ROLTA

INSIGHTS . INNOVATION . IMPACT

The Best of Both Worlds, and Then Some

Rolta integrates and extends Oracle BI Analytics with IBM Maximo for an innovative solution uniquely serving asset intensive enterprises

Issue 3

Featuring research from Gartner®

Introduction

Executives in asset intensive industries like oil & gas, manufacturing and utilities diligently attempt to improve asset lifecycle management, but face numerous challenges. Asset intensive enterprises generate massive amounts of data, but few companies take full advantage of the data through use of an Enterprise Asset Management (EAM) Analytics system to improve operational efficiencies, boost productivity and reliability and drive higher margins. With the slowing economy still impacting the rate of asset investments, competitive enterprises must maximize their Return on Assets (ROA).

Business Intelligence applications have made significant inroads in enhancing the business decisions of marketers, retailers and financial executives. Executives at progressive asset intensive enterprises are now jumping on the bandwagon, seeking EAM analytics solutions that deliver information to manage costs, availability, reliability, safety and deployment of resources.

Gartner says : "By orienting the company toward a strategic goal, the coordination of efforts is much more likely to succeed and be more productive. We expect that projects that improve effective reliability strategies will be accelerated because of the financial impact of outages and failures creating a strong incentive, and because the tools needed are becoming more available and easier to deploy."[1]

Rolta has long and unique experience optimizing the effectiveness and business benefits of solutions to not only manage large amounts of data from across the enterprise, but also to deliver insights through predictive analytics that can move asset intensive organizations toward operational excellence.

By listening to numerous voices and points of view within client organizations, Rolta understands that existing solutions and processes are not providing business leaders and managers with the access to the right kind of information delivered in the appropriate manner to drive enhanced business decision making. This reality often leads business departments to believe there is no solution that can serve their needs and therefore drives departments to attempt to create their own solution. By truly listening to our clients, applying decades of experience and industry thought leadership, Rolta knows that proven EAM analytics solutions exist today and can be quickly implemented to fulfill the need of business decision makers.

Source: Rolta

[1] Gartner Inc., Asset Management and Reliability: A Strategic Road Map, G00206633, 7 October 2013

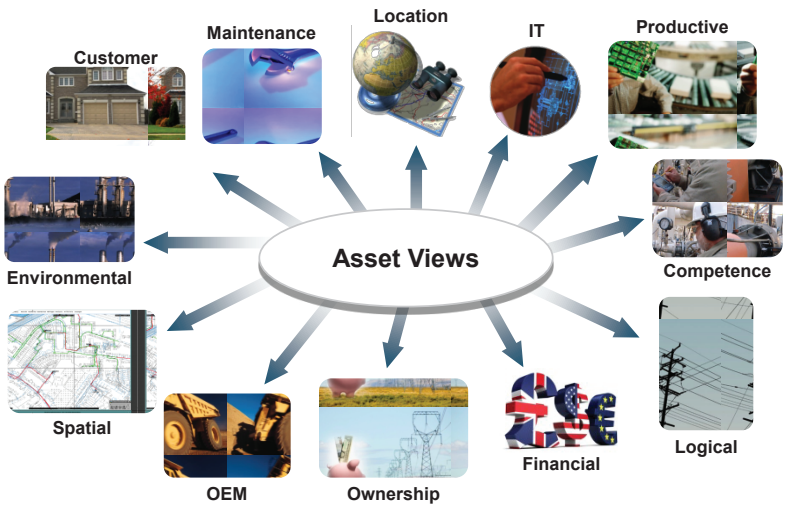
Rolta's Answer To The Need For Improved EAM

Tremendous amounts of operational information is routinely collected, but rarely integrated into an enterprise-wide data repository. Consequently, executives are forced to regularly make business decisions without access to the strategic and tactical insights contained within other data silos.

Executives need access to historical and real- time data, but use of that information to identify future trends, challenges or opportunities is what drives organizations closer to operational excellence. Predictive analytics tied to EAM solutions drive operational transformations at asset intensive companies. Asset management analytics enables operators to predict when maintenance is needed and plan accordingly, avoiding unscheduled and costly downtime.

