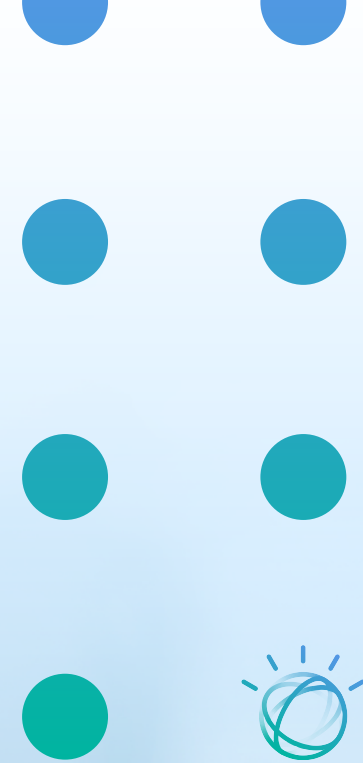


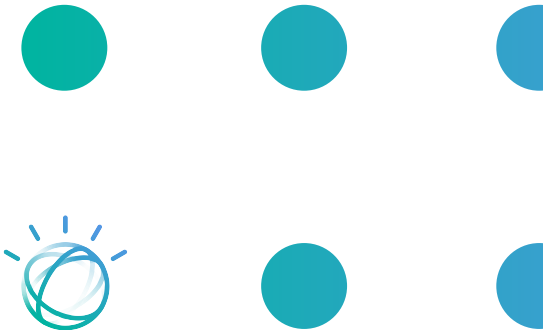
Delivering continuous ROI at the world's largest contact lens manufacturer

Vision Care, a subsidiary of Johnson & Johnson, is standardizing on IBM Maximo to reduce costs, drive continuous improvements and share best practices



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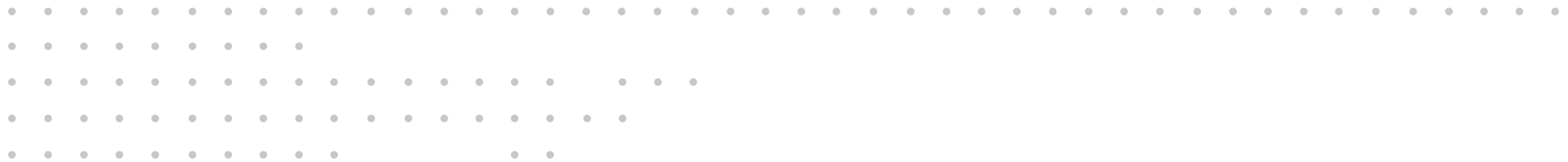
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Keeping an eye on operational efficiency and innovation

Vision Care, a subsidiary of Johnson & Johnson, standardizes on IBM Maximo to reduce costs, drive continuous improvements and share best practices

Vision Care, part of Johnson & Johnson, is the world's largest contact lens manufacturer. Working in partnership with Banetti and G3P Consulting, Johnson & Johnson is in the process of standardizing on the IBM® Maximo® Asset Management solution, rolling it out to 150 manufacturing facilities. The undertaking spans 35 countries, 10 asset management roles and 10 different languages.



01

Setting the vision

Achieving organizational alignment, best practices, compliance improvements, and higher utilization rates

Disparate systems cause widespread organizational inefficiencies

The use of different systems and solutions caused widespread organizational inefficiencies across Johnson & Johnson. To maximize return on investment for both its physical and human assets, Johnson & Johnson needed to establish an enterprise asset management standard across Johnson & Johnson.

The complexities associated with multiple asset management systems from different vendors prevented the organization from driving improvements at a macro level for two reasons. First, the use of disparate systems and isolated practices made benchmarking virtually impossible. Second, many of the existing systems and solutions had a non-validated state that created compliance risks, obsolete software and hardware, and inconsistent usage. In order for Vision Care to take advantage of standard processes, naming conventions and workflows, it needed a solution built on standards.

A single EAM solution

Johnson & Johnson selected Maximo to be the single enterprise asset management solution across all of its sites. This standardization is helping Vision Care reduce costs, while driving continuous improvements.

Using Maximo, Johnson & Johnson is able to address two of its main challenges:

- Maintain and upgrade systems in a consistent way, making validation easier and less expensive
- Identify and share best practices across all their sites

A foundation for the future

Maximo provides the foundation for standards on which future process and operational improvements can be based. This allows Johnson & Johnson to position itself for future innovation and business transformation across many sites.

