types like steam energy, fuel energy, electrical energy. Analysis of plant energy consumption as a function of feed throughput is provided, as also the economic loss due to ineffective operation is captured on a daily basis. This view can be further drilled down on areas needing attention, as shown in the next view.
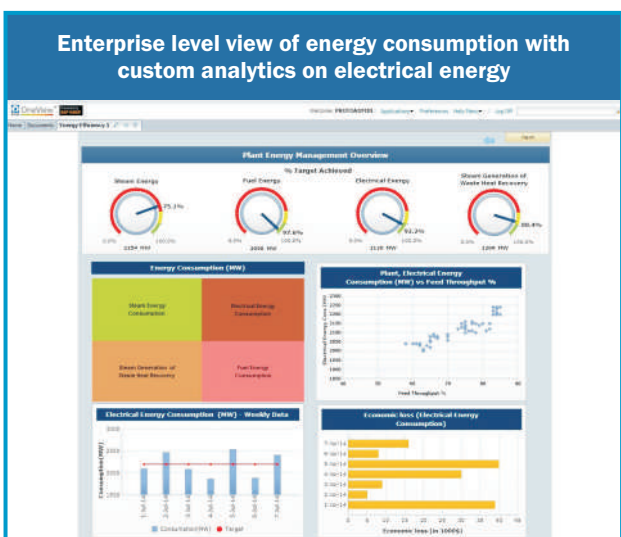
- Monitoring critical factors that contribute to energy inefficiencies and excess consumptions

Enterprise level view of energy consumption with custom analytics on electrical energy

Note : The above dashboard views contain mock data and are shown for illustrative purposes only.

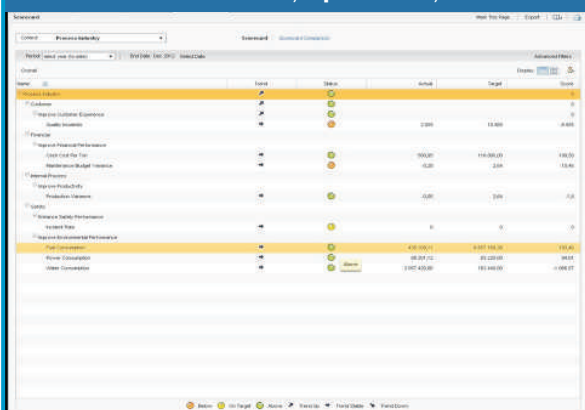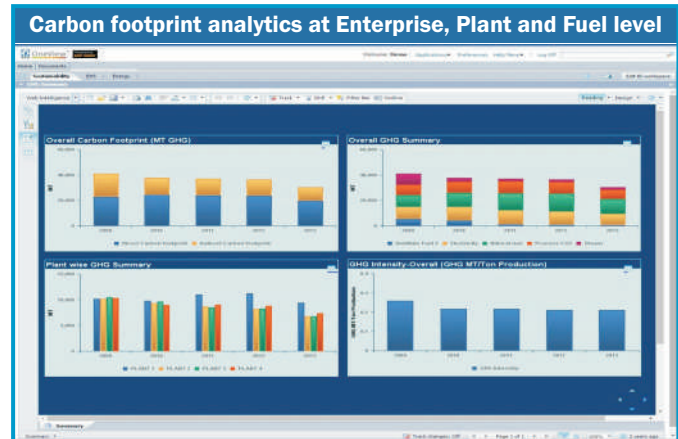**Historic analysis of energy consumption at asset level with alerts**

Users can investigate further and carry out detailed analysis of energy consumption at asset level with alerts through visibility into historical and real time data for select equipment like heater. The monitored KPIs include YTD Runtime, last day fuel usage, efficiency, last day loss, co2 emission, hidden loss, heater datasheet, fuel consumption, stack temperature trend, CO2 and NOX emission trend, crude throughput vs. fuel consumption trends. The KPIs indicating red can be further analyzed to drill into the root cause.

Regulatory Compliance

In increasingly regulatory and environmental pressures, companies can benefit from:

• Ability to compute the carbon footprint due to various activities within the company

• Ability to compute energy efficiency and be able to drill down to fuels and types of energies consumed, in order to optimize their usage

Users can analyze regulatory information through dashboards with drill down facility, various KPIs pertaining computed on an as need basis and highlighted. Indicative KPIs include: overall carbon footprint in MT, overall GHG summary, plant wise GHG summary, GHG intensity overall through years. This view can be drilled down to plant and year wise summaries. The final drill down provides a view into the consumption of electricity, natural gas, energy efficiency, and purchased steam providing comprehensive cross functional visibility.

Carbon footprint analytics at Enterprise, Plant and Fuel level

Enterprise score card for business performance

From the overall business perspective, it is important to ensure synergy between various functional areas and drive the organization excellence strategy. Rolta OneView™ can help:

• Provide an enterprise level view for various corporate level KPI's covering areas like HR, Finance, Sales and Marketing

• Set targets for various supporting functions of the enterprise and track the performance against the targets

The enterprise score card provides visibility into various functions like HR, Purchase, Sales that are measured and monitored along various perspectives. Alerts are generated where the status of a process or KPI breaches the target values. These cascaded KPIs help drive various organizational initiatives like Operational Excellence, and ensure percolation of organizational strategy at various levels, and drive pro-active culture to help objectively monitor and control performance.

Enterprise score card on KPI's across various functions like Finance, Operations, Sales etc.

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Rolta OneView™ 6.0 - Unique Value Proposition
Key Business Value Differentiators

Pre-built, rapidly deployable industry rich **Big Data Analytics** solution, rapidly deployable in 12- 18 weeks, brings faster ROI and lower TCO

Deeper and broader coverage across all the key business functions for each industry vertical - Oil & Gas Upstream/Midstream, Refineries, Petrochemicals, Chemicals & Utilities

Role based dashboards providing actionable insights - right information at the right time to the right users as a single source of truth

Seamless integration and tracking of **enterprise balanced scorecard** and strategy maps to **operational and role based KPIs**

Modular solution with unified performance integrity model designed for business priorities driven phase wise roll out – Operations, Maintenance & Reliability, Assets, Sustainability, Supply Chain, Projects, Business and HSE

Pre-built **business process driven knowledge model** providing cross functional visibility across **OT / IT / Spatial / Engineering systems**

3000+ Pre-built KPIs across verticals **[400+ for each industry]** bringing real time and diagnostic analytics which are rapidly deployable & customizable

Rich diagnostic analytics with intuitive and granular drill downs

200+ Pre-built business value scenarios which are rapidly deployable & customizable

Pre-built predictive analytics scenarios across areas including Assets, Operations, Maintenance, Supply Chain and Projects

Pre-built work processes for event based alerts and capturing remediation

Self service BI - business user friendly to customize and extend existing and new KPIs

Industry taxonomy based semantic model with 8000+ objects & 1300 classes to provide **self-service BI**

Built-in **contextual collaboration** enabling to take the right decisions quickly

Adoption of **industry standards** ISA 95, PPDM, CIM, OPC, MIMOSA

Rolta OneView™ 6.0 - Unique Value Proposition
Key Technology Solution Differentiators

Cloud ready enterprise intelligence solution with **multi-site / multi-tenant** support

Pre-built industry rich knowledge model providing optimized persistence of data from varied data sources for high performance analytics and cohesive view

Real time & Predictive Analytics with knowledge driven **recommendations**

Built-in **comprehensive OT-IT Fusion** [patented] platform with unique capabilities of OT security, asset junction, real-time Big Data integration, centralized job scheduling, source system diagnostics and more

Engineered for **in-memory computing**. Exploits the power of **SAP HANA**

Logical data warehouse support for **Big Data**

Out of the box support for Hadoop & "R"

200+ Pre-built real time and ETL based connectors across business, operations, geospatial, engineering & other IoT systems for optimal performance & payload with over 400 data flows

Universal Connector Framework to develop and plug in new connectors quickly

Built-in **rich spatial analytics**

User-friendly configuration and monitoring of operation parameters for **easy mapping and monitoring of assets and systems**

Easy configuration of **integrity limits** and automated alerts

Built–in collaboration & recommendations

Work process automation application framework to facilitate manual data capture and improve data quality

Multi-channel presentation support with mobile friendly user interface including globalization and localization support

Rolta OneView™ 6.0 Solution - Deep Dive

Rolta OneView™ 6.0 brings a pre-built, rapidly deployable industry-rich Big Data Analytics solution that provides "Industry Analytics in a Box". While its core platform has significant common components across verticals, it has been pre-built for specific-industry verticals starting from its integration layer. It includes vertical specific source system connectivity, industry-specific knowledge model with the respective industry standards and business processes, industry semantical layer, industry-specific work processes, industry-specific analytics and role-based actionable insights. The solution has with 400+ pre-built KPIs and 200+ scenarios. It has a deep and broad coverage across all the key business functions for each industry vertical - Oil & Gas Upstream/Midstream, Refineries, Petrochemicals, Chemicals and Utilities.

Rolta OneView™ - Analytics in A Box

Rolta OneView™ 6.0 - Cloud Ready Analytics Solution

Rolta OneView™ has been architected and designed for multi-site, multi-tenancy operations and can be deployed as a single server instance either in an organization's private, hybrid or public cloud environment to support multiple, geographically dispersed sites across the globe including built-in globalization and localization support. Rolta OneView™ on Cloud helps the LOBs see the benefits without any Capex investments. It simplifies achievement of business outcomes quickly while allowing organisations to focus on their core business priorities with lowest TCO.

Rolta OneView™ is cloud enabled at all its integrate-analyze-deliver layers with its Multi-site Enterprise Server architecture. Its multi-site OT-IT Fusion manager ensures real-time contextual fusion of data across sites for ETL integration while also adhering to data security and governance. The Rolta OneView™ multi-site performance integrity model stores, processes and derives cross functional insights both within a geographical site as well as across the geographical sites. Additionally, the multi-site semantic and analytics model provides the necessary meta-data layer and analytics for site specific cross-functional and cross-site analytics for various role-based insights with security and auditing. Its cloud security layer provides data security over analytics privileges, tenant level & plant level restrictions, secure channel for data extraction from on premise systems. It supports cloud metering to monitor, measure and report the granular level of usage by tenants. The cloud strategy Rolta OneView™ is well aligned to SAP's cloud strategy and supported to provide a comprehensive solution.