Gartner says : "There are many ways to look at a maintained asset (e.g., plant, equipment, machines or facilities) (see Figure 1). Even if there was awareness of other aspects, organizations historically have been siloed to a point where only one view was important to a department or an operational unit. Separation and disconnection between the views have occurred. To get maximum value from an asset, it is beneficial to see more than one view."[1]

Source: Gartner



Oracle's Business Intelligence Applications (OBIA) suite, including the Asset Management Analytics application, improves an organization's ability to manage assets and align operational and financial efficiencies. OBIA's analytics-in-a-box solution delivers data extraction routines, warehouse data models and analytic dashboards for a wide range of data domains.

IBM's Maximo Asset Management provides an integrated approach to managing discrete or complex assets by breaking down multiple silos of non-standard, non-integrated systems. It helps organizations overcome challenges rooted in their aging infrastructures or human assets, and in their siloed or disconnected systems. Still, Maximo users desire improved analytic reporting capabilities with the ability to drill down into the details underlying a report.

To deliver a differentiated solution that allows asset intensive organizations to truly optimize ROA, Rolta integrates the capabilities of these two powerful technologies and extends Oracle's solution to allow for more intelligent, location-focused asset analysis, as well as integration with Maximo's Preventative Maintenance and Job Plan processes.

Source: Rolta

[1] Gartner Inc., Asset Management and Reliability: A Strategic Road Map, G00206633, 7 October 2013

Packaged vs. Custom EAM Solution Development

Packaged EAM Analytics	Custom EAM Development
Warehouse star schemas prebuilt for Financials, Procure & Spend, Projects and Enterprise Asset Management using source systems (EBS and Maximo)	Warehouse star schemas must be designed, developed and built from scratch using 'conformed' dimensions
Meta data (dimensional modeling) layer that includes complex calculations, metrics and dimensions	Framework for meta data must be built
Prebuilt reports and dashboards	Reports and dashboards must be built based on requirements captures. The process would be tedious, since there is no prebuilt foundation as in OBIA to use as a reference point
Prebuilt ETL adaptors with extraction and loading routines	The extraction logic could become complex, since all inter-source system dependencies need to be considered when designing the extraction logic
ETL monitoring tool with built-in task dependencies	Loading routines could also be complex because fact tables need to exist for every reporting subject area
Industry best practices used in metrics definition, calculation and standard reports/dashboards	Security may need to be designed from scratch
Ease of configuration, customization and extension since "logic" can be altered at ETL, meta data or reports level	
Product upgrades would be seamless, since best practices would be adopted	
Security is relatively easy to incorporate, as the BI tool has built-in Active Directory interface capability to bring over the security groups	

Rolta ensures the appropriate content within the OBIA modules is targeted at the right business users. Additionally, Rolta gathers information about how the enterprise uses its Maximo system in order to appropriately configure the OBIA ETL adapter for Maximo. Rolta's experience shows that the Maximo connector requires modifications from the out-of-the-box (OOTB) architecture. Rolta implements the following modifications to deliver greater value to asset intensive enterprises:

- Conforms particular dimensions to allow for cross-subject area analysis
- Adjusts various source column definitions to account for typical Maximo customizations
- Augments the existing ETL connector to accommodate customer location-centric views in Maximo's asset-centric OOTB standard
- Extends the OBIA data model to allow for effective analysis on Maximo's Preventive Maintenance and Job Plan data constructs versus OOTB limited Work Order-focused reporting
- Enables exhibit of absolute Work Order Cost accuracy down to the sub-component level (i.e., material, labor, service, tool and miscellaneous costs) both on a static basis and incrementally by enhancing existing connectors to tie into the client's diverse Maximo customizations