The benefits of standardization

Cost savings

- Headcount reduction
- Optimization of PMs
- Reduction in site PC license costs

Turnaround time on improving job plans

- Maximo vs Local Quality System

Access to information out in the field

- Spare parts consolidation

Asset identification and tracking

Accurate asset costing (repair versus replace)

Audit readiness

Scope and scalability

The eight-year project plan consisted of three phases. The first, Enterprise Computerized Maintenance Management System (ECMMS), focused on configuring Maximo 7.5 to align with the Johnson & Johnson asset management program. Each site rollout was considered a separate project, with each estimated to take six to nine months to complete.

Over the course of the six to nine-month project, the program was divided into specific areas, including process and data assessment; internal and external compliance requirements; data alignments; assessment of cost savings opportunities; validation of data migration; user training and go-live support.

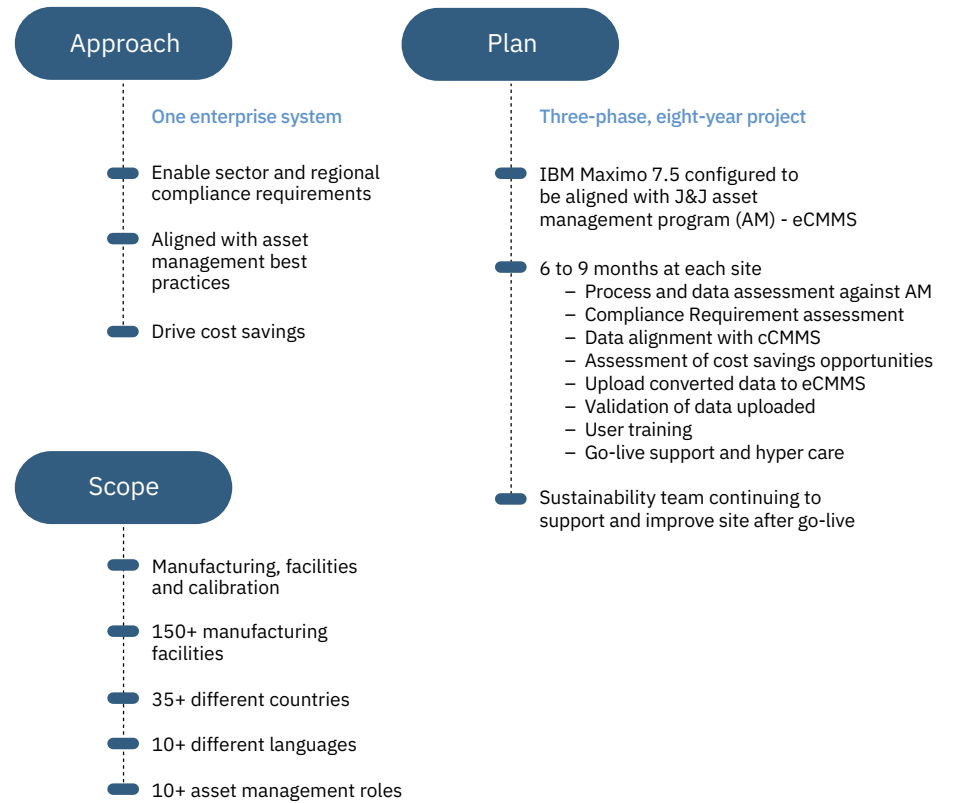


Figure 1: Johnson & Johnson implementation project plan



Aligning best practices

The adoption of Maximo as the single asset management solution aligned Vision Care with the Johnson & Johnson asset management best practices program. Implementing a best practices strategy at Vision Care that aligned to the best practices program at Johnson & Johnson resulted in Johnson & Johnson experiencing higher asset utilization rates—for physical assets, equipment, and the organization's human capital: its employees.

A future with analytics

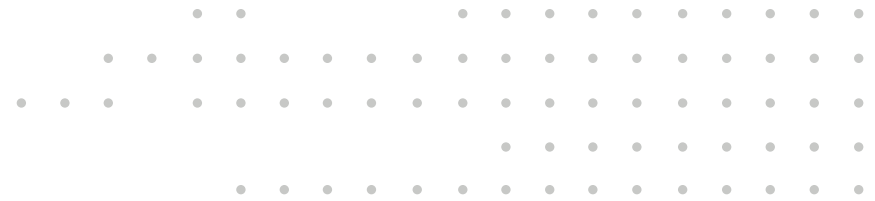
Innovation has always been a critical aspect of Johnson & Johnson's operating principles. Adopting a holistic analytics solution that helps the organization discover new ways to expand its market share is critical to the evaluation.