Rolta OneView™ - Cloud Ready

Rolta OneView™ Solution Architecture At A Glance
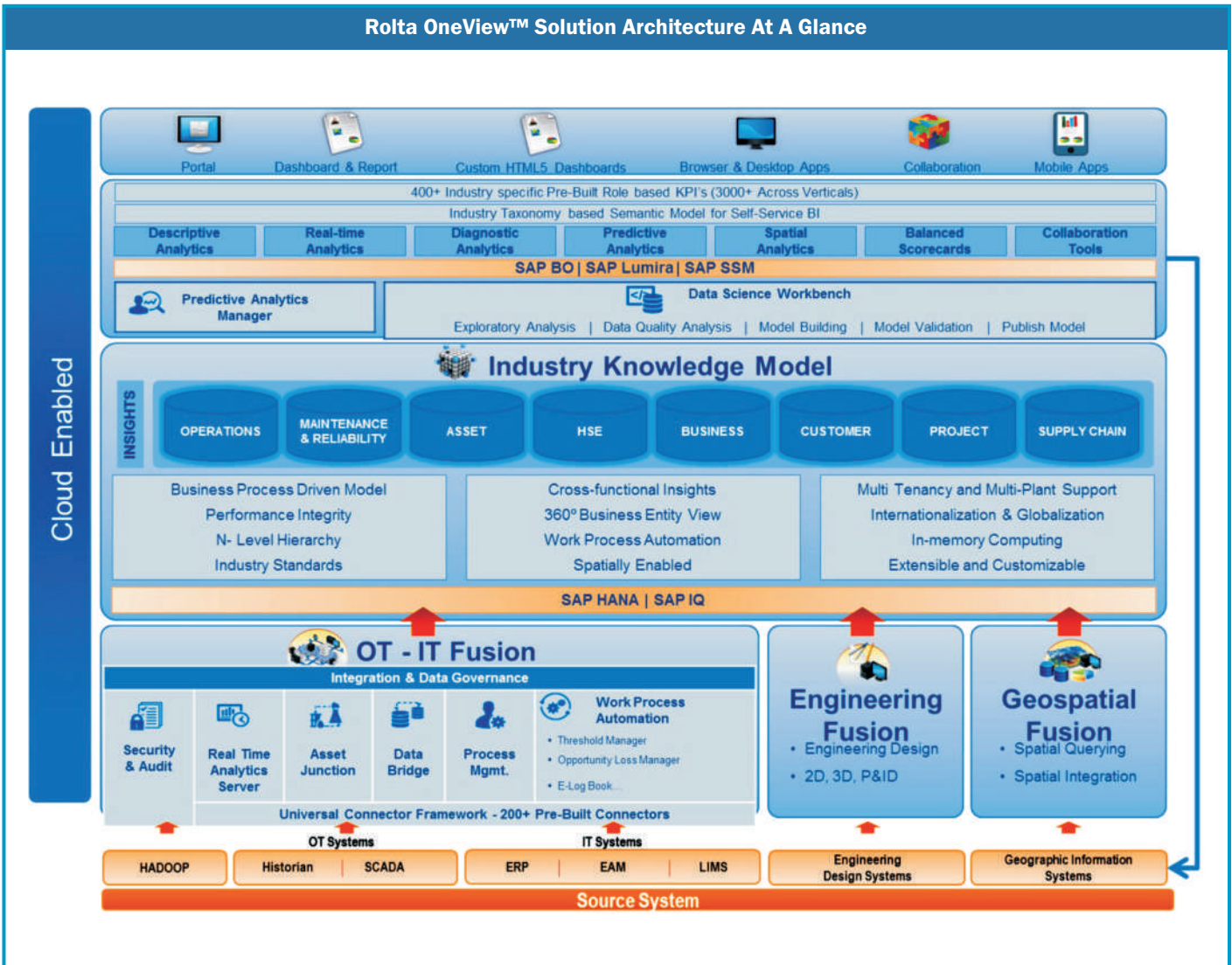
Rolta OneView™ 6.0 - Big Data Ready

Rolta OneView™ is also a unique pre-built, rapidly deployable industry rich Big Data Analytics solution. By combining the IT - transactional, unstructured and OT data landscape, Rolta OneView™ brings 100X value of Big Data in an enterprise.

Big Data Analytics addresses the need of collating all the relevant data within the data landscape and expands the power of the information and actionable insights of the organization. Rolta OneView™ natively supports the Logical Data Warehouse model, which is critical to bring the variety of datain real-time to correlate at the semantic layer and not necessarily enforce on the physical data model. It provides optimized persistence and federated data integration to achieve a cohesive model of all the eight types of Big Data including transactional data, operational data, dark data, spatial data, enterprise social data, structured & unstructured benchmark data, external social data and public data on the cloud. Its comprehensive OT-IT platform

provides optimized design for high volume, high velocity, time-series and streaming data. It permits evaluation of real-time data against user defined business rules, augmenting the data streams.

Rolta OneView™ 6.0 is engineered to exploit the high performance in-memory computing capabilities of SAP HANA. It is built using HANA columnar structure for high performance in-memory analytics with its pre-built optimized information views which include analytical, calculation and attribute views. It also effectively leverages HANA's spatial capability and predictive analytics libraries.

Predictive Analytics adds a new dimension to Big Data, allowing enterprises to leverage its benefits across the different levels. Rolta OneView™ simplifies these key capabilities and provides a simplified model leveraging the best of a variety of predictive engines including R, SAP HANA

Rolta OneView™ - Exploiting Big Data Power 100x

Rolta OneView™ - Unified Knowledge Model Leveraging In-Memory Computing
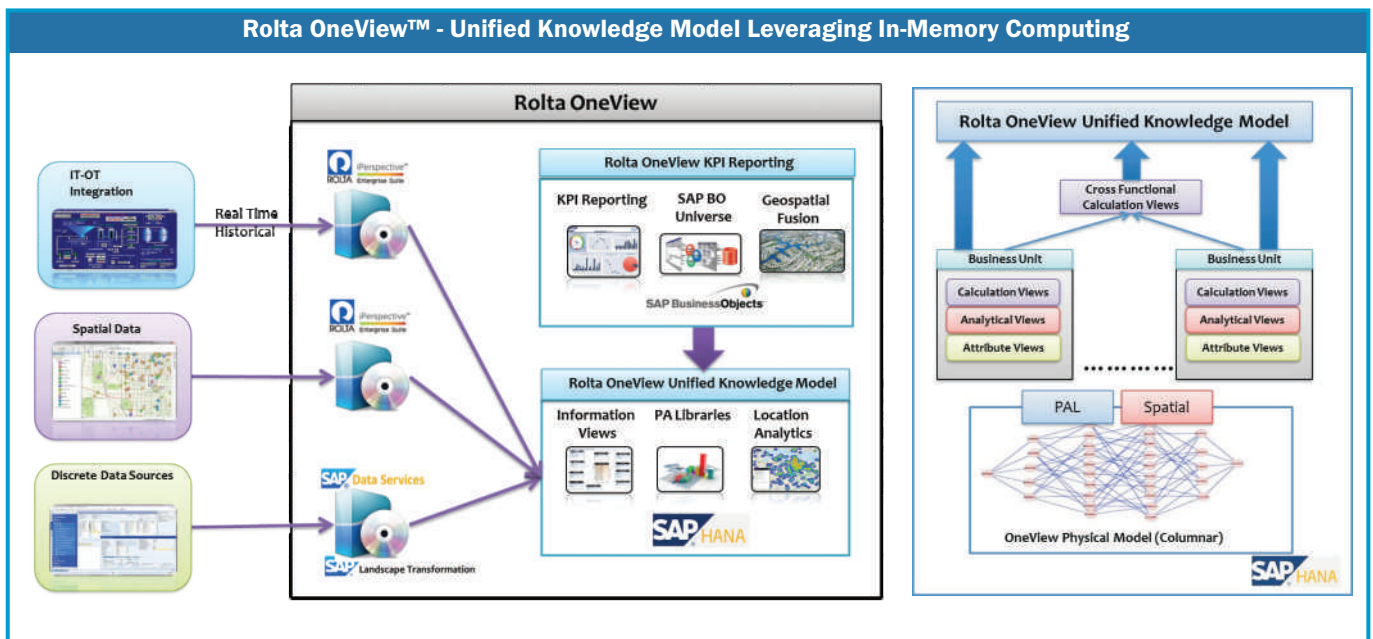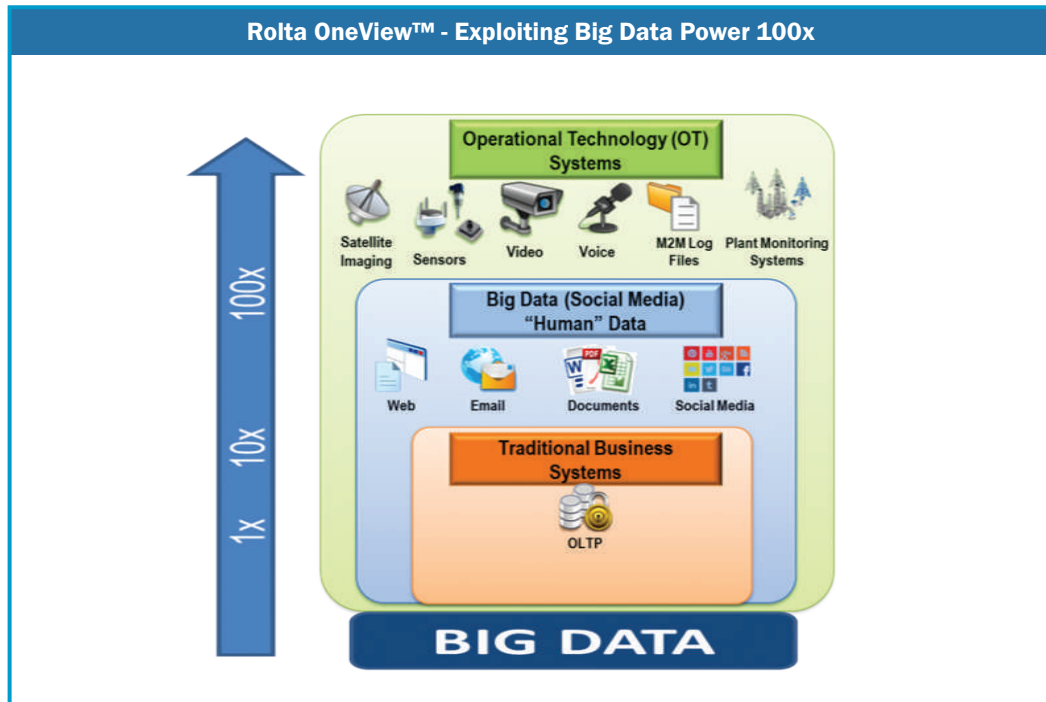
PAL, SAP infinite Insights, etc. With its in-built knowledge model it derives the most relevant predictive analytics use cases in a specific industry vertical. Additionally, its flexible architecture allows ease of customization and modifications of existing predictive analytics models as well as addition of new models tailored to suit the organizational requirements.

Globalization and Localization Support

Rolta OneView™ 6.0 provides complete globalization and localization support which means that users can view the KPIs/Reports/Dashboards in their language of choice. It supports all the Unicode languages and provides a flexible way to leverage and customize the dashboards with pluggable, external translation files. A single centralized Rolta OneView™ instance can host multi-tenants with different languages and localization such as unit of measures, time zones, currency, etc. A few of its unique features include display base and preferred currency in-context. Rolta OneView™ automates unit of measure conversions and local time conversions which can be customized by business users.

