



IHS **Operational Excellence and Risk Management**

## Overcoming MRO Supply Chain Dysfunction

How to Transform Inefficient Maintenance, Repair and Operations Organizations into High-Performance Supply Chains that Deliver Company Profits and Operational Excellence



## The Untapped Opportunity

Today, most business leaders don't yet associate organizational, transformative changes with their companies' maintenance, repair, and operations (MRO) – the critical supply of spare parts, materials, chemicals, equipment and supplies necessary to keep plant and facility assets operating safely at optimal levels of performance. Very few companies recognize the valuable opportunity to address MRO supply chain performance, despite the fact that there is a significant opportunity to drive cost savings, while increasing productivity, equipment reliability, and production. Ironically, MRO supply chain performance and the reliability of associated assets is critical element of Operational Excellence for these asset-intensive companies.

## A Decades-old “Cost of Doing Business”

For many, MRO as seen as a cost of doing business and they ignore the fact that related inventory serves a purpose in the grander scheme of things. Involvement is limited to infrequent requests to cut MRO inventory or find cheaper suppliers, with little thought given to the broader role that this department plays on an organization's bottom line. In fact, the typical MRO inventory can represent millions of dollars in investment, the vast majority of which often sits unused year after year.

Blame the “silo” mentality or the dysfunctional nature of the way many companies work between departments with creating a lot of the problem. Maintenance, operations, purchasing, plant management and executive management have responsibilities, goals and objectives that are independent

of each other. Operating in an inefficient manner, and without any given consideration to how actions or decisions could affect other departments within the company places a huge risk for missed opportunities to control MRO material investments, achieve operational excellence and increase profits. The MRO organization has a far-reaching impact that very few businesses have stopped to measure, assess, and fix.

The list of stakeholders involved with MRO is long and, at some enterprises, can comprise of hundreds of individuals across multiple sites and plants. These stakeholders, who not only participate in MRO management but who are also enabled (or inhibited) by organizational performance to management of MRO over its lifecycle include:

- Procurement
- Engineering
- Materials Management
- Operations
- Stores
- Maintenance

By formulating a common vision for organizational areas like MRO, which truly impact corporate objectives, business leaders can enhance revenue growth, asset sustainability, corporate sustainability, and continual operational excellence. This white paper will help you shift your organization's current MRO mindset while illustrating the economic impact of the silo'ed viewpoint and helping you leverage MRO to enhance productivity, reduce inventory, and save money.