Critical learning

Based on the experiences gained from the last five years of rolling the program out, Johnson & Johnson now realizes how critical using the right terminology is to the transformation project's successful buy-in and adoption. Starting with value and return on investment (ROI) concepts can help avoid delays for future evaluations and decisions.

“Having a clear understanding of readiness within the stakeholder community is important. It takes time for individuals to understand new terminology and concepts like Internet of Things and even analytics. Bridging the vocabulary helps to overcome confusion; for example, using more acceptable phrases such as process control, rather than analytics, or condition monitoring, rather than IoT can help to bridge the gap between the knowledge bases of the different decision makers.”

Shannon Craft, Johnson & Johnson,
Execution Systems Manager



02

Preparing for standardization

Implementing a standards-based deployment to drive improvements in operational efficiency

The key to ensuring Johnson & Johnson's equipment and manufacturing facilities were performing to the highest level across the entire enterprise, and not just at individual plants, was the roll out of a globally standardized deployment. However, deploying a centralized, standardized technology platform rooted in common processes across 150 sites in 35 countries is a very difficult process.

Overall, the enterprise asset maintenance management program, endorsed by Johnson & Johnson Supply Chain Leadership, focused on analyzing, improving and managing, maintenance management processes creating breakthrough results in asset liability, asset positioning and availability that enable supply variability, and cost reduction.

A phased approach

It is commonly accepted that maintenance only drives 10 to 30 percent improvement on asset performance, with the bulk of that improvement coming from design or operations.

Asset performance depends on

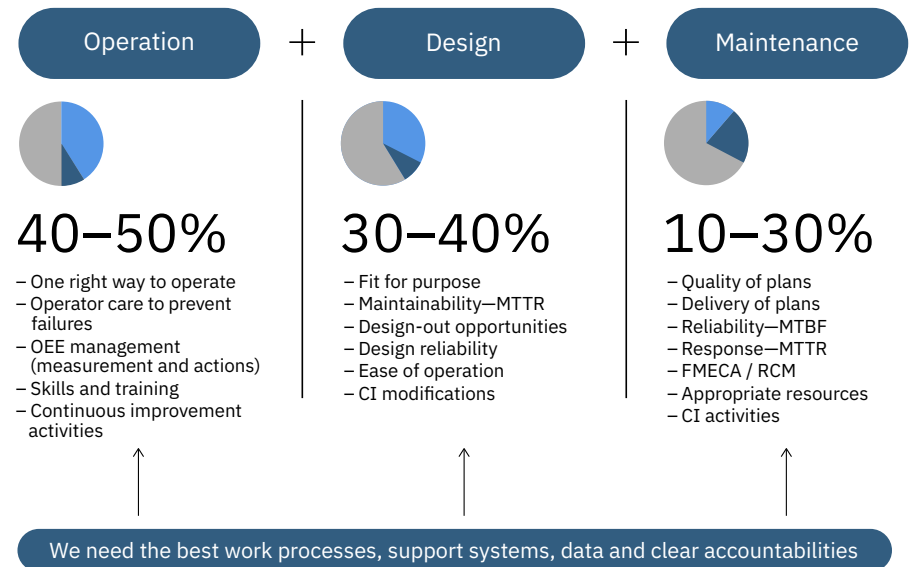


Figure 2: Johnson & Johnson implementation project plan



Prior to using Maximo, Vision Care had eight systems in place. Although Vision Care's eight different systems were manually efficient, they offered no way to leverage technology advancements. For example, the facilities area had more than three work order systems, the calibration department was completely disconnected from the manufacturing tracking system, and there was no cost tracking against assets.

By bringing these areas into the unified enterprise solution, Johnson & Johnson eliminated a massive amount of paper usage, which in itself introduced savings in terms of administration time, data availability for training and statistical analysis, and calibration label printing.