Rolta OneView™ - Globalization & Localization Support
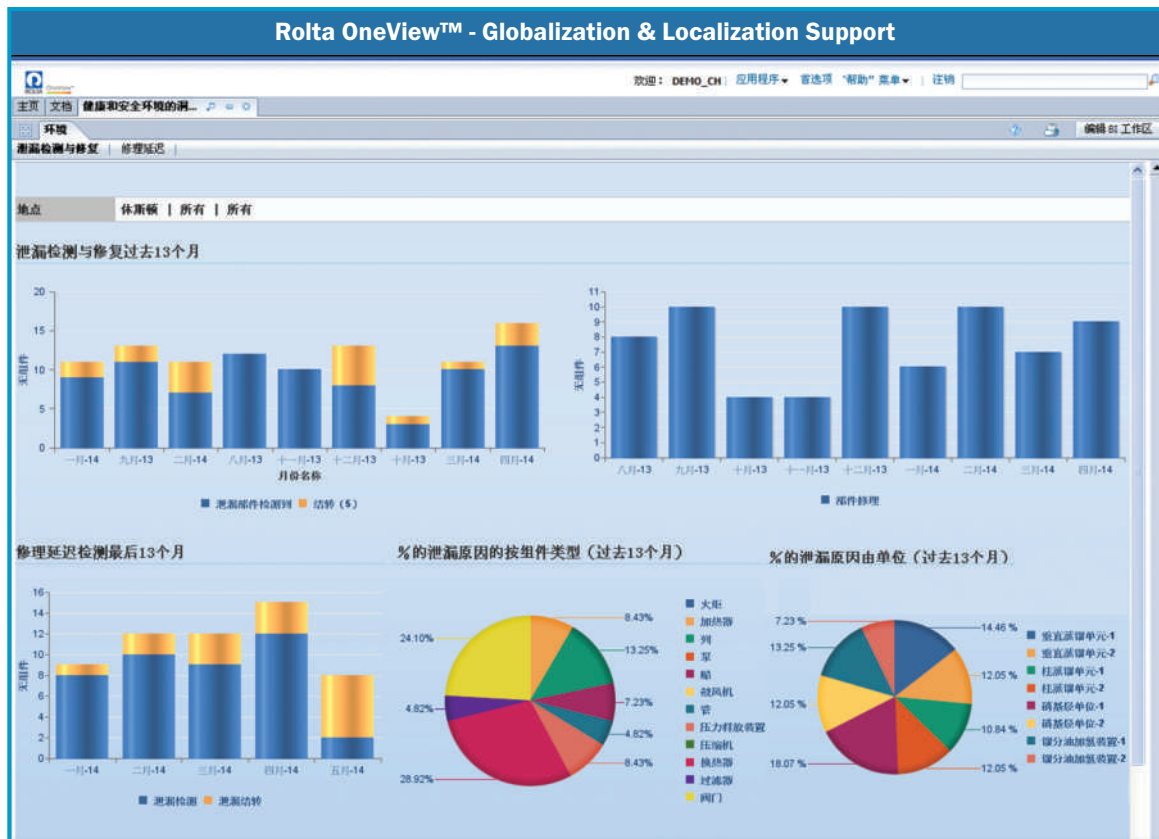
Rolta OneView™ Integration Layer

Comprehensive IT-OT Fusion™ Platform

The Rolta OneView™ IT-OT Platform enables the retrieval of data from heterogeneous business and operational systems. It provides the ability to bring in historical data in bulk, incremental bulk data as well as near real-time data points as per the required frequency. The meta-data driven architecture enables easy configuration to meet customized requirements resulting in quick implementation.

IT-OT Security ensures 2-way SSL communication between IT and OT environments, supporting the latest UA security specifications. It has a high performance Audit Engine to track access to OT data. Uptime of the OT network is highly critical for production. Hence the communication between the IT and OT network is secured. It provides confidentiality and integrity of the messages exchanged between the OT and IT networks.

Rolta OneView™ - IT/OT Integration
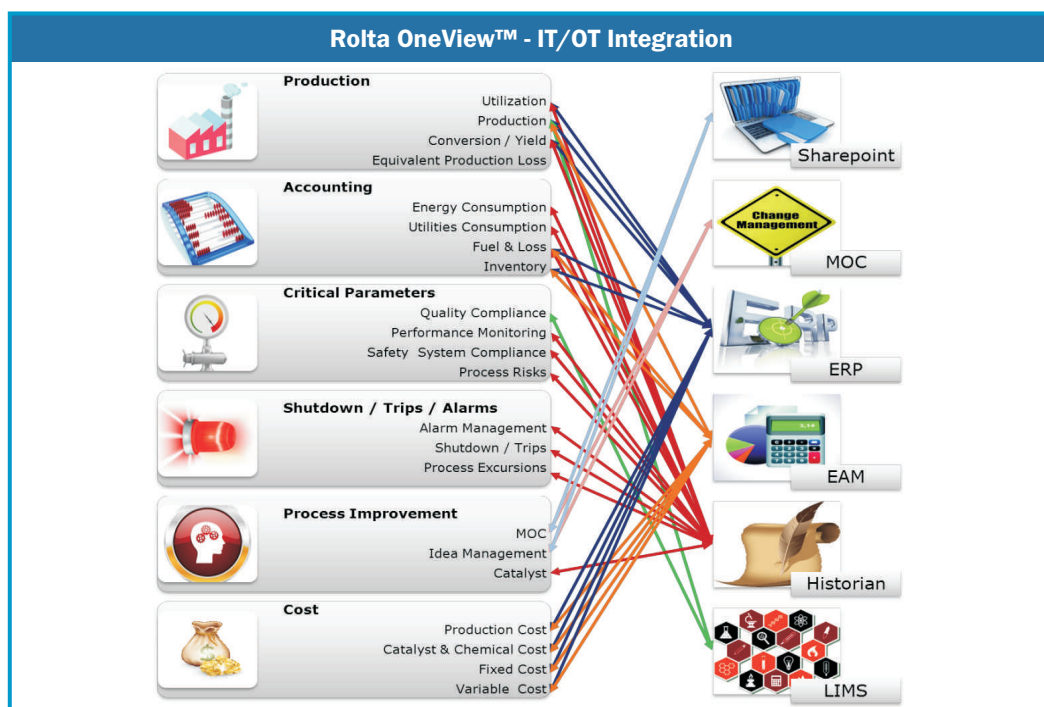
Pre-built Connector for Real-time & ETL

Rolta IT-OT Fusion™ Platform has 200+ pre-built real time and ETL based connectors across business, operations, geospatial, engineering & other IoT systems for optimal performance & payload with over 400 data flows. The pre-built connectors include IT systems such as ERP, CRM, EAM, SCM and Operational Technology (OT) systems such as historians (OSI-PI, GE Proficy, Honeywell PHD, Aspen IP21 etc.), SCADA, LIMS, etc. Data from these source systems can be extracted and collated both in batch mode as well as real-time to enable both historic as well as real time analytics of the current operating parameters. The connectors provide secured connectivity to the systems and adopt change data capture mechanism to ensure minimum network payload. Connectors for operational systems are compliant with OPC-UA standards and also provide connectivity through native APIs/services. It provides lineage of the data received from the system including the status of the source system and data retrieval jobs.

Rolta OneView™ - 200+ Out-Of-The-Box Connectors
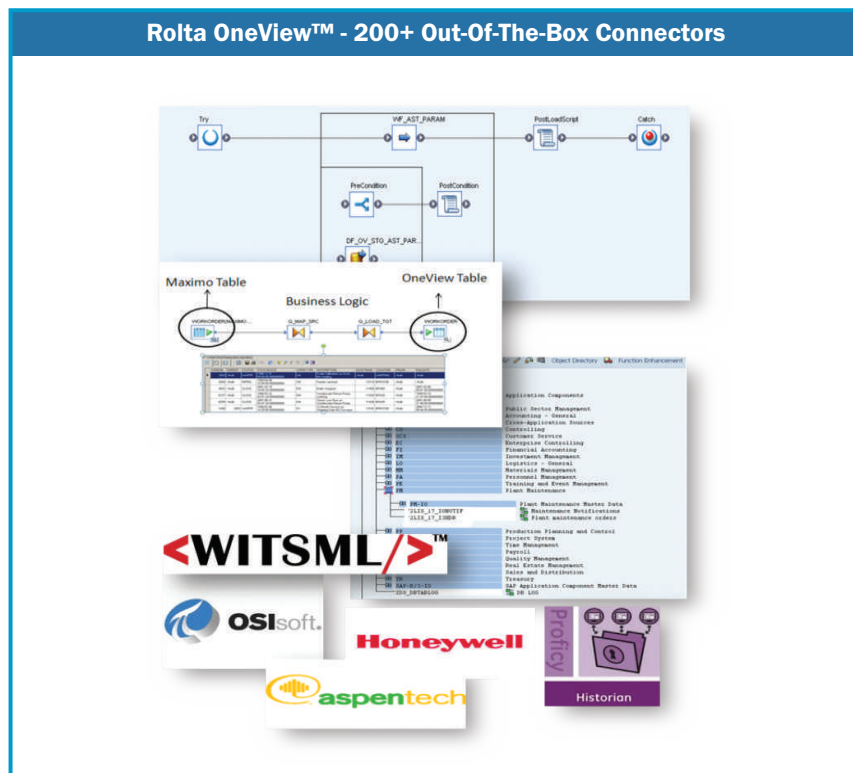
The Universal Connector Framework allows for easy configuration / customization of extraction and transformation of the data retrieved. It enables rapid development and plugging in of new connectors quickly.

ETL Framework flow for audit checks
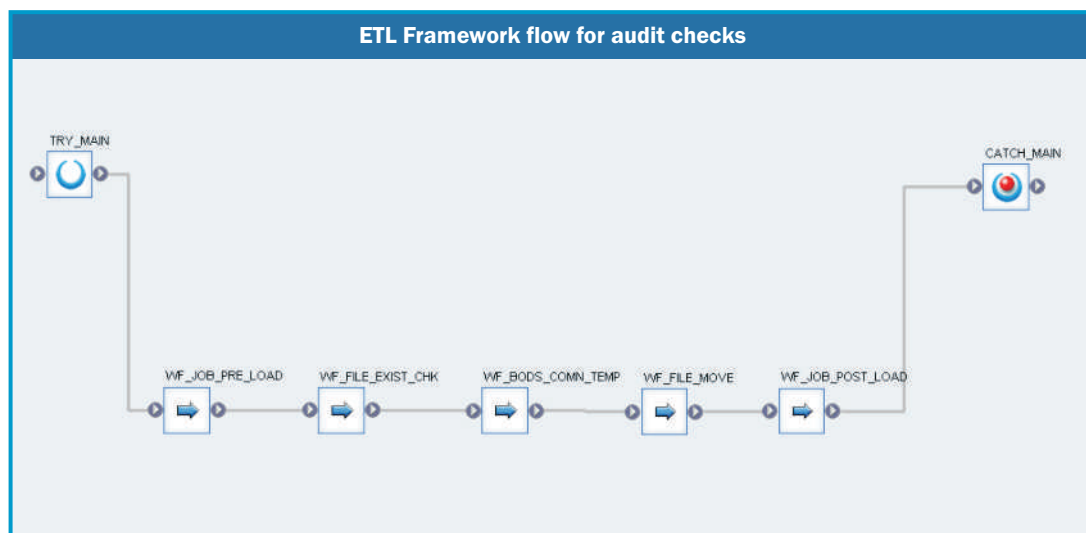
Asset Registry

The Asset registry provides a user-friendly console to configure parameters of individual equipment, systems and processes that need to be monitored. It allows for monitoring performance trends and critical parameters in near real time. The registry aligns with the asset hierarchy maintained within the EAM system to facilitate the configuration of monitoring equipment and processes.