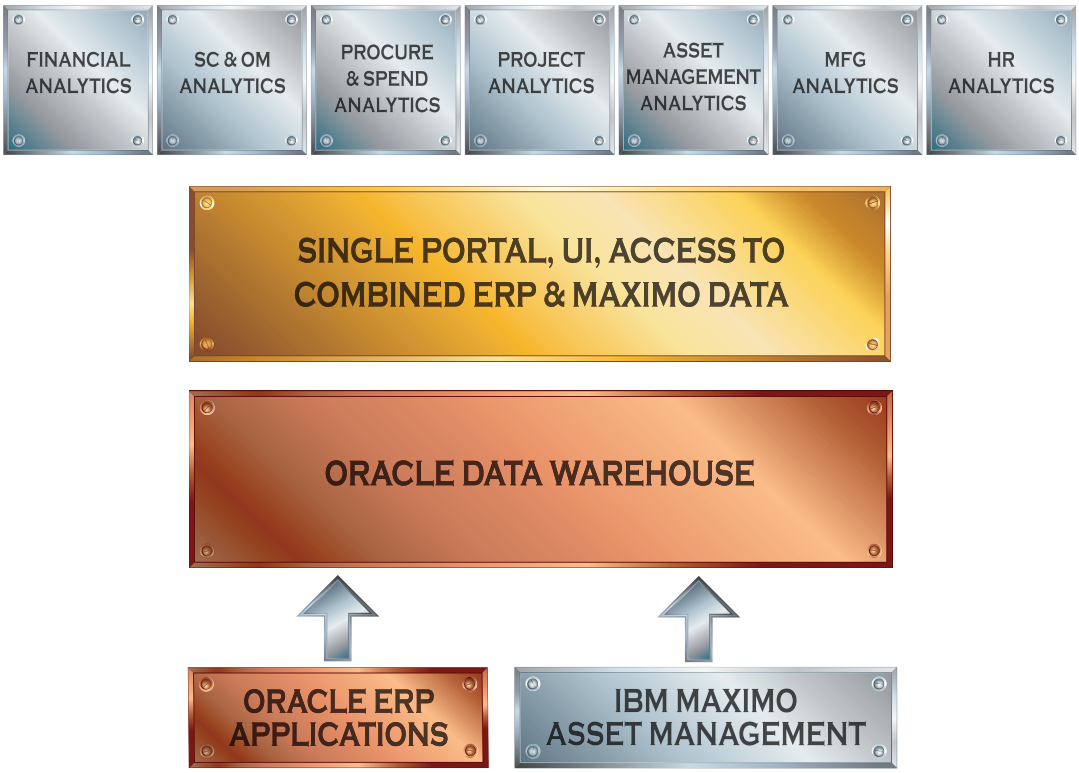
Gartner says : "OT vendor products and services are changing as they increasingly include — and critically rely on — IT infrastructure and foundations. This raises complex challenges for their customers in the management of OT systems and services. Getting OT to interface efficiently with IT systems at a technical and process level is difficult enough for many end-user companies. Getting them to work together to maximize business efficiency (while avoiding negative consequences, risks and pitfalls in the process) makes the task even more challenging."[1]

Rolta, an Oracle Platinum Partner, recognizes the benefits Oracle brings to asset intensive organizations through integration of its proven Analytic Applications architecture with Maximo. Rolta's deployment of this integrated solution enables clients to simplify architecture, yet provide cross-functional analytics that are otherwise difficult to produce.

Source: Rolta

[1] Gartner Inc., Gartner Inc., 2014 Strategic Road Map for IT/OT Alignment, G00246910, 24 December 2013

Rolta's Integrated Analytic Architecture: Oracle BI Platform Leveraging Maximo Asset & CMMS



Source: Rolta

Oracle Analytic Applications
Prebuilt dashboards, KPIs and reports
Grouped by functional area
Oracle Business Intelligence
Industry leading analytics reporting platform
Single point of access to all analytic modules
Mobile enabled (iOS, Android)
MS Office integration
Oracle Business Analytics Warehouse
Complete, open and extensible DW model
Provides 50+ fact and 100+ dimension functions
Built-in flexibility for flex-field customizations

Oracle ETL Connections
Prebuilt to source from transactional applications
Speeds time to market
Supports IBM Maximo
Application Sources
Oracle back-office applications complemented by Maximo Asset Management
Distinct and traditionally siloed data sources
Maximo drives virtually all work order and asset maintenance activities