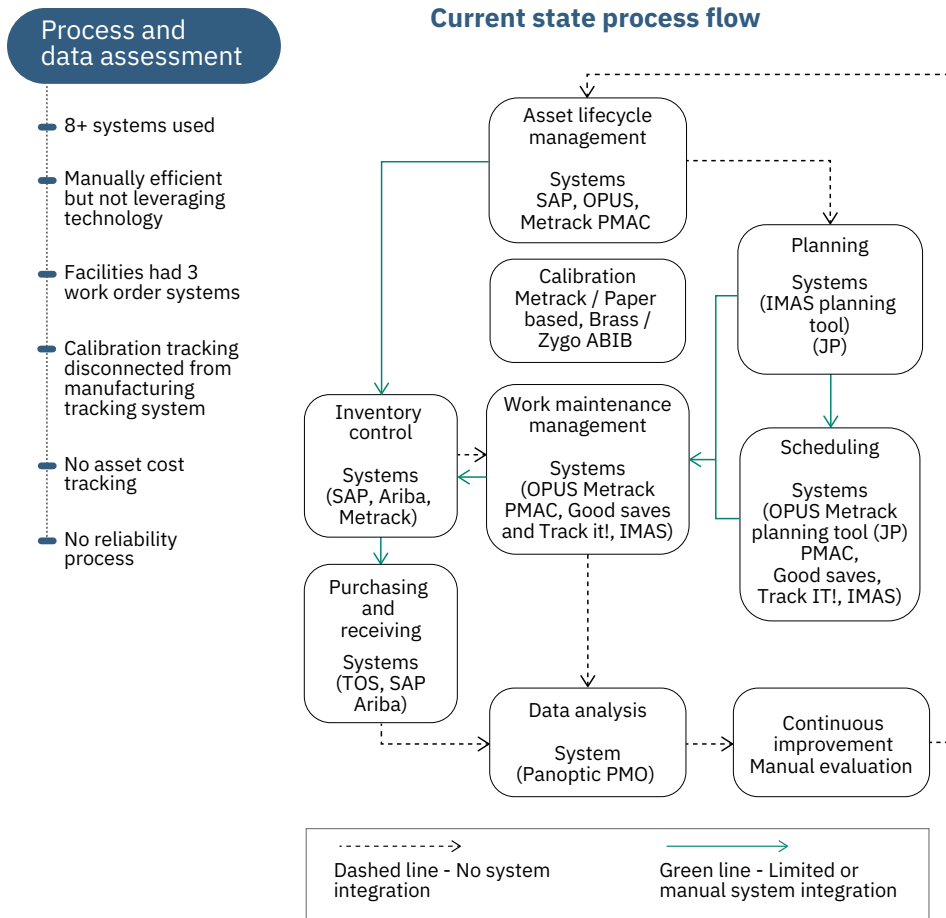


Figure 3: Johnson & Johnson assessment process

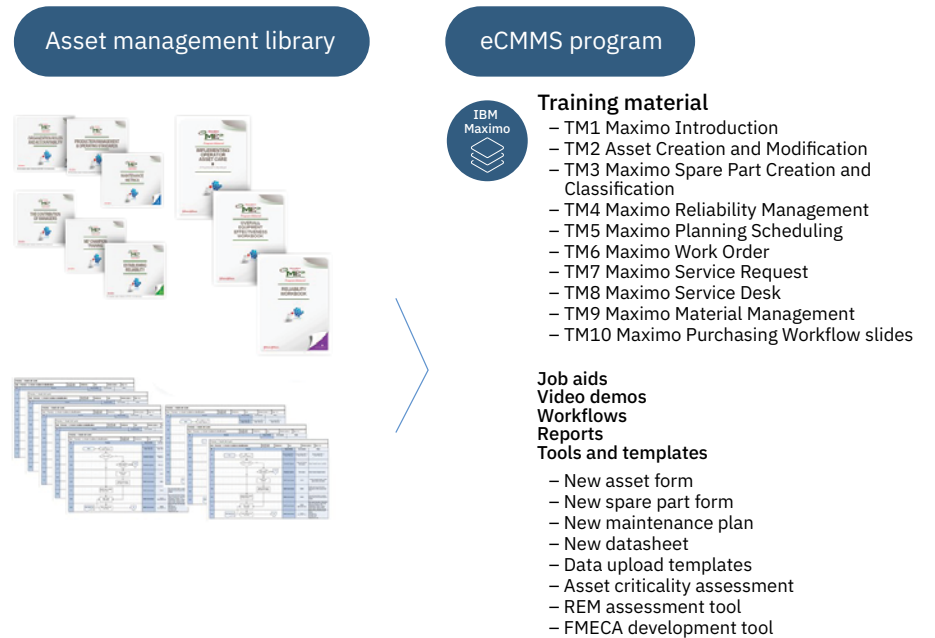


Figure 4: A unified enterprise asset management strategy built on the asset management process