It helps to map defined tags to their asset. This facilitates association of an asset with OT systems tags when re-commissioning an asset or commissioning a new asset and thereby provides rapid access to operational data for an asset / process. It provides an easy way to associate the process schematics with corresponding tags and the ability to gather data from multiple OT systems for an asset or a process. It supports N-level Plant Hierarchy Model with Multi-Tenancy. It provides easy tag browsing and editing. This facilitates monitoring and quickly identifying deviations.
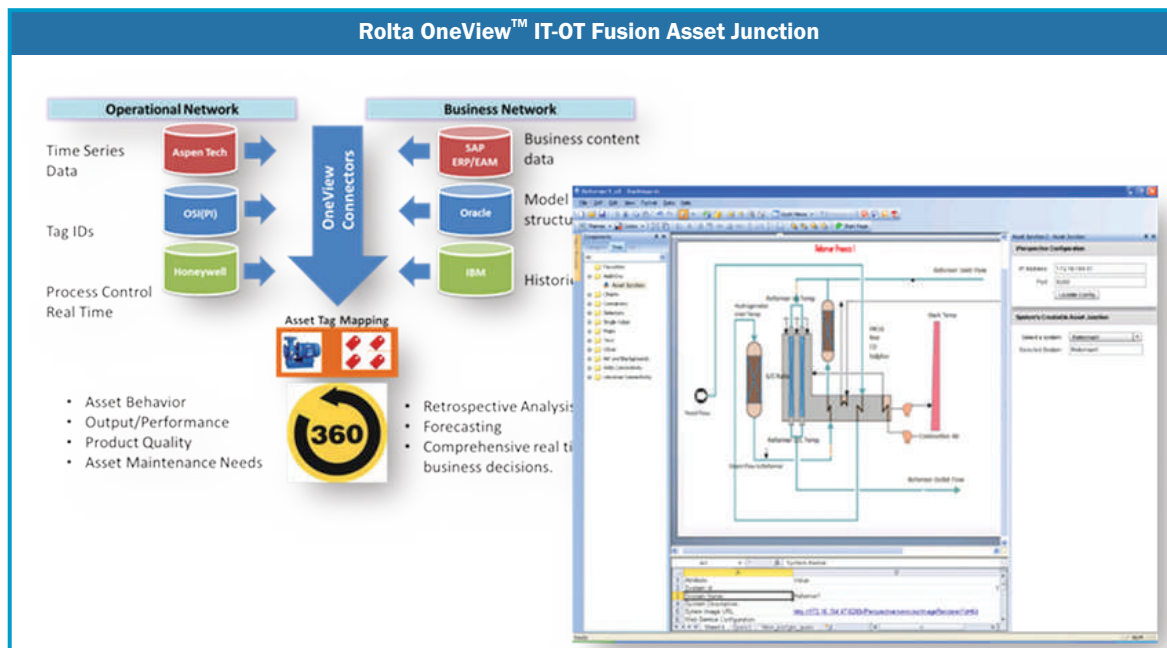
Geospatial Fusion

Any analytics system would be incomplete without the provision for locational intelligence. Rolta OneView™ integrates Rolta Geospatial Fusion™ to provide the much needed locational intelligence out-of-the-box. Rolta Geospatial Fusion™ helps to populate the integrated geo-enriched knowledge model and as a result facilitates comprehensive business view of geographically distributed assets and supply chain. Fusion of spatial data with heterogeneous data sources and business systems enables Rolta OneView™ to provide complex spatial queries and drill downs for contextual analytics with bidirectional interaction capabilities. The ability to visualize the business and GIS data in a single dashboard with thematic mapping, heat maps and cluster maps helps enterprises take quick and effective decisions. The bi-directional communication between the dashboard charts and the maps facilitates analyzing asset performance using maps and data. It provides a unified, seamless geospatial view of enterprise KPIs and data.

Rolta OneView™ IT-OT Fusion - Critical Imperative
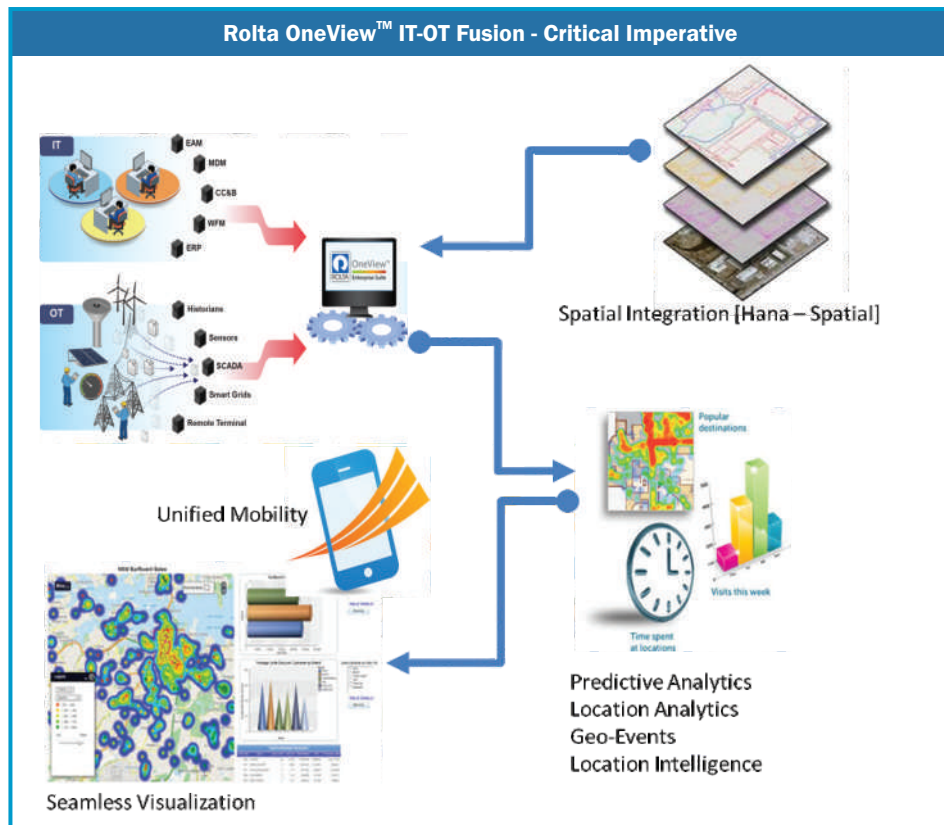
Engineering Fusion

Asset maintenance and availability constitute a good percentage of the operational cost. This makes risk identification and mitigation one of the most focused objectives of an enterprise. While most asset analytics are based on historical trends, engineering fusion allows monitoring of asset performance alongside its design specifications and manufacturer's recommended operating limits.

A vast amount of data is generated about assets from the initial design through its commissioning, operations till its final retirement. Rolta Engineering Fusion™ is an integral part of Rolta OneView™ 6.0 Enterprise Suite and provides an early insight on asset risks by viewing equipment actual operating range against the recommended design parameters. It provides automated notification on operating parameters crossing thresholds. As a result it facilitates implementation of design integrity practices, reducing asset maintenance and failures. Rolta OneView™ with its integrated 2D and 3D model viewer ensures easy navigation to asset using bidirectional interaction capabilities between asset dashboard and the plant model.

Rolta OneView™ - Integration with Engineering Design System
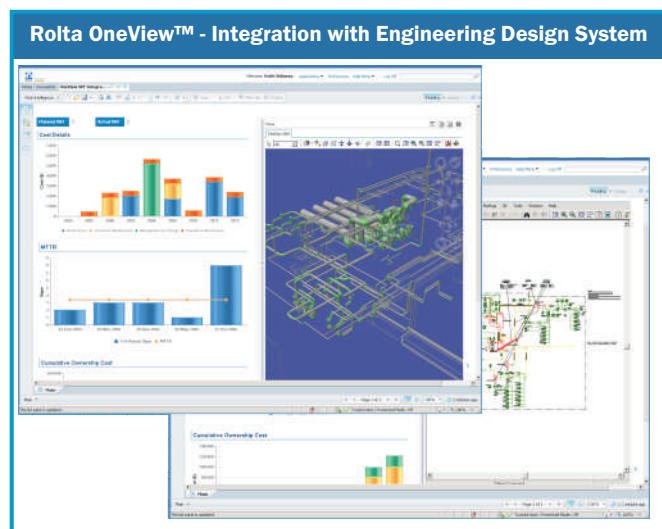
Pre-Built Work Processes

Pre-built Industry-specific workflows and Workflow Automation Framework

Rolta OneView™ provides some key pre-built industry workflows that fill the gap generally observed in the industry. These workflows also help in alleviating the need for manual data creation that companies end up with when trying to fill those business process gaps and thus enhance the data quality. Rolta OneView™ also provides an extensible workflow framework to build customized workflows for specific needs. The framework provides functionalities to manage thresholds and targets along with its history. Alerts can be defined on these thresholds and notifications sent via multiple channels – emails, dashboards, mobile devices. Additionally, one can configure system driven actions to close the loop by invoking web services and 3rd party applications, etc.

Rolta OneView™ does not merely stop at providing the visual business insights to individuals but also facilitates collaborative BI through workflows. The pre-built work processes allow capture of data, enhancement of data quality and facilitate timely actions by allowing users to interact with each other for corrective actions. The workflow framework enables the creation of records in a knowledge repository for future reference with powerful search capabilities to overcoming loss of expertise due to an ageing workforce. A few examples of pre-built workflows cover areas such as Opportunity Loss Management, Greenhouse Gas Emission Monitoring, Tracking Worst Actors, Permit Management, Temporary Leak Repair Management, Risk Register, etc

Rolta OneView ™ Knowledge Model Layer

Business Process Driven Knowledge Model

Rolta OneView™ includes pre-built business process driven knowledge models which are industry-specific, based on years of domain expertise and best practices. It is a highly optimized persistence of data from the heterogeneous business and operational systems to enable high performance analytics and a cohesive view of information across business functions. It provides 360° business view of

all the business critical areas providing cross functional visibility across OT / IT / Spatial / Engineering systems. It provides a deeper and broader coverage across all the key business functions for each industry vertical Oil & Gas Upstream/Midstream, Refineries Petrochemicals, Chemicals, and Utilities.

Rolta OneView™ pre-built Knowledge Model and KPIs are tailored to each specific vertical and have been derived from

Rolta's deep domain insights and best practices. This knowledge model extends the Enterprise Data Warehouse (EDW) with other Logical Data Warehouses (LDW) and is capable of handling humongous amounts of heterogeneous data at extremely high frequencies. One of the key distinguishing features is that it is built on a platform agnostic architecture for supporting Big Data including streaming data from OT systems, sensors etc. and is supported on leading technology providers like SAP, Oracle and IBM. The knowledge model is also designed and certified to leverage in memory data analytics capabilities while also integrating with other traditional open source Big Data

technologies such as Hadoop, NoSQL, etc. This comprehensive knowledge model not only provides deep insights with multi-level drill downs in all the different business functions but also acts as a 'Single Source of Truth'. This also ensures standardization across the different entities within the enterprise.