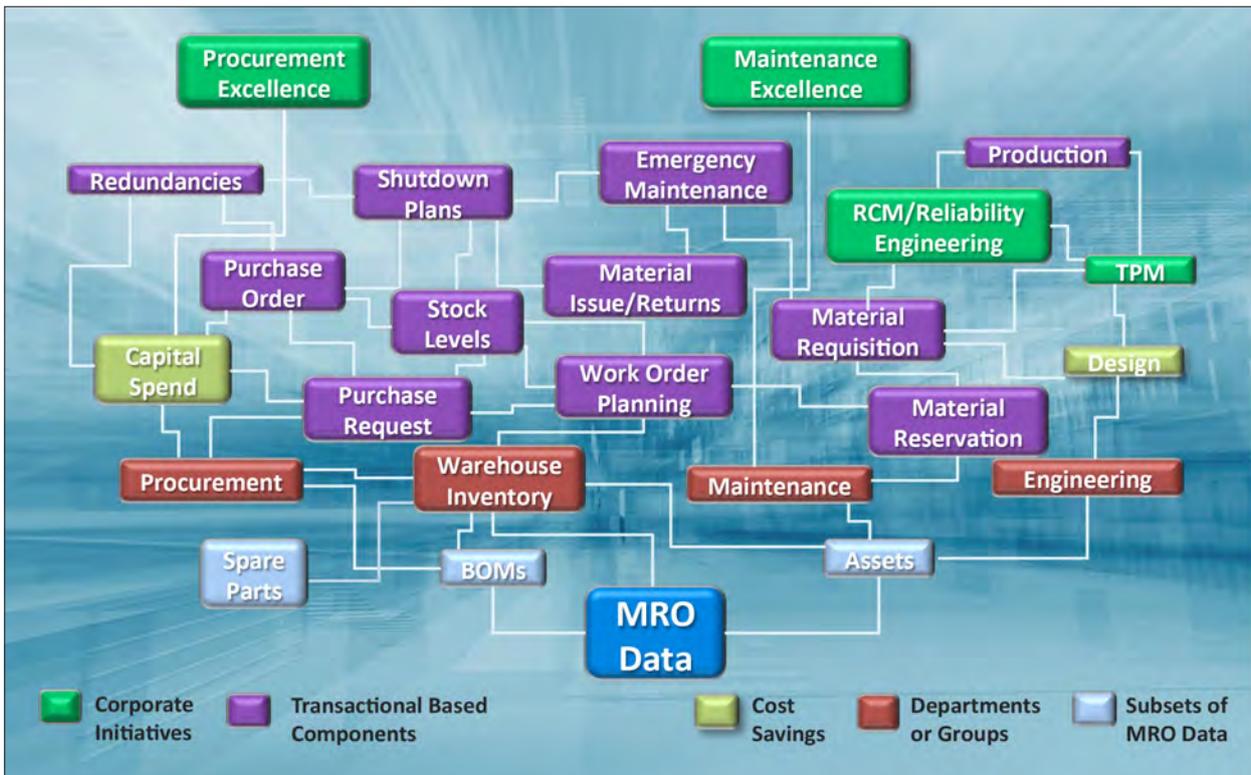


Figure 1.

The image below depicts a sampling of the inter-relationships related to various elements of a solid MRO Foundational Data environment. If the MRO Catalog information is “toxic,” there are many aspects of your business that can be negatively affected, ultimately reducing your bottom line.

## Shifting the Current MRO Mindset – A Strategic Imperative

Not unlike common struggles among government entities – where the silo’ed mentality rules – most internal corporate departments make decisions daily without ever consulting with other organizational sectors and leaders. Economies of scale, group decision making, and visibility across the entity all fade into the background as every department struggles to keep up with deadlines, goals, and mandates.

While well intended in most cases, this approach is both misaligned and expensive. A maintenance worker whose activities aren’t aligned with the purchasing department, for example, will soon start squirreling away repair parts for fear that they won’t be there the next time a piece of critical machinery needs to be fixed. Purchasing buys more of the parts and effectively increases inventory levels (and investment) on items that are technically already in stock. Inventory levels balloon, worker frustration over lost or missing parts ensues, and production and the “bottom line” suffers.

This is just one example of why companies need to shift their views and perceptions of the MRO department. Factor in the reality that the typical plant floor worker roams around for 30% of the workday looking for parts and equipment, and the case for common goals and MRO accountability becomes even more critical for companies that want to participate effectively in today’s competitive environment.

### Just how much MRO waste are we talking about?

Manufacturers spend more than 40% of their annual expenditures on maintenance-related costs that ensure critical MRO spare parts, materials, chemicals, equipment, and supplies are available to keep plant and facility assets operating safely and at optimal levels of performance. The same organizations are fraught with extremely costly, inefficient, and potentially risky internal practices around MRO spare parts and asset management. Here’s one example of a highly ineffective approach to MRO inventory management:

A Midwest-based shoe manufacturer had a maintenance superintendent who – wise to his staff’s parts-squirreling tactics – held semi-annual “amnesty days.” Much like the agricultural amnesty supervised by U.S. Customs at national borders, these two days found workers emptying their desk drawers, bins, and lockers and coming forward with their squirreled goods with no repercussions or consequences.

The amount of goods collected by the superintendent was as huge as it was disconcerting for the manufacturer’s purchasing department, which had already issued orders to replace the squirreled parts on multiple occasions since they went into hiding in desk drawers and bins.

Without solid, foundational MRO inventory to go on, establishing minimum and maximum reorder points was impossible, squirreled parts weren’t readily available to other repair technicians when they needed them, equipment downtime increased, and production time suffered.

On the other side of the equation, one Midwestern manufacturer has effectively reduced inventory by up to 20% by utilizing a standardized MRO spare parts catalog – a complete list of items, typically in alphabetical or other systematic order – that includes granular, useable data that multiple departments rely on. By leveraging an optimized MRO catalog the shoe manufacturer was able to:

- Reduce inventory from 5% to 20%+
- Identify duplicate items and obsolete materials
- Reduce line items
- Preserve working capital
- Lower finance costs
- Increase inventory turns
- Save on overnight delivery fees for critical parts that can’t be found
- Avoid false stock-outs
- Reduce procurement costs
- Reduce plant and equipment downtime
- Standardize functionally equivalent items to avoid Original Equipment Manufacturers (OEMs) purchases
- Increase maintenance worker productivity
- Increase equipment uptime

As a part of that operational strategy, the organization has implemented a parts dispositioning process that requires buy-off from both operations and maintenance before parts are returned, auctioned off, or otherwise disposed of. One box of 35 high-temperature flex hoses worth \$800 each (\$28,000 total inventory) was effectively offloaded after not being touched for years. As this manufacturer learned, bringing down the silos and replacing them with open communications and collaboration helps reduce MRO spend, boost company profits and sets the foundation for achieving operational excellence.