Partnering with G3P Consulting and Banetti, J&J developed a nine-month standardization plan to prepare Vision Care for standardization. The Vision Care project was deployed in the same way as an assessment: by first understanding where the organization was in terms of asset management and maintenance maturity, and then identifying what practices were already in place. This subsequently helped identify where opportunities for improvement existed.

G3P Consulting and Banetti worked with the site to develop and address any gaps. These gaps included asset registration, asset predictability, maintenance plans, a failure code hierarchy, how labor contracts were managed, and process gaps such as planning and scheduling, reliability management, materials management, and contracts.

Initially, the organization focused on identifying all the systems in use. During this process, they documented the legacy systems and requirements for the manufacturing site, including all the processes and opportunities identified using the benchmark asset management program. To help implement the program, the G3P Consulting team worked with different departments to build the industrial capabilities designed to deliver sustainable benefits for Johnson & Johnson.

The program, rooted in robust practices and processes, is comprised of several sections:

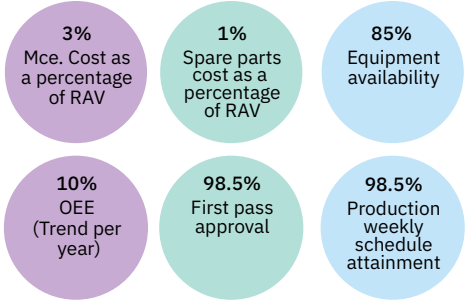
- The first section encompasses maintenance management. Specifically, work control processes, work planning scheduling, and equipment records are tracked.
- The second section focuses on production management, which includes operational asset care, workplace organization and layouts, process capability, and new product introduction processes such as keeping changeovers.
- The third area is reliability management. This plays a huge role in determining what processes need to be put in place to replace assets and track their lifecycles.
- Another section is performance management, which is used to view the organization's rules and accountabilities, skill development, training processes, maintenance metrics, and production metrics. An additional aspect of this area is Overall Equipment efficiency (OEE); specifically, examining continuous improvement for budget costing.
- The last section focuses on results.

based on a robust set of practices and processes

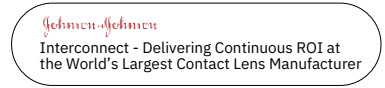
Section 1	Section 2	Section 3	Section 4
Maintenance management	Production management	Reliability management	Performance management
Work control	Product management & operating standards	Design & asset replacement	Org roles & accountability
Work planning & scheduling	Workplace organization & layout	Reliability management	Skills development & Training
Equipment records	Process capability	Reliability based maintenance	Maintenance metrics
Service Contract management	OAC	Reliability based maintenance approaches	Production metrics
CMMS	Equipment changeover		OEE
Parts inventory management	Production information strategy		Continuous improvement
Calibration	NPI		Budgeting & costing

Section 5

Results



The AM Program is organized into sections of best practices that address all sources of asset performance losses. It establishes the plant performance profile through the assessment.



* RAV = Replacement Asset Value

Figure 5: Johnson & Johnson had a robust set of practices and processes in place

Measuring results

In order to understand how the sites are performing, the organization tracks six main metrics:

- Maintenance cost as a percentage of the replacement of the asset value (benchmark is 3 percent)
- Spare parts costs as a percentage of the replacement of that asset value (benchmark is 1 percent)
- Equipment availability (benchmark is 85 percent)
- Overall Equipment efficiency (OEE) at 10 percent of OE trend per year:
 - 98.5 percent of first base approvals
 - 98.5 percent of production weekly scheduled attainment

Ranking the sites using a maturity model

Johnson & Johnson relies on an assessment that spans across the measurement categories. Each site is ranked in a maturity matrix that includes beginners, reactive mode, implementers, innovators, and top performers. The overall asset management program is basically the journey of where the sites exist today right through to when they reach the top performer level. The program has been in place for 15 years and has generated many benefits for Johnson & Johnson, including maintenance program improvement, OEE improvement, capital avoidance by tracking hidden plan improvements, and revenue enhancement and capacity in constrained lights.