The knowledge model maintains the cross-functional information collated from varied data sources thereby enabling performance management and analytics, including trends, 'slice and dice' analysis, drill-down, forecasting, variance analysis, root cause identification, scenario planning and what-if modeling.
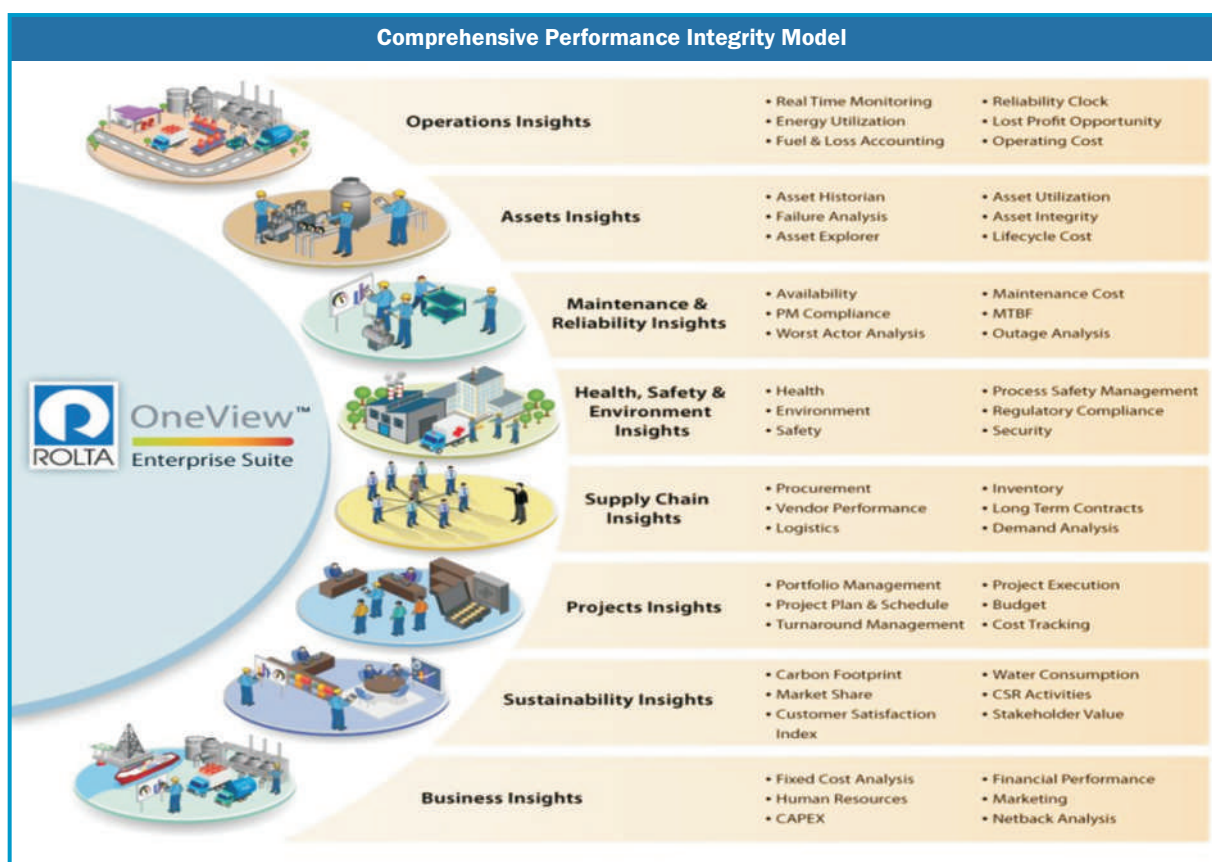
The process driven knowledge model design with a focus on performance integrity allows for broader and deeper coverage of each business function as well as extensive cross functional analytics. Further, the adoption of industry specific standards such as ISA-95, MIMOSA, PPDM, CIM, etc. ensures that the data elements persisted are in alignment with industry requirements.

The Knowledge model design scales to manage multi-site implementations across geographies. It is able to manage

data from the sources specific to each site maintaining the lineage of each and provides support for globalization and localization. It allows for viewing aggregated and summary information as well as drilling down to the lowest granularity. It includes n-level hierarchies, parameterized data structures, flex attributes and custom schemas to allow for easy customization.

Standars Based Data Model
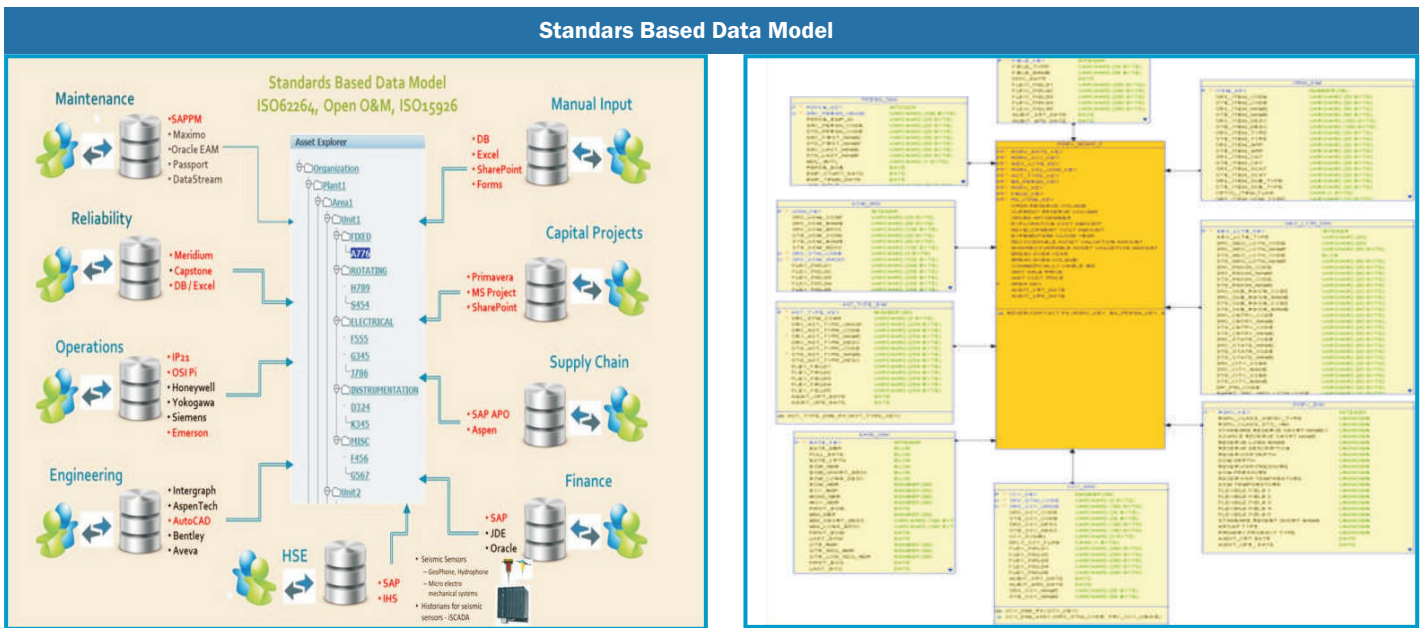
Unified Performance Integrity Model
bringing cross functional visibility and modularity

Rolta OneView™ provides modularity across its layers powered by its unified performance integrity model designed for business priorities driven phase wise roll out– operations, maintenance & reliability, assets, sustainability, supply chain, projects, business, HSE.

Some of the unique features and benefits it provides include:

- Drives insights across these various functions in a meaningfully correlated manner in the context of the business process, thus enabling meaningful cross-functional situational awareness and actionable role-based insights.

- While the information is aggregated and rolled up as it goes up the hierarchy, one can drill down to any lower level details to get detailed visibility from a single source of truth.

- Integrity of the data attributes across the process functions

- Ability to get 360° of an entity across the business function

- Maintains the integrity even when the solution is deployed as individual modules in a phased manner or as an integrated solution.
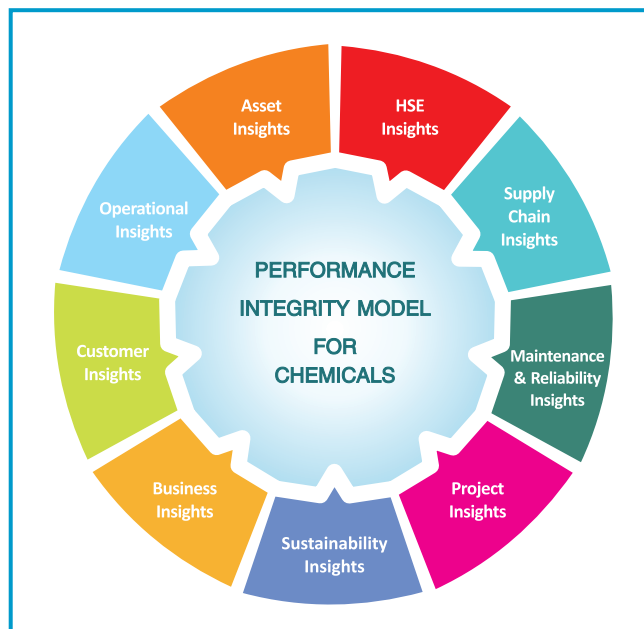
Extensibility

Rolta OneView™ is architected to be able to extend and easily customize for specific (and evolving) needs.

Some of the unique features and benefits include:

- Ability to build new KPIs by extending and/or customizing the entities through a documented process to ensure compromising of the data integrity and normalization

- Empower the roles to be self-sufficient to manage the solution

- Compatibility to customer specific processes and practices

- N-Level hierarchy for functional location / organization

- Flex fields to accommodate custom requirements. formula constant factors are parameterized

- Parameterized asset structure to manage varying attributes for different asset types

- Parameterized material attributes for varied materials used across O&G, Petrochemicals, Chemicals, Power Utilities and Water Utilities

- Patches and upgrade support without impacting customizations, based on guidelines
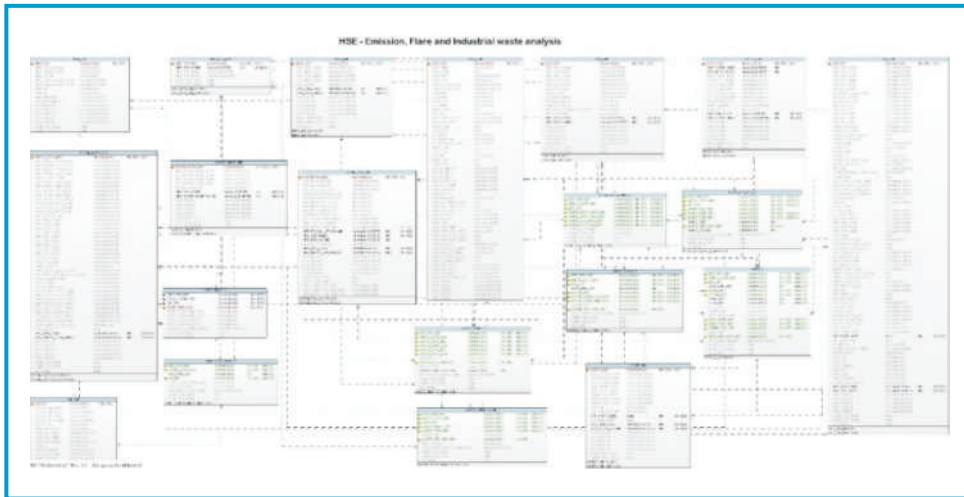
Semantic Layer

Industry Taxonomy Based Semantic Model

The semantic model transforms the knowledge model into business functions and processes based objects. The industry taxonomy used to define the objects provide ease of use to quickly build new KPIs reports or dashboards thereby facilitating self-service BI and making the enterprise self-reliant. The semantic model facilitates in extending the solution to define a logical data warehouse to federate data from external data sources. Users can therefore work from a variety of preconfigured and customized dashboards, or slice and dice through data using multi-dimensional analysis, automated data cubes, ranking and alerting, condition monitoring with intelligent drill-down. Additionally, the rich Rolta OneView™ semantic model with 8000+ objects enables Self-Service BI and thereby eliminates the user's dependency on their IT team, empowering users to build their own reports/dashboards to meet their evolving requirements.

Some of the Key features and benefits that enable self service BI include:

- Comprehensive star schema based semantic model with over 8000 objects and over 1300 classes

- Semantic model by each business function and defined guidelines to extend them

- Adopts industry based taxonomy

- Enables cross functional KPI creation business users are easily able to customize and extend existing and new KPIs

- Formula constant factors are parameterized

- Flex fields to accommodate custom requirements

Analytics Layer

Pre-Built Analytics / KPIs

Rolta OneView™ Enterprise Suite for chemicals has over 400 pre-built industry specific KPIs bringing rich real-time and diagnostic analytics which are rapidly deployable and are also highly configurable and customizable by users. As a result, it is able to support over 200 pre-built business value scenarios relevant to the industry. The solution has been designed to provide rich analytics covering real-time, descriptive, diagnostic, predictive, prescriptive as well as spatial analytics to support intuitive decision-making.