## Down for the Count: Natural Conflicts Among Departments

For the past few decades, organizations have added new plants, branched out geographically, purchased new equipment, gone through mergers and acquisitions, and adopted new technologies. Along the way, inventory has piled up, data has become disparate and inaccurate, and natural tensions among MRO, operations, IT, procurement, executive management, and plant management have inhibited the MRO department’s profitability. Here is how it works:

### Maintenance Vs. Operations.

Maintenance needs a piece of equipment for scheduled maintenance but operations is driving to meet a production schedule. The two departments go head-to-head on the issue and nothing gets done.

### Maintenance Vs. Procurement.

Parts are never in the storeroom when maintenance needs them. Who is at fault? Purchasing. Unless, of course, you ask purchasing – which will say maintenance “never requested the parts.” Purchasing is mandated to reduce spend and inventory, but maintenance wants more in stock since they don’t have the parts they need when they should have them for repairs. The circle of blame is never-ending in these situations.

### Maintenance Vs. Executive Management.

Executive management wants to institute “Operational and/ or Maintenance Excellence” programs, but does not clearly

define the programs or give maintenance the tools, budget, and support needed to institute the tactical processes to achieve the “excellence” initiatives. Fingers start pointing and in the end, no one wins.

### Maintenance Vs. Operations Vs. Plant Management.

Maintenance nags operations for access to equipment for scheduled maintenance, yet sales and plant management also pressures the same department to meet production schedules. “How can we possibly be expected to fulfill both requests?” is a common refrain in these situations.

### Maintenance at one plant Vs. other plants in organization.

A solution that is being successfully implemented at one location and showing ‘value’, is rejected by other plants because 1. They were not involved in the selection 2. Their plant is different and produces different products; hence they need a different solution. Different systems in use and no way to share common information such as spare parts used at both plants and being able to check availability at other plants when one plant is out of a part. Plants procure new parts, many times with expedited costs from vendor/shipper.

### The list of conflicts goes on.

There is literally no end to the number of departmental conflicts that take place on a daily basis at organizations where MRO’s strategic value is ignored, insufficient, or both.