Source: Rolta

The Benefits Are Significant

- The right users have access to the right information at the right time to avoid critical process, production and asset situations that, without immediate attention, can cause huge production issues and unsafe conditions
- Report objects give visibility to remaining open and/or past due work and the planned labor hours aligned with those orders. The system is able to accurately exhibit work order cost down to the sub-component level (material, labor, service, tool, etc.) on a static basis and incrementally
- Business users have access to financial and operational information in a self-service fashion, and reports take just seconds to run
- Users can securely drill into detailed information from Business Intelligence dashboards to uncover abnormal operating conditions
- Visibility into business processes is much greater; the system can be used as a medium to correct/ rectify missing data, systems, and incorrect data entry procedures
- Users are able to go from global to detail view in just four mouse clicks
- Executives are better able to proactively track and manage key drivers of revenue, cost and shareholder value

Rolta's combination of OBIA, EAM and Maximo dramatically increases visibility into the status of all assets across the enterprise, better enabling management to respond quickly and correctly. The resulting improvements to asset availability and reliability boosts service delivery and revenue growth.

Asset management is clearly tied to profitability, affecting not only the cost of doing business but also the quality of the product or service produced or delivered. Rolta's solution for asset intensive enterprises ensures the ability to extend asset life and reduce operation costs. Predictive analytics helps build agility and flexibility into operations through proactive asset management.

Gartner says :

- *Assess the degree of OT investment your company has. Determine how modernized this portfolio is as a proxy for how "at risk" the organization is from the OT software vulnerabilities and mismanagement.*
- *Prepare for and lobby senior management that modernized OT presents both an increased risk and an increased opportunity for the company as a whole. As far as is feasible, quantify the value proposition in terms of business outcomes.*
- *Commission an audit of IT/OT risk areas, and take immediate action on the top-priority ones, while alerting the enterprise-level risk management committee.*
- *Assess the ability of existing governance mechanisms to effectively support IT/OT integration. If necessary, establish (as in, socialize) the need for and create new governance mechanisms.*[1]

Source: Rolta

[1] Gartner Inc., 2014 Strategic Road Map for IT/OT Alignment, G00246910, 24 December 2013

Case Study: America's Largest Public Power Producer

Unique integrations and process improvements support business decisions

THE CHALLENGE

The largest public power producer in the U.S, serving more than 9 million people, struggled for many years with numerous iterations of data marts and data warehouses implemented to source data from Oracle E-Business Suite, Maximo and other transactional systems. However, lack of understanding of the data elements and business logic involved in the calculations caused these solutions to fall out of favor with those responsible for asset management. Attempts to improve processes and results were stymied by unacceptably long timelines required to modify existing reports or to enhance the data warehouse or data marts.

Recognizing there is a problem and having the fortitude to fix it are two very different things. While executives agreed to the need for change, no one wanted to live through the vicious cycle of continually needing to repeat requirements, then wait patiently during long technical delivery cycles to end up with a solution that ultimately missed the mark. Disgruntled business users and a frustrated management team were at an impasse. What they needed was a solution flexible and scalable enough to handle the unique business requirements of a major power producer that was also transparent and proven to validate the accuracy of the data and reports within lines of business and across the enterprise in order to fully maximize asset management.

Clearly, consensus was needed to move forward. Rolta's team of highly specialized consultants worked hand-in-hand with management and rank-and-file staff to arrive at an answer that met all needs.

THE SOLUTION

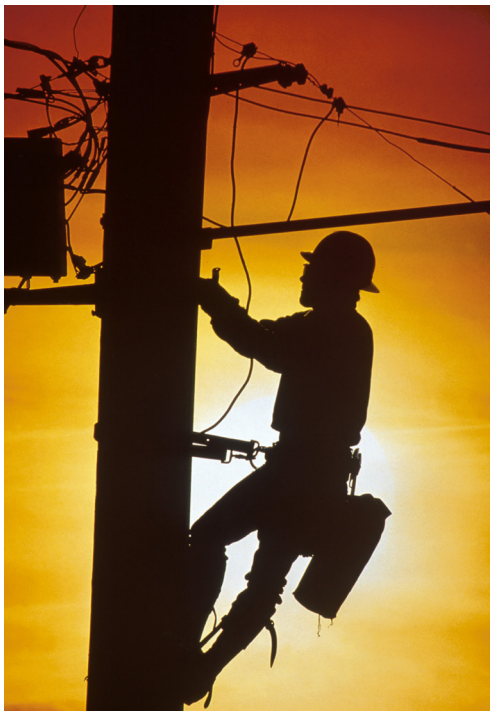
Rolta met with business and IT users throughout the organization to create a set of detailed reporting requirements and project plans that gave a clear vision for how the OBIA modules would be implemented and the content that would be delivered to business users. Following agreement regarding reports and with clear plans in place, Rolta began its implementation efforts. The reporting content was drawn from OBIA analytics modules for financial, project, supply chain, order management and asset management.