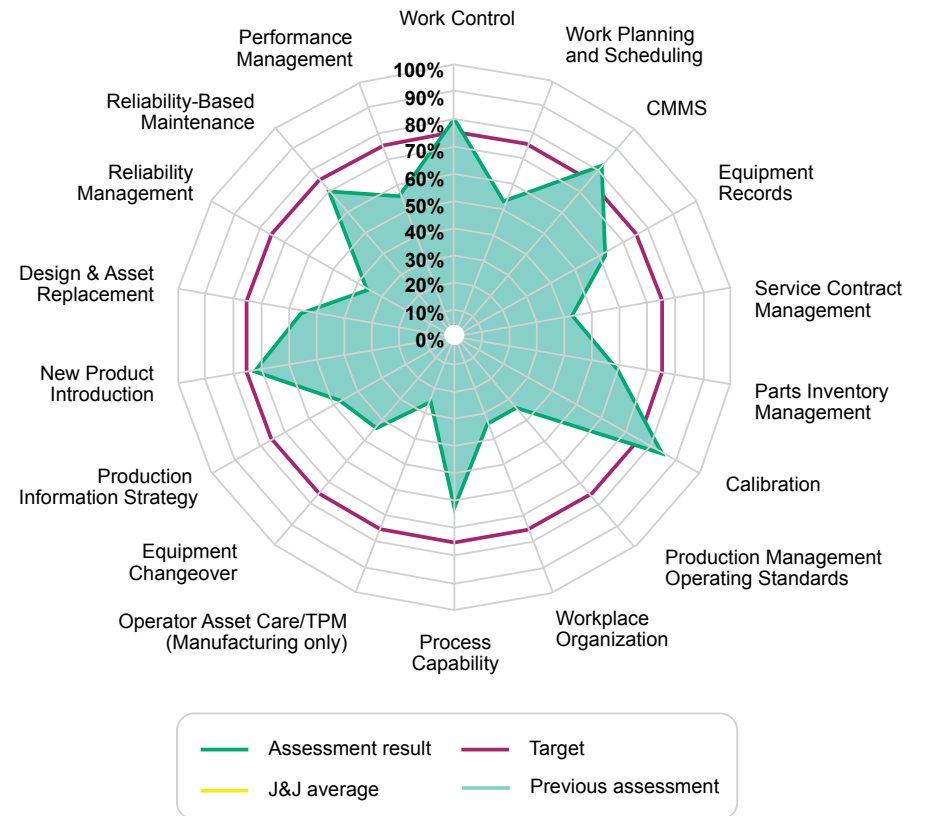


Figure 6: Johnson & Johnson used a site maturity matrix.

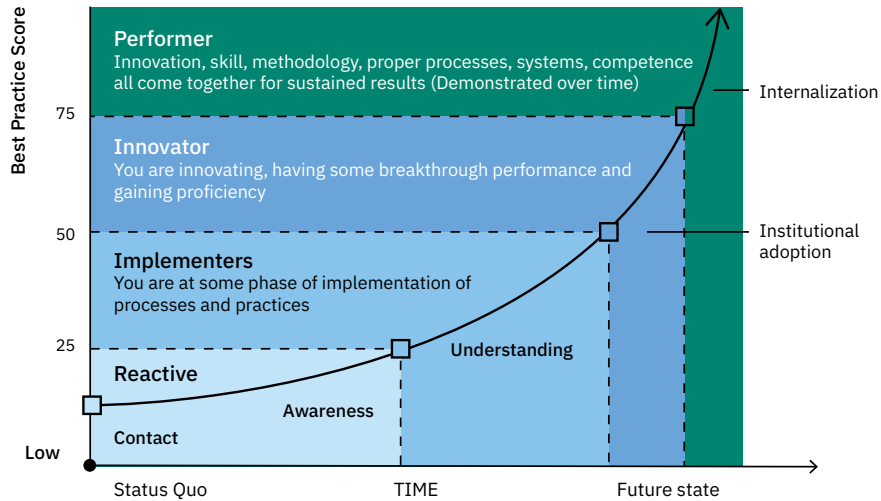
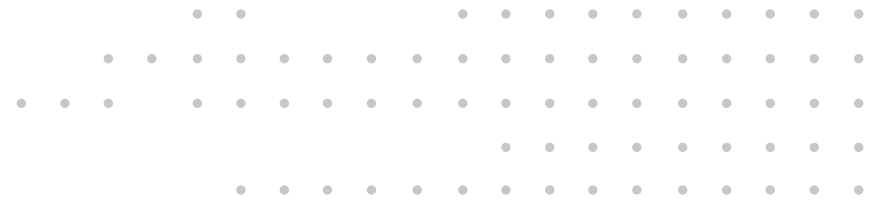


Figure 7: Sites are given a best practice score (ranking).