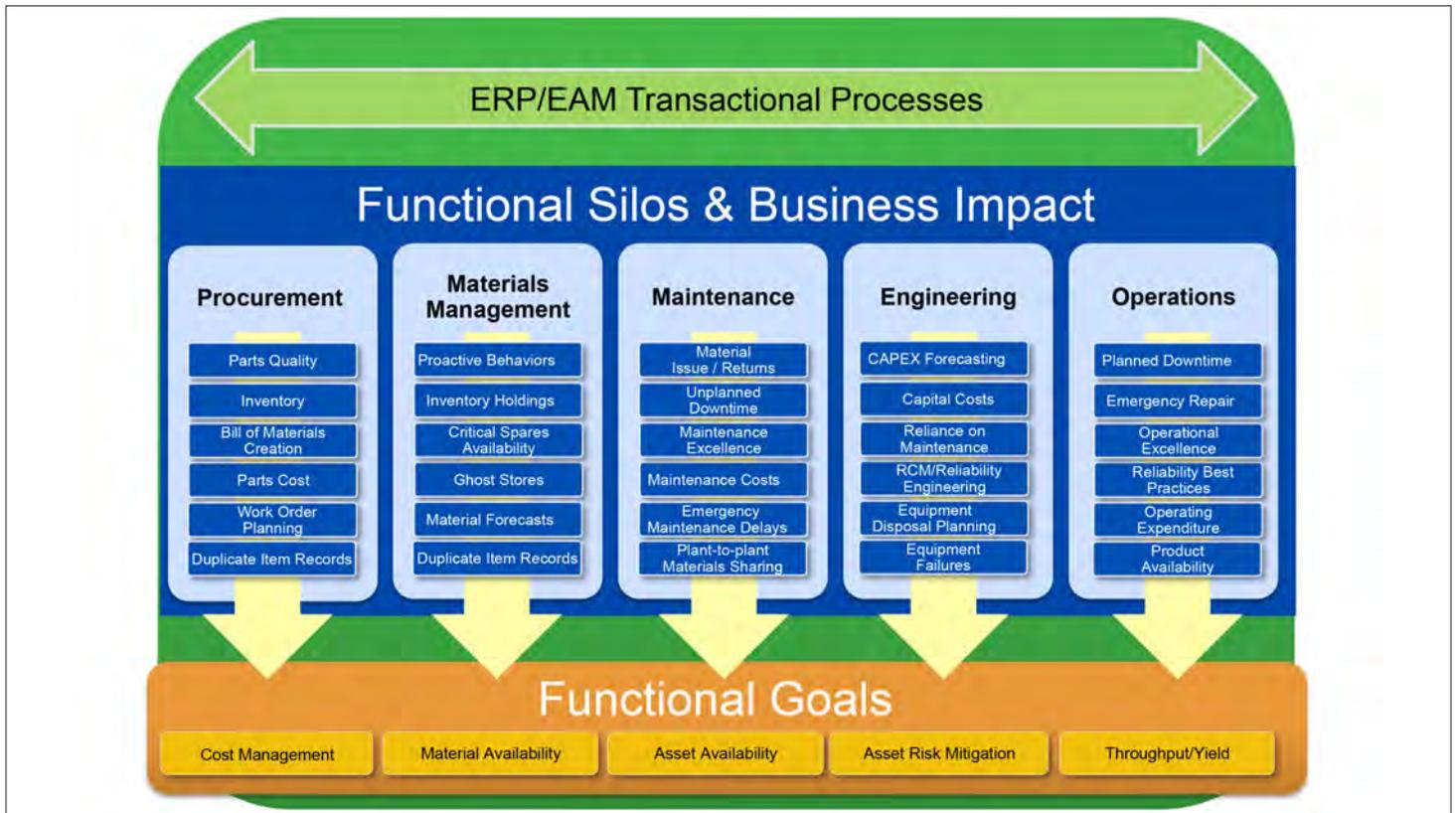


Figure 2.

The image depicts the typical landscape of a silo’ed organization. This type of organization lacks a common, overarching vision/ goals that is well-communicated, monitored and enforced through incentivized programs that link back to the common goals. Functional departments within work to meet competing goals which in turn negatively impact the business.

The good news is that the path to functionality is not that far off for the typical organization. To achieve that functionality, however, MRO must become a place where executive objectives and performance metrics can be improved, while at the same time breaking down natural silos by enabling multi-disciplinary groups to effectively utilize a single, trusted system.

When all departments become cognizant of the fact that their moves and decisions are linked to overall bottom line improvement and higher stockholder value – and are using the same, clean, common MRO data – the benefits of such cohesiveness will be evident. Everyone’s individual needs can be better addressed when they have a highly-functional system with data they can trust in order to do their job more effectively. It is possible for performance, trust, and relationships to improve while costs are being reduced and business objectives being met.

## Getting the House in Order

No organization wants to be seen as inefficient and unorganized, particularly in today’s competitive business environment. Unfortunately, in the quest to get lean, mean, and streamlined, many organizations have completely missed the boat when it comes to their MRO organizations.

The purchasing department, for example, is naturally incentivized by reducing MRO spend with less emphasis on maintaining proper inventory balances. The maintenance organization focuses on keeping equipment running and the plant floor centers on achieving production numbers. On the surface it may look like the three entities are working in tandem, but they’re not and here are just some reasons why:

- Maintenance is not perceived as a “profit” area for business, but as a “necessary evil.” Consequently, maintenance strategies are not put in place to maintain continuous performance improvement.
- The value of quality MRO foundational data is not well understood for how it can provide smoother operations and cost control/avoidance. Data is the cornerstone for cross-functional people, processes, and IT performance; parts inventory management links to material availability, which in turn links to equipment reliability, greater productivity and/or revenue, and reduced operational risk.
- The disruption of bad data is recognizable, but companies are unaware of the significant personnel risk and financial burden involved with the bad data. With not enough available resources to fix the problem, the issue goes unchecked for years or even decades.

None of these challenges are insurmountable. In fact, acknowledging the fact that MRO is directly linked to increased profitability and improved stockholder value is a step in the right direction. A healthy, centralized MRO catalog system is the critical element in making the essential organizational changes used to streamline your processes and workflows that keep assets running at the optimal performance level necessary to meet production needs.

Bringing all stakeholders to the table and taking a holistic view not only of the MRO data, but also of the processes and strategies that encircle it, is the next move. By simply implementing the following strategy, organizations will see significant improvements in supply chain efficiencies and enable step-level change in performance:

- Align corporate sponsor of each vertical or silo to the necessary change for process improvement
- Empower process champion to ensure cultural adaptation of process orientation
- Align vertical or silo goals with process goals
- Integrate KPIs for new behavior into daily management systems

Through these exercises organizations will be able to detect the “missing links” and begin systematically fixing them in order to optimize inventory, improve accountability, achieve common goals, and enhance both commitment and trust.