Rolta modified the Maximo connector OOTB architecture, augmenting the existing ETL connector to accommodate location-centric views of Maximo's OOTB asset-centric standard approach. The Rolta team:

- Rewrote how the FACT tables were loaded
- Introduced a new location hierarchy mapped to a custom table in Maximo
- Created a verbose prompt area to allow delineation at any of the eight hierarchy levels
- Incorporated new prompts derived from a new location spec dimension that was among many of the client's Maximo customizations

Furthermore, the organization leveraged a custom location-hierarchy within its source system, which was the primary filter by which they viewed assets and work management processes. This custom Maximo hierarchy was the basis upon which OBIA's Location Dimension was extended. While this negated much of the prebuilt reporting, it aligned to the EAM customers' needs for custom content.

Rolta modified OBIA products to adapt to the organization's infrastructure and configuration of the source systems. ETL mappings were adjusted to reflect unique configuration of the primary source systems, EBS and Maximo, and secondary source systems.



THE RESULTS

Now report objects give enterprise management and executives' visibility to remaining open and/or past due work and the planned labor hours aligned with those orders. The system is now able to accurately exhibit work order cost down to the sub-component level (material, labor, service, tool, etc.) on a static basis and incrementally.

Other benefits achieved include:

- An executive dashboard enables the monitoring of KPIs to provide an overall picture of operational effectiveness
- Detailed insights are presented regarding maintenance costs, with variances between estimated and actual shown helps management better understand the percentage of costs spent between preventive work orders and failure work orders
- Maintenance schedules are more easily and effectively scheduled
- Inventory and costing reports enables maintenance managers to optimize balances of spares required
- Costs related to the servicing of asset failures is more visible
- Managers can quickly see which resources are not efficient

The company has been able to move beyond monitoring assets to utilizing BI and analytics to improve decision making. The Rolta-delivered solution cuts through data to get to predictive, location-based answers faster and more completely.

Source: Rolta

From the Gartner Files:

Differentiation in Asset-Centric Companies

CIOs of asset-centric businesses need to think differently from their peers in other industries in regard to differentiation. They must focus on asset performance as a business differentiator, not a commodity.

Impacts

- CIOs of asset-centric businesses must focus on optimizing asset support as the primary mode of differentiation when supplying commodity products to a limited customer base.
- When EAM becomes the system of differentiation, CIOs of asset-centric businesses should support tools, such as asset performance management, to improve business performance.
- CIOs of asset-centric organizations must face the challenge of having the key asset technologies of the business under the control of engineering and operations, rather than IT departments.

Recommendations

CIOs of asset-centric organizations:

- Consider what the levers of differentiation are for your business type and then emphasize how you can improve equipment availability at minimal cost.
- Plan for a cadence of reviewing the products and solutions around asset management at a two- to three-year cycle. This is necessarily to replace the products, but to ensure you are on the latest release, using any additional modules and looking for extensions that can be utilized for analytics.
- Begin a program of IT/OT alignment and integration to bring the engineering groups closer, to unlock the value hidden in the equipment-oriented OT systems to be leveraged for asset analytics.

Analysis

Differentiation Defines the Mission of the CIO

As described in "Front-Office IT Changes All the Rules," increasing differentiation is the central market strategy for many enterprises. Historically, CIOs have succeeded here by creating or increasing technology leveraging to improve business performance. During the industrialization of technology and the digitalization of supply chain phases of enterprise development, such leveraging gave enterprises the ability to differentiate on price and logistical effectiveness. Today, however, as enterprises achieve parity with their peers in price and efficiency, opportunities for IT to create differentiation in these domains are harder to come by. Consequently, CIOs must look for new avenues to enhance enterprise differentiation.

Current market conditions increase the challenge of differentiating the enterprise. In many product-centric industries, consumers have become less sensitive to price or product features as the primary differentiators, leading to a homogenization of markets that challenges historically successful approaches to differentiation.

