

# MRO Optimization

Best practices for effective inventory parts & storeroom management



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# Introduction

In today's extremely competitive business environment, companies are searching for any and every way to increase efficiencies, decrease costs, and manage assets wisely. One of the critical areas of efficiency and cost management resides in a place that too many firms downplay as a simple "cost of doing business": the parts storeroom. There are countless examples of companies keeping maintenance, repair, and operations (MRO) parts inventories that are literally out of control – meaning that storerooms hold too many parts, have duplicate part codes for the same part, keep inaccurate counts of parts on hand, and hold parts that are just plain not recorded. In addition, too often parts storerooms operate with poor inventory control procedures, execute inefficient parts stocktakes, and generally have inadequate controls on parts purchases, usage, and flow. In a large plant with 6- and 7-figure parts lists, these poor management practices can add up to 7- figure dollar wastage annually. Combine that with the not-so-hidden cost of equipment down-time due to the absence of the proper repair parts and you find a major source of profit loss hiding in plain site (pun intended)!

*"Effective management of maintenance, repair, and operations (MRO) parts is a vital concern for owners/operators of asset intensive operations. Recent ARC surveys show that users believe the benefits of optimizing MRO activities are large, over two thirds of the participating companies have done little to address the issue..."*<sup>1</sup>

This paper addresses a set of critical management methods for getting a storeroom into tip-top shape – and keeping it there. Collectively, these methods are called MRO Optimization. Many of these management options involve simple common sense; many involve the power of computer processing to aid in organizing a storeroom for maximum efficiency. Together, these tools and processes offer a timely opportunity to gain bottom-line profits without radically changing normal business practices. Gains can be found immediately in the areas of:

- Reducing surplus inventories and reclaiming capital from inventory investments
- Eliminating spot/maverick buying that drains capital
- Preparing for e-commerce initiatives that reduce purchase order costs
- Reducing stock-outs and maximizing process uptime
- Saving on purchases by consolidating the vendor base
- Building a standardized maintenance, repairs, and operations inventory database
- Maximizing the ROI of your asset management system

<sup>1</sup> Houghton LeRoy and Sid Snitken, "MRO Optimization: Benefits and Challenges," ARC Insights, May 2005, p. 1.

## Elements of MRO optimization

*“MRO Optimization has different meanings to different people in the maintenance process. To those who plan maintenance activities, MRO Optimization enables rapid identification of parts required for a work order, visibility of accurate parts inventories, and reliable promise dates for parts that must be ordered. To those who procure parts, MRO Optimization provides convenient access to all relevant specifications, equivalent part numbers and suppliers that can be contacted for a quotation. To those who manage parts inventories, MRO Optimization ensures that they know the quantity and location of the parts they have on-hand, the parts that will need replenishment in the future, and the order status of all parts that have been ordered. In all cases, users expect information to be complete, accurate, and unambiguous, all processes to be efficient and all software tools to support their specific role and workflow processes.”<sup>2</sup>*

Regardless of the meaning of MRO Optimization for any particular participant in the maintenance process, the elements of MRO optimization remain the pertinent: proper item identification (both asset and part), storeroom organization and planning, and an on-going effort to maintain a well organized storeroom operation after the initial goals of MRO optimization have been attained. This may sound like typical verbiage mumbled by typical business school graduates. It's not. Each of these elements contains critical processes for substantially improving a storeroom's performance – and, therefore, the performance of the entire business organization.

### Proper item identification

Businesses assume that their storeroom data is accurate with respect to the simple identification of parts and assets. This is so often not the case. Every storeroom has duplicate parts – same parts, different identifications. Such duplication promotes excess holdings and can also affect part shortages when one part name is needed but not held – and the same part is on-hand by a different ID. One of the initial steps of any MRO optimization is Data Cleansing. To maximize return on investment, asset and inventory data must be accurate and in a standardized form. Companies should building databases that ensure the integrity and accuracy of inventory information. With accurate and reliable database information, companies can maintain lower inventory levels and create “data-driven” purchasing. Data Cleansing helps companies edit and clean existing inventory data and create an accurate baseline database. Data cleansing itself includes standardizing item abbreviations, normalizing item descriptions so that the same conventions (size, shape, use, etc) are used throughout the storeroom and business, and categorizing items so that like items are grouped logically. During this process, duplicate items are tagged for consolidation or outright removal – frequently resulting in immediate inventory reduction simply by finding and eliminating excess material.