From this, Johnson & Johnson created a set of processes that G3P Consulting used to deploy the ECMMS solution. For the majority of sites, the focus lies in the discovery phase. For example, from all the Asset program processes that are visible in the Spider Web Graph, the eCMMS implementation assessment focuses on asset lifecycle tracking, reliability management, work management, materials management, service and contract, and purchasing.

To assist the sites in the discovery phase, G3P Consulting created a standard set of templates for use with the system. The templates hone in on what the solution needs to address, providing a baseline to create training materials, job aids, videos, demos and workflows reports.



03

Achieving results

Reduce costs, drive continuous improvements and share best practices

Decreasing downtime rates

Deploying a reliability program in conjunction with the ECMMS enabled the organization to reduce equipment downtime significantly. Through analysis, the organization was able to tackle both planned and unplanned downtime—analyzing what was going on, while looking at how the equipment was failing.

Improvements to the plant management and production program

The organization increased efficiency through preventative maintenance (PM) improvements: streamlining job plans and content, improving scheduling capabilities, and creating the ability to track and report labor much more efficiently.

Headcount cost savings

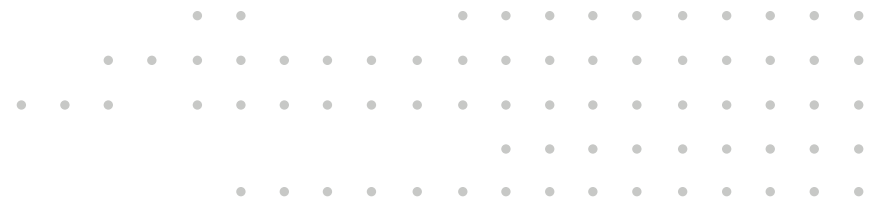
The new program also helped optimize the time that team members spent doing maintenance work. By helping employees work more efficiently, the program helped reduce headcount, which in turn led to further cost savings.

Decreased site licensing costs

The organization experienced reductions in site licensing fees, as a result of systems redundancy. This also led to a significant reduction in turnaround times for maintenance activity approvals.

Accessible data

Data from the shop floor is now accessible, helping the organization understand inventory for internal and external spare part ordering, and identify and track asset lifecycle costs.



04

Investing in the future

Delivering continuous, predictable return on investment (ROI)

A standards-based process is central to success

Process is integral to Johnson & Johnson's long-term return-on-investment objective. This means not only processes that are standardized for typical planned maintenance, preventive maintenance, or corrective maintenance, but also processes to support predictive maintenance: the ability to repair things that have not broken yet.

With standards in place, Johnson & Johnson's goal to achieve continuous return on investment, while leveraging mobility, meters, automatic meter readings, condition-based maintenance, and predictive maintenance, was well within sight.

Establish a baseline

The organization had already set up a standard operations and asset management practice as part of their global programs. To take advantage of the global program, Johnson & Johnson established a basic understanding of the current state of each site:

- What the sites were doing now
- How the sites have been utilizing concepts such as continual assessment and analytics, which requires process measurement
- How they are using ECMMS capabilities to explore data and identify key performance indicators (KPIs)

Common dashboards and KPIs

Visualizing the landscape through common dashboards provides Johnson & Johnson with the necessary insight into key measure points. Having visibility into trends regarding equipment performance, power usage, output—all compared to what the past measure points have been, whether they occurred an hour ago, a day ago, a month ago, or a year ago—is a huge benefit.

Rather than understanding why something failed after it has been repaired, it's critical to have indicators in place that can alert the organization before a failure occurs, while providing insight into why the failure is likely to occur. The combination of the two enables the organization to plan for potential downtime, or even better, avoid it altogether.

Leveraging Internet of Things

The next step to creating a single, end-to-end view of manufacturing plants is to leverage the Internet of Things to bring additional data into the ECMMS system.