In considering the "levers" of differentiation, categorize them into four simple areas:

- Differentiation by customer marketing. A marketing-driven company typically must attract and retain consumers in a contestable and competitive market.
- Differentiation by customer service. Typically a company where interaction with the customer in a forecourt, office, bank, or virtually by phone or on the Web creates a differentiation.
- Differentiation by product. Typically where product innovation and supply chain can be differentiated on features, price and/or quality.

- Differentiation by asset. Typically where the key lever for improved productivity or lower cost is how the physical assets are utilized.

In those markets with no direct consumer influence, or where the product is a uniform commodity, the possibilities for differentiation are severely limited. These are asset-intensive industries.

Asset Intensive and Asset Centric

Asset-intensive businesses are those with significant plants and equipment to achieve their business missions, but which also are applying those assets for differentiated product production and delivery, or for consumer engagement and transactions. An extreme version of this are asset-centric businesses that are in industries where there is little to no differentiation around product (because it is a commodity — such as, minerals) and none for customers (because the businesses have an exclusive territory and customers are noncontestable, or their customers exist in a *very* small number [single digits]). In those cases, differentiation becomes all about how the asset is exploited at lowest cost for maximum availability, with a focus on the way the businesses manage their plants and equipment (physical assets). This means they must optimize maintenance and reliability systems.

In the example of mining companies, they dig up rocks, the same rocks as their peers. They usually reduce those rocks down to an element (gold, iron, or silver) and sell end products in bulk to three or four customers on long-term contracts. A major (controllable) way to differentiate their businesses and move their share prices is to optimize the reliability of equipment and reduce the cost to achieve that reliability. This constraint on differentiation is the same for any asset-centric business — power generation, upstream oil production, most large-scale heavy transportation, and even the military (three-fourths of service members are involved in getting working equipment to the one-fourth that actual do something with it).

While some businesses will have innovation in process design, or luck through geography or geology, they cannot always be controlled. Areas like customer systems, service policy, product innovation or process design may still exist and need to be done well; however, it will be harder to achieve operational differentiation through those means alone.

As companies move inexorably toward a digital business model and engage in digitalization, for asset-centric businesses, this will mean something different. In "The CIO's Role in Managing the Expanding Universe of Digital Technologies," Mike Bowden of Anglo American (mining) said, "It's about direct, tangible, visible contributions that apply digital technologies to mining, processing, logistics and maintenance."

Digital Business in an Asset-Centric Organization

A digital business model that supports asset centricity also can apply to some industries where the product is (somewhat) differentiated. One example is the semiconductor industry — very capital (asset) intensive (for fabrication plants) with high value put on asset availability. The airline industry is another example where effective management of the tangible assets is a key to success (for example, the exclusive use of Boeing 737s is one of the keys to the success of Southwest Airlines). Industries that would benefit from asset-centric interpretation of the digital business model include aerospace and defense, chemicals, construction, mining, oil and gas, semiconductors, steel, telecom, transportation, and utilities. We get frequent client inquiries from such businesses regarding the performance of their assets and optimizing the processes to keep these assets running effectively and efficiently.

In the evolution of digital business and digitalization, Gartner has highlighted the growing significance of "things," alongside people and businesses as active participants in the business model.

In the context of an asset-centric business:

- The "people" in most of the digitized asset management scenarios are the actors within the various businesses involved, including the owner/operator of the asset, third-party service providers and the equipment OEMs.
- The "things" are the assets themselves, the components that make them up, and the various sensors and tools used to monitor and maintain them.
- The "businesses" are composed of the processes that interact with the people and things.

The "things" and the digital enablement of them in an industrial context are the machines of industry and business, such as electric motors, trucks, conveyors and industrial automation. We refer to these as operational technologies (OTs) to distinguish them from information technology (IT). These are the systems that detect or cause a state of change in a physical enterprise asset, and the data from these OT systems are the fuel to drive the engines of analytics that will provide differentiation.