Real-time Analytics

Real-time analytics is an essential feature to enable users to monitor critical parameters and critical equipment in near real time. With this capability, users can forecast process and equipment performance, leveraging near real time and historical data to take timely actions. Real-time data capture from OT and IT systems are managed separately to minimize load on production systems.
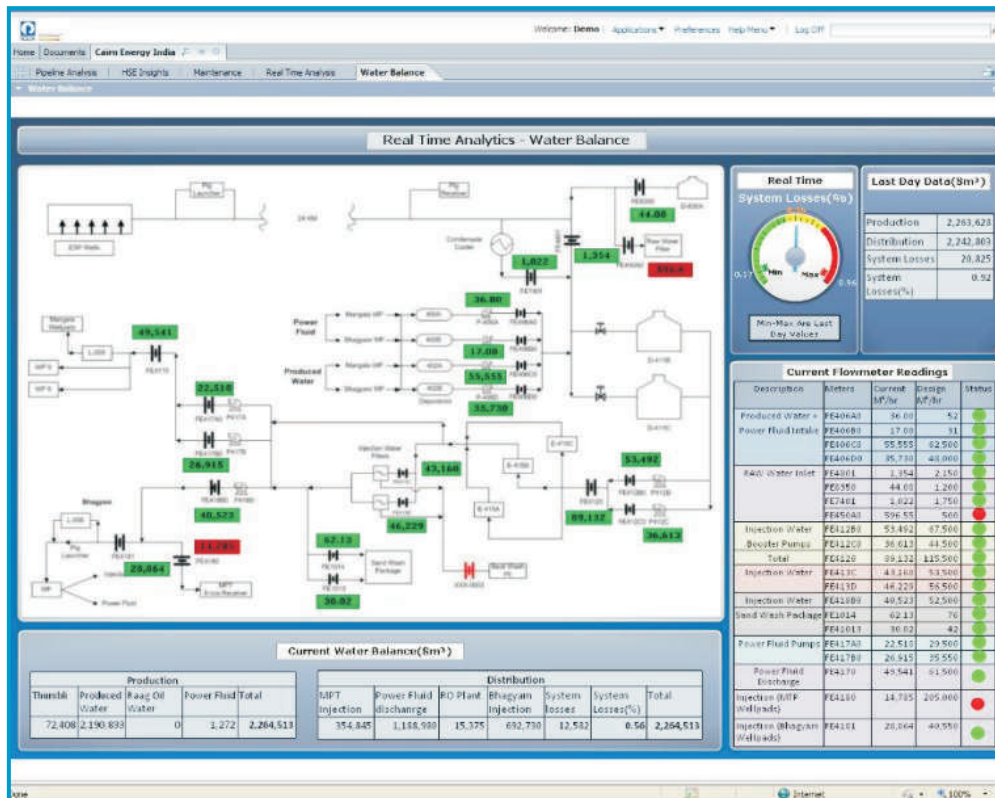
Diagnostic Analytics

Rolta OneView™ provides feature-rich diagnostic analytics with intuitive contextual dashboard and multi-level drill downs to easily analyze a variety of scenarios and thereby facilitate root cause analysis.

Predictive Analytics

Rolta OneView™ brings built-in predictive analytics capabilities allowing users to forecast on performance of different equipment and processes to enable early identification of possible deviations and bad actors. Timely actions can thereby minimize the impact and result in significant cost savings. The solution provides the capability to use the best model suited for a scenario and achieve realistic results for appropriate actions. It leverages leading industry predictive analytics and Big Data engines such as "R", Hadoop, SAP HANA, PAL, SAP Infinite Insights, etc. Rolta OneView™ has several

out-of-the-box predictive analytics models covering a range of areas such as assets, operations, maintenance, supply chain and projects. Examples include:

- Forecasts on performances of equipment and processes

- Early identification of possible deviations and bad actors to minimize the impact and save on costs

- Capability to use the best model suited for a scenario and achieve realistic results for appropriate actions

Spatial Analytics

Any analytics system would be incomplete without the provision of locational intelligence. Spatial Analytics provides the users with the ability to visualize the business and geographically dispersed asset data in a

single dashboard with thematic mapping, heat maps and cluster maps helps enterprises to take quick and effective decisions.

Pre-built Scenarios

Rolta OneView™ has 200+ Pre-built business value scenarios which are rapidly deployable & customizable. A sampling of these was already covered in the earlier section. These enable deeper insights into scenarios that require complex calculations and accessing data from multiple systems cutting across cross functional boundaries

A small sample of such scenarios include:

- Asset life cycle Analysis

- Opportunity loss analysis

- Composite risk

- Safety instrumented system performance

- Fire prevention

- Backlog purchase order analysis

- Procurement cycle optimization

- Safety prevention expenses

- Incidents, waste and emission reporting

- Root cause analysis of deviations
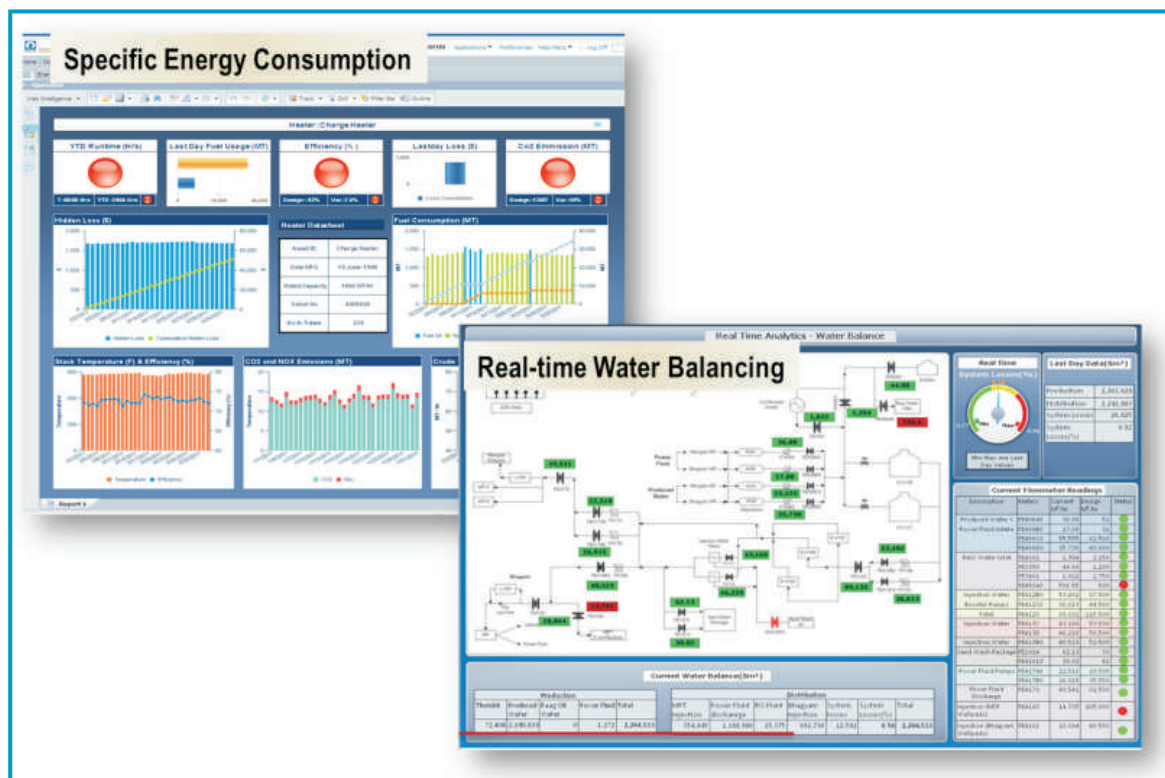

Visualization Layer

Role Based Dashboards

Rolta OneView™ provides role-based actionable insights to its users through seamless aggregation and information dissemination across information landscape ensuring only relevant cross-functional KPIs are seen by an individual that are relevant to their function. This ensure users can take actions effectively as they are not distracted by data which isn't in their ambit of responsibility while also ensuring data confidentiality. Rolta OneView™ integrates seamlessly with the organization's Active directory / LDAP infrastructure to determine the user's role and security. Rolta OneView™'s analytical and decision making capabilities are role-based covering all levels from CxO to functional users. At the CxO level, Rolta OneView™ provides strategy maps

and scorecards that can be linked and monitored across the enterprise. Functional specialists have predictive and prescriptive analytics to take corrective action. Pre-defined KPIs aligned to departmental line managers provide them with deeper insights addressing their departmental responsibilities while also providing cross-functional visibility for better alignment. Operational staff can make real-time operational decisions and take corrective actions through the real-time operational dashboards. As a result, Rolta OneView™ is able to provide capabilities for performance monitoring and performance improvement through root cause analysis, better corporate governance through benchmarking, modeling and scorecards.

Rolta OneView™ provides role based dashboards enabling actionable insights - right information, right time to right users as a single source of truth. Some of the key features and benefits includes, Guided navigations, Root cause analysis, Scenario analysis, rich, intuitive user experience, usage auditing, secure access via SSL, ability to easily customize and extend.