<sup>2</sup> Houghton LeRoy and Sid Snitken, “MRO Optimization: Benefits and Challenges,” ARC Insights, May 2005, p. 2.

This phase also offers the opportunity to shift plant asset and part identification nomenclature to industry standard terms. Many businesses change to UNSPSC (Universal Standard Products and Services Classification) Coding for their items so that they are using the most current global electronic commerce standard terminology, providing a standardized framework for classifying goods and services by commodity. In addition, many companies chose to enhance their item nomenclature during this phase so that part IDs are electronically matched using manufacturer name and part numbers. Parts listings are then reviewed and enhanced in accordance with industry standards (including UNSPSC coding as necessary).

### **Storeroom organization and planning**

A business builds a storeroom organization plan by electronically organizing inventory into commodity groups. The commodity groups can include bearings, electrical parts, pipes, valves, fittings, air and hydraulics, industrial supplies, instrumentation, Original Equipment Manufacturer (OEM) supplies and the like. Organizing the storeroom helps companies save time and capital, ensuring the right parts are on-hand, and eliminating surplus and obsolete inventory.

A company takes its cleansed data a step further by analyzing items to determine minimum inventory levels, existing excess inventory, recommended active inventory, and obsolete items. In addition, parts spending can be analyzed based on supplier, commodity type, and stock versus non-stock classification to identify supplier consolidation opportunities. Spend analysis involves identifying vendor market share by commodity group based on dollar amount and Stock Keeping Unit (SKU) to help companies negotiate better corporatwide unit-cost reductions. This means patronizing fewer suppliers – and dealing on a volume basis with those vendors providing the majority of parts and inventory items.

In addition to pure parts analysis, a company must review its storeroom processes and procedures. A needs analysis that helps define optimal methods for performing inventory checkouts, returns, physical valuations, and purchasing procedures. The goal here is to establish baselines using an “Industry Metrics & Best Practices” approach. This means measuring performance against proven quality standards that streamline and strengthen inventory practices. This streamlining is not done in a vacuum: it requires participation by all stakeholders and includes:

- Meetings between maintenance, purchasing, and IT personnel,
- Reviews of storeroom and inventory locations to assess management methods, and
- Evaluations of maintenance, repairs, and operations parts inventory/purchasing databases.

The ideal result here should be the establishment of the optimum storeroom setup and recommendations for changing storeroom layout for better productivity. These steps provide a clear path for bringing structure and discipline to a company's data and inventory management processes.

Storeroom organization can be enhanced greatly by a software application that provides for flexible controls for part monitoring, issuing, returning, and purchasing. Face it: the days of paper-controlled warehouse management are long gone. A successful business must use the power of computing to gain an edge on operating costs. An application that allows for min-max and/or order point/order quantity automatic part purchasing adds value each operating day. An application that allows tailoring of purchasing methods to each individual part or part group is a huge bonus. And an application that provides for entry into the ecommerce arena is a boon to storeroom management and control.

One more factor is most highly recommended for streamlining processes and safeguarding data accuracy (particularly part count): barcoding technology. Some storeroom organizations operate well without using bar code. They are the exception. Barcode technology has distinct and proven benefits to just about any storeroom. Clerks are cut free from the front desk so they can identify and retrieve required parts quicker. Data entry errors are practically eliminated because data is captured automatically via the bar code label and the clerk's reader. Cycle count time is reduced remarkable – and enhanced by greater count accuracy. The expense of barcoding technology has come down dramatically in recent years – and the power of barcoding data collection and processing has increased just as dramatically. By planning bar code technology employment from the very first step of data cleansing a company can not only integrate this highly effective technology into its storeroom management plan, but also can gain valuable buy-in from those persons who are crucial to the success of that plan- the storeroom and maintenance users of the plan!