## Optimized MRO data = Higher Margins + Revenue Growth

It’s no secret that MRO data is dirty and decentralized at most organizations. Look closely at the product lifecycle within the typical MRO organization and you’ll notice that 50% of open work orders are waiting for parts; 30% of in-house stock will never be used; 8% of SKUs are duplications; and, on average, employees spend 25% of the workday looking for parts.

Organizations also waste an inordinate amount of time and resources attempting to make other pieces of the MRO lifecycle and maintenance/reliability related initiatives (such as inventory reduction) work with inaccurate master data.

Most organizations spend millions, if not billions, on indirect materials and self-funding MRO improvement initiatives that typically result in a 10% reduction in inventory, 35% reduction in black stock, a 15% reduction in annual MRO spend, and a 95% reduction in duplicate items, in addition to dramatic improvements to product availability and plant safety.

The following steps can be taken to transform critical enterprise data into a highly-functional and optimized system that will facilitate trust and collaboration among MRO stakeholders while enhancing EAM/ERP/CMMS investments and yielding a real and immediate return on investment. Moreover, optimized MRO data permits improvements to supply chain and asset lifecycle performance. It also accomplishes a prerequisite steps to driving continuous improvements that contribute to Operational Excellence and Sustainability:

- Commit to a unified data governance strategy with internal – and possibly external stakeholders – in mind
- Engage in project to transform disparate, incomplete and otherwise “toxic” part, supplier, and other data into an foundation for MRO supply chain optimization
- Leverage industry-standard taxonomies, tools, and knowledgebases to unambiguously govern MRO items and enable value-added improvements such as

- supply base rationalization, inventory optimization, or predictive maintenance
- Leverage IT tools that can seamlessly establish linkage between the unified data repository and critical EAM, ERP, CMMS and other valuable enterprise systems
- Evaluate change management and process reengineering activities that can more-effectively empower stakeholders, institutionalize industry best-practices, and achieve new levels of organizational and departmental effectiveness
- Establish data governance practices that include critical processes such as asset, BOM, supplier, and item introductions in order to preserve the data asset, sustain performance, and enable continuous improvement initiatives

It's not uncommon for organizations to rally around the untapped opportunities that exist for MRO supply chain optimization to experience millions of dollars returned immediately to the bottom line, efficiencies that foster more positive and collaborative talent pool, and transformation that rises to the top-most leadership of the organization to support Operational Excellence. Isn't it time to transform your organization into a streamlined machine that deftly leverages these and other benefits of solid, reliable MRO data?

## Summary

Many best-in-class companies are already using MRO master catalogs, processes, and workflows that keep their assets running at the optimal performance levels necessary to meet and exceed production needs. They know the value of having a healthy, centralized MRO catalog system that defies the numerous challenges outlined in this executive report and allows organizations to effectively achieve the sometimes-competing departmental goals and objectives.

By creating a common vision across these departmental goals, enterprises can beat the “dysfunctional” or “silo” mentality that's plaguing so many companies today and maximize the benefits of organizational transformation for operational excellence.

## About IHS

IHS MRO solutions offer proven methodologies, proprietary information, leading technology and analytical tools that are also backed by a deep roster of industry experts and recognized global analysts who understand very unique supply and demand characteristics of indirect materials and the management of MRO inventory. The unparalleled ability to provide industry-specific insight and expertise allows companies to identify supply chain and operating cost reduction opportunities, along with improvements to operational safety, production risk and asset performance. As a natural complement to enterprise resource management and (ERP) and enterprise asset management (EAM) systems, IHS maximizes the investment in these tools by streamlining best practices for MRO catalog management, inventory optimization, spend analysis and provisioning as well as procurement and supply chain excellence across the enterprise. IHS enables companies to attain enterprise-wide operational excellence thru optimizing their MRO Supply Chain Performance.

## Contributing Author

John Ferguson, CMRP, is the Director of Business Development for MRO Connection. Before working for MRO Connection, John was a senior account executive in the Operational Excellence and Risk Management business line at IHS, Inc. He has 25+ years of Enterprise Asset Management and MRO Supply Chain experience in multiple industries. He is experienced in all facets of Enterprise Asset Management, Asset reliability, MRO Supply Chain and overall Maintenance Management best practices. John has worked with many clients in a variety of industries on implementation of EAM/CMMS systems, EAM/CMMS audits, MRO Foundational Data Standardization - Governance and Asset Reliability and Maintenance Management improvement initiatives.

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