For product- and customer-centric businesses, the advances in the Internet of Things and digital business are about the new opportunities or product innovation and consumer engagement, the use cases, and the new business models that the CIO can initiate or be involved with at the outset of a project. One of the biggest differences in the asset-centric world (apart from the actual technologies and vendors) is that many of the use cases, deployments and technologies may have already taken place, and are established in the company through forms of industrial automation. However, they are not integrated or fully exploited. CIOs of asset-centric businesses are effectively on the outside looking in at a technology portfolio that already exists and was established 30 or 40 years ago. Because of the changes in OT, however, (becoming more digital, connected and standardized) there is an opportunity and, in many cases, a need for the CIO to get involved. But if their starting points are very different, and their relationships to the business are quite different from being "equals." CIOs in these companies need to consider how to maximize return on assets and integrate OT management in a digital business to shift the emphasis to *managing* change and inserting themselves in a process of governance. It is through that process that the CIOs of digital asset-centric businesses will help achieve differentiation and gain the respect of their business peers — by looking after their own assets.

FIGURE 1 Impacts and Top Recommendations for CIOs of Asset-Centric Organizations

Impacts	Top Recommendations
CIOs of asset-centric businesses must focus on optimizing asset support as the primary mode of differentiation.	• CIOs must understand the nature of the business and focus their attention on the systems of differentiation, whatever they may be.
When EAM becomes the system of differentiation, asset-centric businesses should support tools, such as asset performance management, to improve performance.	• CIOs should plan for a steady cycle of reviewing asset-oriented systems to ensure that no opportunities are missed.
CIOs of asset-centric organizations must face the challenge of having the key asset technologies of the business under the control of engineering and operations.	• CIOs should initiate a program of IT/OT convergence to reassert and then leverage the data held on the IT environment.

Source: Gartner (June 2014)

Impacts and Recommendations

CIOs of asset-centric businesses must focus on optimizing asset support as the primary mode of differentiation when supplying commodity products to a limited customer base.

In an asset-centric business, the concept of differentiation moves to asset care, to provide reliability at minimal cost, and to create the optimal balance of efficiency (the cost of providing the assets in service) and effectiveness (the availability for production or revenue earning service). When supplying commodity products to a limited customer base, organizations must focus on optimizing the asset base as the primary mode of differentiation.

Few businesses are purely asset-centric. However, those that are generally are not serviced by mainstream IT solutions, which are focused on products and consumers. Asset-centric organizations, however, are some of the biggest companies in the world. It is not enough to have applications that are industry specific or having industry content. These companies must also differentiate by using the tools and levers at hand. CIOs in these organizations should allocate their attention and resources accordingly.

CIOs of these businesses must understand what levers of differentiation exist for their business type to best support the business mission and, therefore, the CEO. They should emphasize how they can improve equipment availability at minimal cost and initiatives to improve the business performance overall. In an asset-centric organization, the CEO's attention devoted to asset care is greater than 90%. By contrast, for manufacturers of consumer products, the focus on asset performance (manufacturing plant) may be less than 20%; the primary focus is on product (design, planning, and sourcing) or customer aspects (delivery, marketing, and pricing) or service aspects (engagement, advice, and customer-facing opportunities).

Most companies are a mix of product, asset, customer and service, and you will find their systems of differentiation allocated accordingly. For example, Apple is a very product-oriented company, with an additional focus on customer engagement. However, it has no assets to speak of (it outsources manufacturing). A typical bank is customer- and service-oriented, with few physically maintainable plant assets (for example automated teller machines [ATMs] and the branches themselves) and not much product innovation (because financial "products" are constrained by regulatory frameworks).

Recommendation:

- When supplying commodity products to limited-customer-base organizations, CIOs of asset-intensive businesses must focus on optimizing the asset base as the primary mode of differentiation.

When EAM becomes the system of differentiation, CIOs of asset-centric businesses should support tools, such as asset performance management, to improve business performance.

If the lever for differentiation is the capability for asset care, then skills and maintenance processes that create that differentiation need to be exploited. The supporting tools are in areas such as asset performance management (APM) on a solid foundation of enterprise asset management (EAM), and for some investments in mobile workforce technology to get the asset information to and from the field. For a manufacturer, an asset management system may be relegated to a system of record to keep the plant running. In an asset-centric business, thought must be given to having the best asset management strategy, and supporting as many software products as possible. This will include building on standard preventative maintenance strategies and extending to condition-based maintenance, predictive maintenance and reliability-centered maintenance.