### **On-going process maintenance**

Once assets and parts have been identified, classified, categorized, grouped, and standardized for identification and data gathering purposes, and once optimum storeroom management processes have been set in place and are being actively used by all concerned stakeholders, the job of best-practices storeroom operation is over, right? WRONG! Proper identification and tailored best-practice process implementation take up the bulk of effort associated with getting a storeroom organization into tip-top shape. But like a well-toned athlete, keeping in good shape also requires effort. In order to prevent storerooms from regressing to their former less-organized state – along with the accompanying loss of efficiency and increase in cost – a business must have an organized plan for preserving the benefits of the storeroom upgrade efforts. We call this effort Data Quality Management (DQM).

DQM is the ideal solution for organizations wanting to maintain and enforce data standards because the ability to maintain data long-term is just as important as the initial cleansing. Since we are dealing with a proactive effort, almost certainly DQM should involve a highly capable software application that possesses the ability to automatically restrict and control changes, additions, and deletions with respect to the nowcleansed and organized storeroom parts database. This requirement is important because even the “cleanest” storeroom must be considered an evolving entity. New parts requirements arise. Old parts become obsolete or unneeded. Inventory quantities, suppliers, and manufacturers change with time. Data Quality Management enables a business to:

- Prevent duplicate entry of master file items
- Match new items to the existing cleaned master file in real time to prevent duplication
- Force the use of standards {category codes, prefixes/suffixes, descriptions, etc.}
- Edit existing master file items
- Create a data warehouse with additional data attributes
- Establish a parts taxonomy, including categories, attributes and standard values (Wikipedia: Taxonomy is the practice and science of classification. may also apply to relationship schemes other than parent-child hierarchies, such as network structures.)
- Assign commodity identifiers {logical numbers} according to proprietary business rules
- Manage the structure of short and long descriptions
- Add, update, or delete records within category specific templates
- Integrate inventory data with a current or future Asset Performance Management solution

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## MRO optimization tools: What to look for

Throughout this paper we have described the characteristics of best-practices MRO optimization methodology. A business must recognize that actually executing MRO optimization will require some outside assistance. This assistance will likely come in the form of consultancy – contracting with storeroom management experts to assist in data cleansing, storeroom organization, and on-going storeroom operating maintenance. This effort will also involve some computerization of storeroom organization and management.

If the company's storerooms are currently in dire need of cleansing and organization, then the existing storeroom and parts management software (assuming there is existing software!) will need careful review and probably upgrading. There are a number of software products on the market that provide some of the essential storeroom management and upgrade features that entail MRO optimization methods. We recommend a careful assessment of company business needs and identified weaknesses in existing warehouse and parts management, followed by a thorough gap analysis between disclosed requirements and the features and capabilities offered by the various software applications available on the market.

Note that we say “on the market.” A customized application (or worse yet, and internally created application) will certainly be much more costly than available applications – and will not provide any greater value in the storeroom management effort. Look for one application that provides as many of the critical functions and capabilities mentioned in this paper as possible. If more than one application is needed to suit the company needs, then ensure that the applications are compatible with each other – and with the company's storeroom and purchasing management software. Ideally this compatibility extends to the company's asset performance management and enterprise resource management applications.

The goal here is not only a project-based revamping of the business' parts inventory, storeroom organization, and MRO parts handling processes, but also an on-going effort to preserve gains made through such efforts. Selection of qualified consultants and highly capable software applications is key. Done properly, a business can realize significant and immediate returns on improved storeroom operations – and can sustain and continue to improve on those gains in the long-term.

### Conclusion

It is clear that business can benefit substantially from effective MRO Optimization. The principles of data cleansing, warehouse planning and organization, and on-going maintenance of a revamped storeroom operation are straightforward. It is also clear that a business needs outside assistance in implementing and carrying on a quality MRO Optimization program. Choosing the best software applications (and as required, the best consultancy personnel) is critical to a successful MRO Optimization effort. That having been said, the benefits of such an effort – both in the short and the long term – are well worth the expense in time, funding, and labor.

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## About Infor

Infor delivers business-specific software to enterprising organizations. With experience built-in, Infor's solutions enable businesses of all sizes to be more enterprising and adapt to the rapid changes of a global marketplace. With more than 70,000 customers, Infor is changing what businesses expect from an enterprise software provider. For additional information, visit [www.infor.com](http://www.infor.com).

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