“With IoT in place, J&J has an unprecedented window into the enterprise technology landscape, both legacy and planned. The solution provides a single dashboard view of the enterprise, enabling insight into the ‘hidden’ sectors of the manufacturing organization while providing intelligent decision support across the enterprise, from top to bottom.”

Shannon Craft, Johnson & Johnson, Execution Systems Manager

Leveraging IoT gives Johnson & Johnson the ability to look deeper into how equipment is performing, answering such questions as:

- Is an asset behaving correctly?
- In what conditions does the behavior change?
- Is it operating optimally, or does it require additional support even when it appears to be operating at 100 percent?

The goals of the IoT implementation include:

- Providing a turnkey solution for global sites
- Creating a dashboard for visualization of production operations from top to bottom
- Leveraging real-time asset information within Maximo
- Enabling visualization and analysis of Maximo and sensor data
- Improving data quality in the short term and ensuring ongoing data completeness

The potential of analytics

In the future, Johnson & Johnson aims to take advantage of analytics tools with the ability to look backward and forward, to provide the insights necessary to implement real predictive maintenance. Being able to leverage data—regardless of the age, format, location or structure of that data—can help create intelligence worth its weight in gold.

From reactive to proactive

Johnson & Johnson is pursuing predictive maintenance as a way of managing costs and improving operational efficiency. The company understands that the time it takes to respond to an event is critical, and when something fails, it's always an emergency. Operating in a reactive mode requires additional staff and time; as a result, Johnson & Johnson sees predictive capabilities as an opportunity to save on labor expenses.

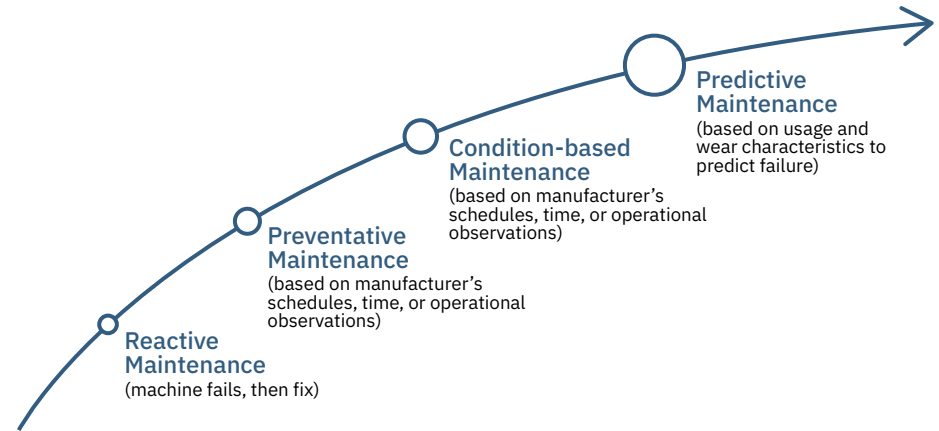


Figure 8: Johnson & Johnson are on a path to predictive maintenance

The multiplier effect

As Johnson & Johnson and Vision Care implement a standardized approach to asset management, their aim is to gain benefits such as critical decision support at the time action needs to be taken.

“It’s a multiplier effect: when the organization experiences a decrease in labor costs, and an increase in production and capacity, overall operations become much more cost-effective.”

Matt Boehne , Business Lead, Banetti

By focusing on critical planned maintenance and less on emergency or corrective actions, Johnson & Johnson expects to see an increase in overall resource utilization, and greater efficiency.

For more information

IBM Watson IoT™ learns from, and infuses intelligence into, the physical world to transform business and enhance the human experience. To learn how Watson IoT is transforming industries with cognitive insight into IoT data, visit ibm.com/internet-of-things.

Maximo Asset Management can distill insights from the Internet of Things to help focus maintenance resources, reduce unplanned downtime and increase operational efficiency. Gain near real-time visibility into asset usage, extend the useful life of equipment, improve return on assets and defer new purchases, all while unifying processes for wide-ranging enterprise asset management functions across multiple sites.

To learn more about how Maximo Asset Management can help you manage your enterprise assets more effectively, contact your IBM representative or IBM Business Partner, or visit ibm.com/bb-en/marketplace/maximo.

[Read the paper](#) to learn more about how the IBM Maximo Enterprise Asset Management solution provides insight to achieve better planning and control of all your assets.

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