The process in use should be reviewed regularly with a cadence that looks to a one- to two-year planning horizon with the products themselves reviewed, upgraded and even replaced in a two- to three-year cycle. This will then ensure that the most modern, developed and advanced software is in place to support the (hopefully) differentiating asset strategy. Pace-layered systems (systems of record, systems of differentiation and systems of innovation) are very applicable in thinking about investments in differentiation.

Recommendation:

- CIOs of asset-centric businesses should plan for a cadence of reviewing the products and solutions around asset management through a two- to three-year cycle. Not necessarily to replace the products, but to ensure they are on the latest release, are using any additional modules and to look for extensions that can be utilized for analytics.

CIOs of asset-centric organizations must face the challenge of having the key asset technologies of the business under the control of engineering and operations, rather than IT departments.

In an asset-focused organization, the key assets are under the control of OT, rather than IT.

This means that the data associated with "things" inside the business will be locked in OT systems that are under the care of and ownership of the engineering and operations groups, not the IT department. This represents a critical issue for CIOs in asset-centric businesses.

Few technology areas will have greater potential to improve the financial performance and position of a commercial global enterprise than predictive analytics. While much of the attention on predictive analytics has been on revenue-oriented forecasting of likely consumer behavior, ongoing improvements in APM capabilities will have a cost-saving effect on operating expenses. APM solutions will provide condition-based, reliability-centered and risk-based maintenance solutions to asset-centric industries (those with little to no differentiation of their products or customer engagement models — for example, mining, upstream and midstream oil and gas, power, infrastructure, and heavy transportation) and asset-intensive industries (those that employ significant capital equipment and plants in the execution of their missions — for example, manufacturing, facilities and consumer-facing transportation).

To make full use of analytics in this context, you must extract as much relevant data as feasible from the assets and equipment themselves to feed the reliability strategic road map identified here. Monitor equipment as a customer-centric organization would monitor its consumers. It is important to be able to deploy the asset equivalent of "sentiment analysis" and "buying behavior," but in the context of equipment usage, degradation and failure analysis.

This creates a significant change about the role and actions of the CIO when it comes to OT alignment and integration. Digital business generally talks about a broader scope of the Internet of Things by including consumer devices and customer-facing initiatives largely absent in the industrial, commercial and internally focused OT world. CIOs need to take action to align and integrate the IT and OT worlds in their businesses.

Recommendation:

- CIOs in asset-centric businesses should begin a program of IT/OT alignment and integration to bring the engineering groups and the information repositories of OT systems, and unlock the value hidden in the equipment-oriented OT systems to be leveraged for asset analytics (see "2014 Strategic Road Map for IT/OT Alignment" and "Realize the Benefits of IT and OT Alignment and Integration").

Source: Gartner Research, G00260060, Kristian Steenstrup, Stephen Prentice, 19 June 2014

About Rolta

Rolta is a leading provider of innovative IT solutions for many vertical segments including manufacturing, oil & gas, petrochemicals, utilities, financial services, retail and healthcare. By uniquely combining its expertise in the IT, Engineering and Geospatial domains, Rolta develops exceptional solutions for these segments.

An Oracle Platinum Partner with more than 1,000 Oracle resources worldwide, Rolta has been recognized by Oracle 16 times in the last decade for outstanding achievement in serving the needs of our clients. The Company leverages its industry specific know-how, rich repository of intellectual property that spans business intelligence, analytics, field-proven solutions frameworks and deep expertise in cutting-edge technologies to provide sophisticated enterprise-level integration solutions.

Rolta is a multinational organization headquartered in India. Rolta Americas offices are headquartered in Alpharetta, GA. The Company operates from 40 locations worldwide through its subsidiaries and has executed projects in more than 45 countries. Rolta benchmarks its quality processes to the world's best standards, like successful assessment for Software Application Development and Maintenance at the highest Level 5 of SEI's CMMI® version 1.3.

Rolta is listed on the Bombay Stock Exchange and National Stock Exchange, and forms part of various indices on BSE/NSE in India. The Company's GDRs are listed on the Main Board of the London Stock Exchange. The Company's 'Senior Notes' are listed on the Singapore Stock Exchange.

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