Rolta OneView™ - Role Based Actionable Insights
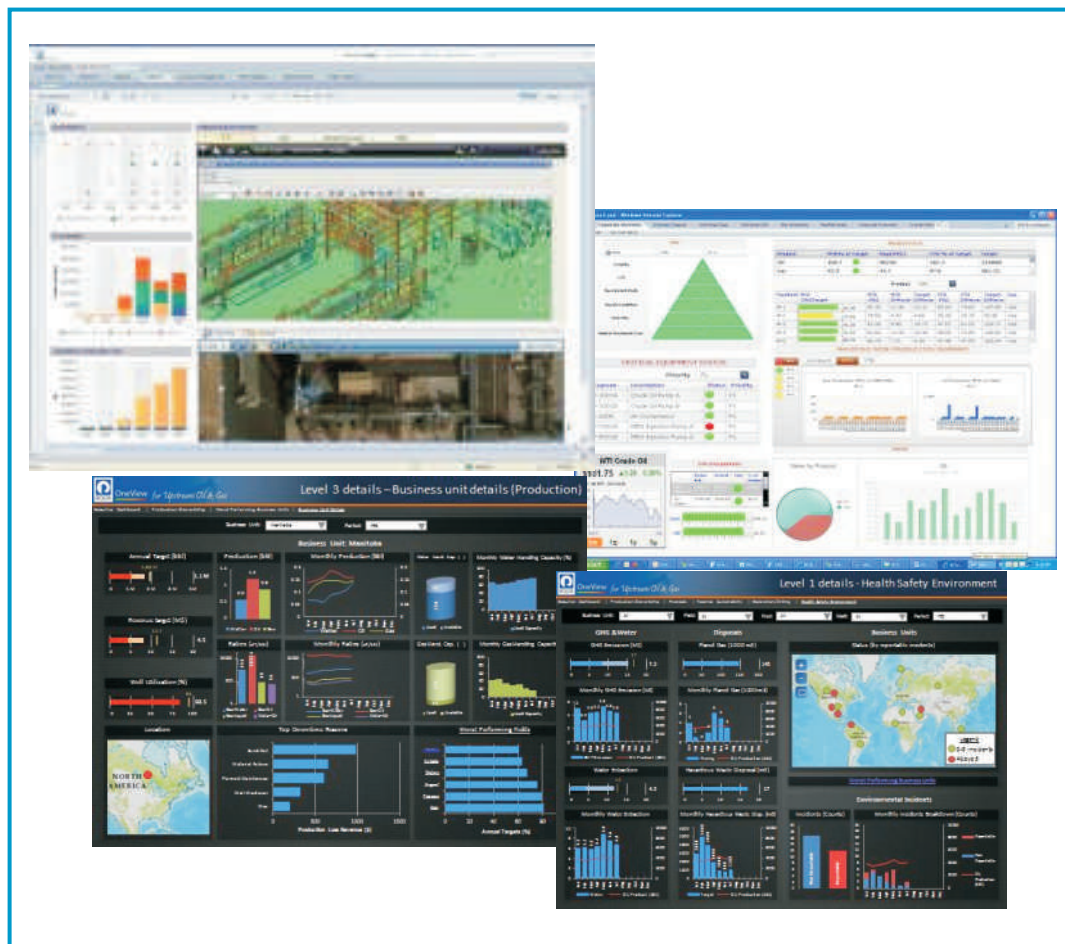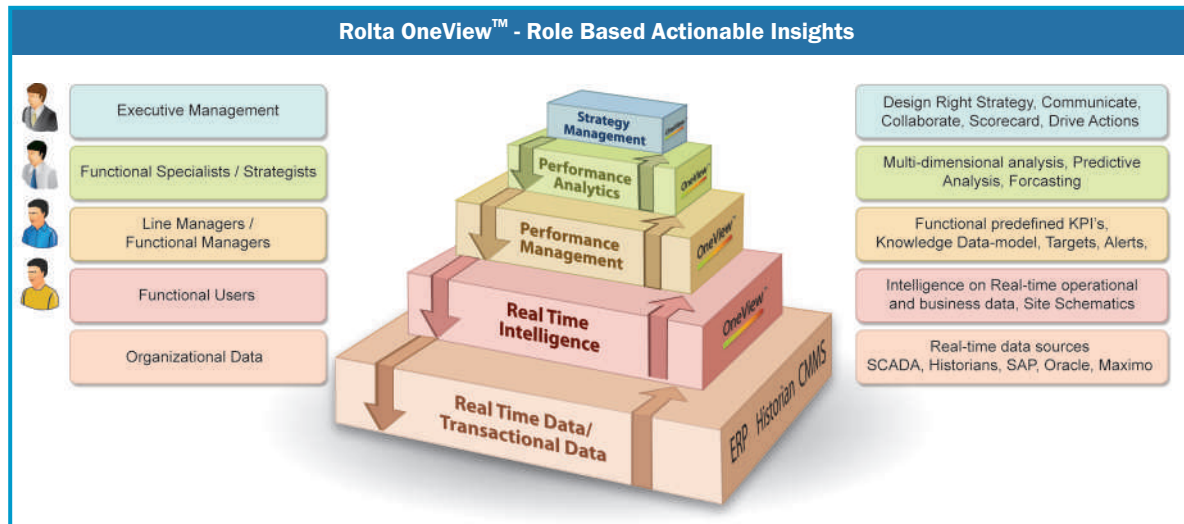
Built-in Collaboration and Recommendations

Rolta OneView™ does not merely stop at providing the visual business insights to individuals but also facilitates collaborative BI through workflows. These pre-built collaboration processes allow capture of data, announcements, discussion boards, document collaboration, task assignment, notifications tracking and alerts to facilitate timely actions by allowing users to interact with each other. The collaboration tools allow discussion threads to be initiated based on snapshot of a dashboard thereby maintaining the context of the discussion. It allows tasks to be assigned specific to a scenario / situation observed on the dashboard. The workflow framework enables the creation of records in a knowledge repository for future reference with powerful search capabilities to overcoming loss of expertise due to an ageing workforce.
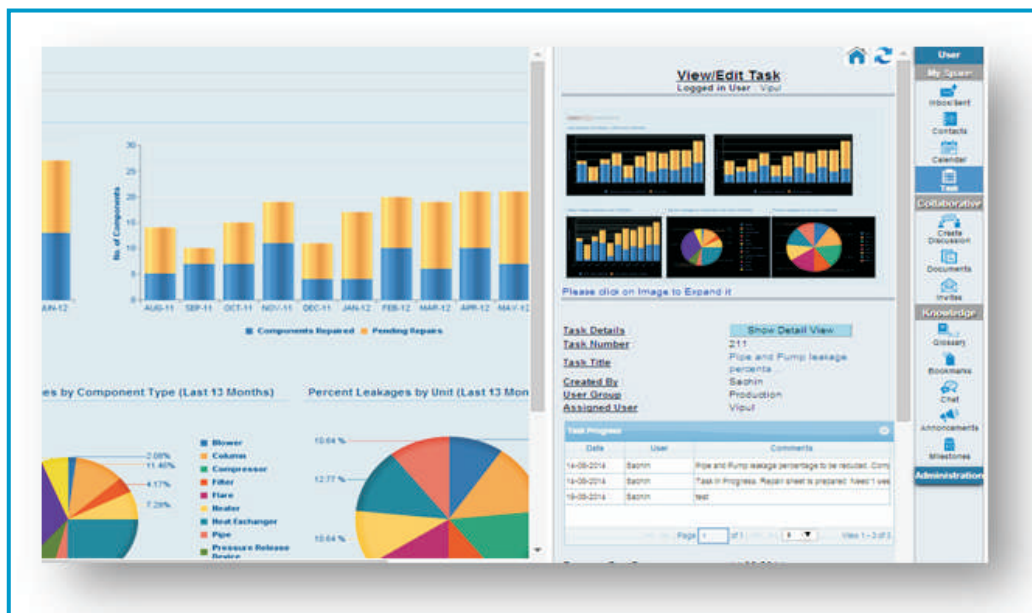
Balanced Scorecard

Rolta OneView™ Enterprise Suite provides seamless management of the organization's balanced scorecard and strategy maps by tying together functional scorecards with Enterprise KPI as well as operational and role based individual KPIs. The tool is compliant with the Kaplan–Norton strategy management model. As a result, Rolta OneView™ allows defining of scorecards from the enterprise level down to the business owners / function owners thereby promoting the institutionalization of business goals and objectives.

Multichannel Presentation

Usability and user friendly visualization is a key pillar of a BI and analytics solution such as Rolta OneView™ to accelerate adoption by non-IT business users, and to support efficient workflows that ultimately enable them to accomplish their business goals more effectively. Rolta's Certified Practice in Usability has been assessed at the highest Level 5 by Human Factors International, a global leader in user experience design. Rolta OneView™ has been designed keeping usability and end-users in mind. The business dynamics across industries require information to be exhaustive, complete and be accessible everywhere.

As a web enabled application Rolta OneView™ analytics and dashboards can be accessed through various devices including desktops, notebooks tablets and smart phones. Some of the features include pre-built KPI widgets and dashboards by business functions, summarized and aggregated views with drill-down and drill-to-detail capabilities, publishing to collaboration tools and portals etc. Further, automated alerts and notifications based on defined thresholds and targets are delivered on e-mail and SMS to enable timely decisions.
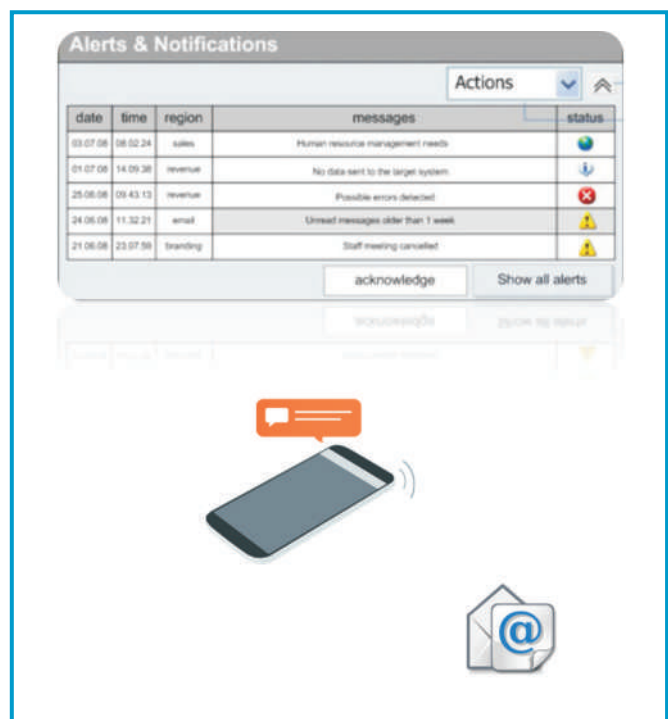
Alerts and Notifications

Rolta OneView™ provides a comprehensive alerts and notifications system as a critical enabler for proactive data driven actions.

Some of the key features and benefits include - Multi-level alerts for threshold deviations for timely decision-making, status notifications for scheduled jobs, alerts for scheduled job failures, e-mailing of scheduled reports, visibility to the last update date & time of the KPIs & reports and which source system data update has not taken place, notifications of unavailable data sources, via data-lineage framework, customizable notification destinations and rules, etc.

Integrity Limits and Automated Alerts

Rolta OneView™ provides business user friendly configuration of various integrity limits and thresholds and automated alerts. Intuitive dashboards with guided insights for safe operating limits, various levels of integrity layers and outliners helps to make quicker and better decisions.
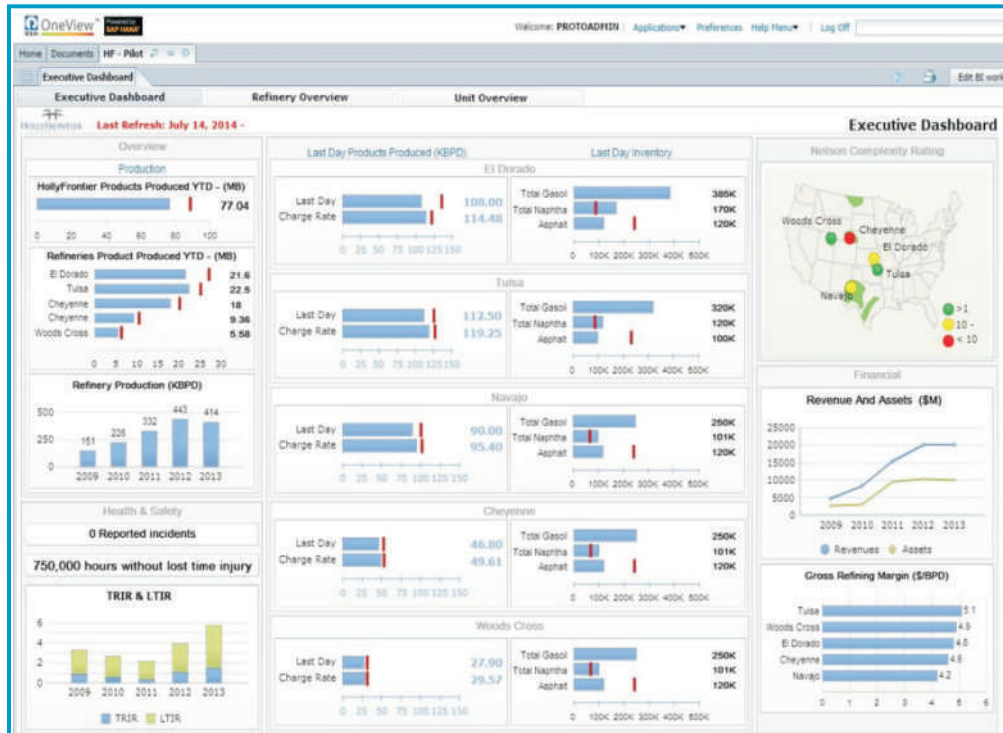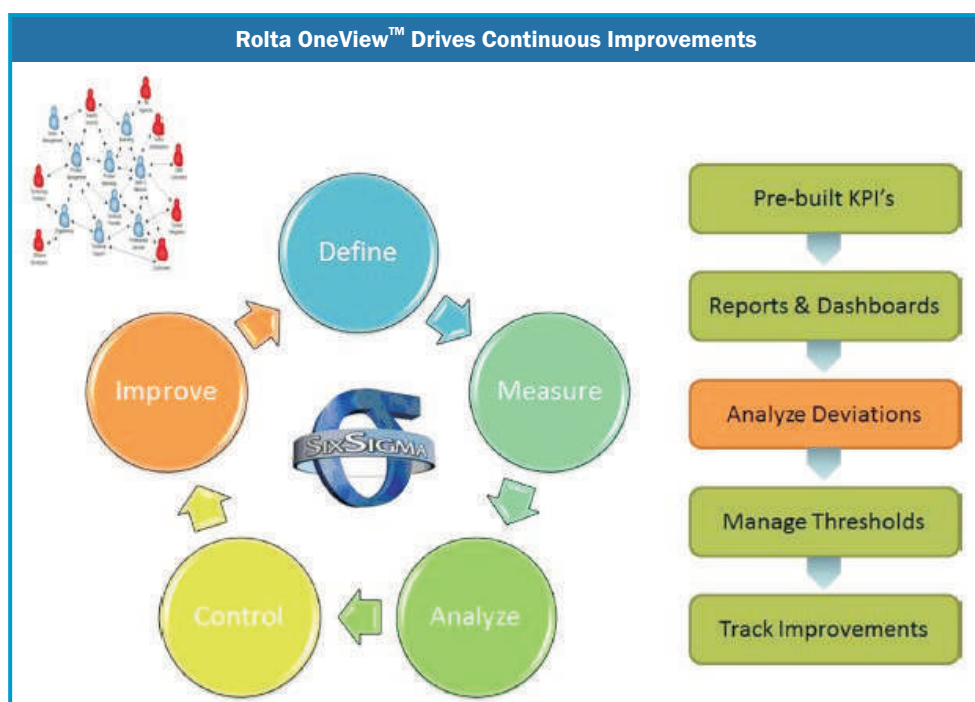

Continuous Improvement (6 Sigma)

Rolta OneView™ enables continuous process improvement by analyzing the deviations in the business process executions and provides prescriptions on process improvements and thereby facilitates initiatives such as 6 Sigma.


Rolta OneView™ Drives Continuous Improvements

Closed loop BI provides a way to take the insights into action to the source systems thereby turning the power of analytics into process improvements.

Rolta OneView™ with its out-of-the-box industry-specific analytics clearly enables organizations to embark on their business transformation journey confidently, to achieve positive business outcomes. As a packaged solution, Rolta OneView™ can be rapidly deployed in 12-18 weeks and easily customized resulting in a higher and faster ROI.
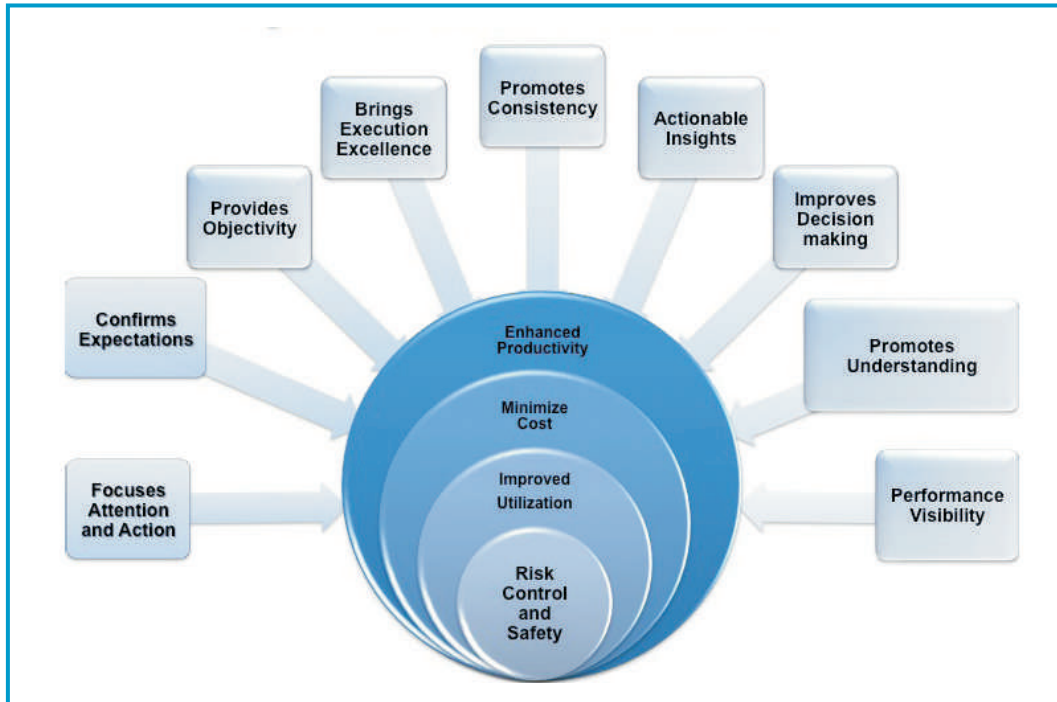
Industry Recognition

Rolta OneView™ has been recognized by technology providers and industry analysts for its innovative approach and solution

Frost & Sullivan
"Solutions such as Rolta OneView™ will play a critical role in transforming plant management and drive growth" Frost & Sullivan Whitepaper, " Enabling Operational Excellence"

Gartner
A Recent Gartner Study Report in January 2014 " Competitive landscape: BI Platforms" named Rolta Oneview™ as a leading packaged analytics solution

ARC Advisory Group
Rolta OneView™ satisfies key AIM requirments at every level of the pyramid - Rolta OneView™ Helps Companies Overcome Key AIM Hurdles *Dr. Sid Snitkin, Vice President, ARC Advisory Group*

NASSCOM / Frost & Sullivan - Product Excellence Matrix
Rolta OneView™ - For the ability to convincingly articulate customer's BI and Big Data Analytics needs, improve decision making, cut costs, innovation, market trends and competitive forces

Rolta, SAP, Customer : Win-Win-Win
- Global Strategic OEM Partner
- SAP Pinnacle Partner of the year 2014
- Business value in weeks with Rolta's industry specific pre-built analytics solutions embedding SAP's technologies. Faster ROI
- Joint thought leadership on IT-OT integration & operational integrity
- Joint POVs for Oil & Gas, Chemicals and Utilities
- Preferred partner of Global Database Migration Factory Program

Case Studies

Many organizations have seen significant benefits with Rolta OneView™ solving their specific industry challenges and priorities across multiple industries including Oil & Gas Upstream, Refineries, Petrochemicals, Chemicals & Utilities.

Case Study – Automated Overall Equipment Effectiveness

Business Challenges

A North American Specialty Chemicals Company wanted to automate their analytics for Overall Equipment Effectiveness as they were facing several challenges with their existing manual processes:

- Operational data residing in different silos and in different systems across plants.
- Difficulty in collating information across sites and divisions for strategic decision-making.
- Extensive manual effort to build an integrated cross system view of a plant
- Data analysis to improve operational efficiency in a timely fashion was error prone and required effort intensive

The Solution

They chose Rolta and Rolta OneView™ for their enterprise wide deployment to cover all their plants with its ability to provide near real time production, consumption (material and energy), productivity, and quality data with extensive drill down capability to plant, asset, or production batch.

The Benefits

As a result of this deployment they reported several benefits:
- Ability to analyze and identify underperforming areas for corrective action
- Deeper analysis and quantification of lost time
- Dynamic Reporting for Overall Equipment Effectiveness across plants and resources
- Higher confidence on reported KPI's
- Easier identification of root cause of deviation through drill downs

Case Study : Advanced Quality Analytics on SAP HANA

Business Challenges

A large global provider of specialty chemicals for the transportation, industrial, and consumer markets based in North America was looking for a solution to analyze their quality performance across thousands of products. They were looking for a modern in-memory analytics solution to overcome the performance challenges of their legacy solution which was finding difficulty in processing over 250 million records required by them for advanced analytics on an on-going basis.
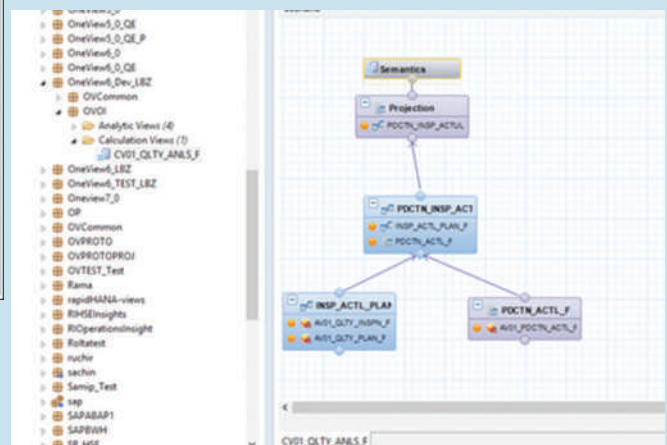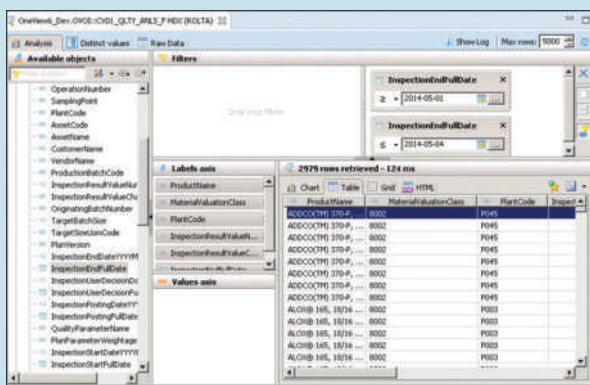
The Solution

They chose Rolta OneView™ solution with its industry standard data model, engineered for SAP HANA and drawing cross functional data from production planning, recipe management, sales order, Quality management and materials management. Furthermore, Rolta OneView™ ability support user driven queries and specific scenario analysis was an important requirement.

The Benefits

Deployment of Rolta OneView powered by SAP HANA has enabled the customer to view complex analytical queries within seconds. Additional they are also seeing several other benefits:

- Better and quicker identification of quality deviations have resulted in significant cost savings
- Ability to draw standardization of operating parameter based on quality performance
- Early identification of bad actors and major influencers for quality deviations
- Advanced analytics for deriving correlations across multidimensional inspection characteristics

ABOUT ROLTA

Rolta is a leading provider of innovative IT solutions for many vertical segments, including Utilities, Oil & Gas, Manufacturing, Federal and State Governments, Defense, Homeland Security, Financial Services, 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 and Cloud computing for providing sophisticated enterprise-level integrated solutions. Rolta OneView™ Enterprise Suite is one such innovative Big Data Analytics solution for asset-intensive industries with field-proven benefits. It brings unique value through its IT-OT integration and Predictive Analytics capabilities using Rolta's patented technology. Rolta is a multinational organization headquartered in India with revenues exceeding US$ 600M and over 3500 people operating from 40 locations worldwide and has successfully executed projects in over 45 countries.

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