

Materials Management Opportunities in Operational and Maintenance Products Maintenance vs. Procurement – How to Win the Battle and the War

**Michael G. Patton, Senior Vice President – Purchasing, Material Logistics & Planning
FacilityPro, Dublin, Ohio 43016
(614) 638-4930; pattonmg@aol.com**

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Abstract. In most organizations there exists a constant battle over the stocking, ordering, and maintaining of products required by maintenance and operations. The Materials Management and Purchasing functions are often pitted against Maintenance, Facilities, Engineering, and Operations with respect to the number and types of SKUs, capital and critical spares, obsolete inventory, inventory investment, and turnover and program operation. Why does this happen so often and how can it continue today when all companies are looking to significantly reduce costs? The answer is simple: Fear of stockouts, perception of inventory as “cheap Insurance,” and the lack of knowledge with respect to the total cost of holding inventory. Fear of not having the necessary materials available when equipment fails and therefore stopping production/operations and the loss of revenue associated with that downtime. “Cheap insurance” is based on the thought process that inventory is typically expensed when received vs. issued and that cost is small compared to any potential loss of revenue that could occur if operations/production was halted for any measurable period of time.

We will address these issues and present a strategy that can be implemented in most organizations. This details the tools, methodology, processes and strategies to be used to overcome typical objectives. The goal is to implement a best practice materials management programs that will satisfy the needs of all internal business units while lowering the Total Cost of Ownership for the company.

Objectives

- Understanding the Materials Management issues, problems, opportunities, and solutions for Maintenance and Operations with respect to inventory and asset management
- Tools, strategies, and methodologies to use to successfully implement a change management program in your organization with respect to maintenance and operations
- Best Practices strategies, tools, and methodologies with respect to maintenance materials management programs

Current Environment

In many organizations today, there exists a constant internal struggle between Materials Management and Maintenance/Operations regarding MRO items including supplies, parts, capital, and critical spares. Historically, the standard philosophy regarding MRO in many Maintenance organizations was that high inventory levels and large numbers of SKUs must be maintained on site in order to ensure that equipment could be serviced and repaired on a moments notice. The actual cost to support this in environment is very high but rarely are the total costs associated directly to this decision flushed out and reviewed. Traditionally the perceived cost is deemed acceptable due to the concerns voiced by Maintenance and Operations for the need to have the necessary MRO materials and assets on hand at all times.

Many times the responsibility for selecting items to be stocked, replenished, maintained and disposed of is the responsibility of departments other than Material Planning or Management.

The question that is commonly raised regarding the management of assets and MRO by Maintenance and Operations is, “ why shouldn’t those departments that use and require these materials also order, stock, repair, and maintain these materials?” The fact is that many companies effectively “carve out” several of the fiscal duties and responsibilities from the Materials and Purchasing Management function, and make it the direct responsibility of Maintenance and Operations. The issue is not whether the required repairs and services are performed, but rather how can this process be managed and performed at the same or higher service level at a lower cost. The other major problem is increasing the awareness of the why change is necessary and implementing change inside your organization once opportunities have been identified.

One of the challenges today is accurately determining and using the correct cost-of-capital when calculating the TCO for inventory holding cost. In the July/August 2003 issue of Supply Chain Management Review stated, “Many companies apply a rate in the neighborhood of 5 percent, which significantly understates the reality. For the great majority of companies, an inventory capital charge of least 15 percent (meaning before-tax cost of capital) are more appropriate.¹” These are some of the challenges that exist today for many Material and Purchasing Management organizations.

Common Issues And Problems That Organizations Face Today

Listed below are many of the common issues, problems and activities with respect to effective and efficient management and maintenance of equipment and assets today in most companies. All of these listed below and many others specific to your organization must be analyzed and addressed when considering how the inventory purchase, storage, maintenance, tracking and disposal can be migrated to a Best-in-Class program:

- **What to Stock** – What items need to be maintained on-site? What items are readily available or can be provided via alternative vendor managed inventory solutions?
- **How much to stock - Establishing** initial min/max inventory levels, adjusting inventory levels, EOQs, reorder points, safety stock, etc.
- **Inventory Turnover** – What are the company’s goals with respect to working capital investment in inventory; What is the desired turnover ratio; How can the inventory turnover ratio be improved without impacting Maintenance and Operations?
- **Capital Spares** – How many spares should be maintained; How are they tracked and managed; Can they be used as “common spares” for more than one facility; What alternatives exist today; How large is the investment in capital spares and how is it managed?
- **Critical Spares** – How are critical spares identified; What is the process to stock and maintain these items; What alternatives exist; Are they repairable; Are they used on multiple pieces of equipment; What is the mean/average time between failures?
- **Process for placing new items into stock** – Who recommends and approves additions to stock; What are the controls and requirements?

- **How old items are removed from stock** - Who recommends and approves deletions from stock; What are the controls and requirements; How are assets disposed of and what monetary recovery is obtainable?
- **Asset management** – How are capital assets managed, tracked, maintained and identified; How are maintenance material and labor costs associated with these assets tracked and maintained?
- **Maintenance strategy** – What is the current maintenance strategy with respect to response time; return to service time; cost vs. benefit; preventative maintenance; service levels, predictive maintenance vs. corrective/unplanned maintenance?
- **Maintenance planning and scheduling** – Who is responsible for this function; Is it formalized and followed; How are major repairs and shutdowns planned for, materials staged, equipment ordered/rented?
- **Resource management** – What resources currently manage MRO and asset management; How many FTE's are involved in ordering, managing, receiving, stocking, issuing and tracking of MRO and capital assets; Are there resource constraints in the organization?
- **Performance measurement** – How are suppliers measured today with respect to performance, repairs, returns, stock levels, etc.; How are maintenance, operations, and materials management measured with respect to performance?
- **Types of inventory** – What types of inventory should be maintained; Expense vs. Capital?
- **Functions of inventory** – What is the function of inventory today?
- **Reasons for holding inventory** – Why is inventory maintained on-site today; Why is inventory owned vs. utilizing a third party consignment program?
- **Safety stock** – How is safety stock determined; Who determines what levels of safety stock should be maintained; How often are these items and associated inventory reviewed?
- **Inventory counting** – What inventory counting methods are currently utilized; How often is inventory performed; Who performs inventory; What is the accuracy rate; Are the results published; Is there a corrective action program to correct deficiencies?
- **P-card purchases and receipts** – How are P-card purchases and receipts tracked with respect to usage, repair and purchase of MRO and capital assets; Are they entered into any CMMS program?
- **Open vs. Closed storerooms** – Are stocking locations open or closed; If open – why; Current problems with open storerooms today?
- **Bar Coding of parts** – Are capital assets and MRO materials bar coded today; Are they integrated into a CMMS or ERP program?
- **Repairable items returned to stock, issued for repair** – How are repaired items tracked going into and out of stock; How are repair costs tracked and maintained; What cost is assigned to repairable items for inventory valuation?
- **Gas cylinders, bulk gas, chemical and lubricant delivery, inventory mgt** – EOQs; Inventory levels and measurement; Third party management; SLAs and KPIs required; Quality and Compliance

- **TCO for inventory and asset management/maintenance** – Develop, update and maintain the TCO for all maintenance of assets; Develop TCO for all costs associated with MRO activities in order to determine the best solution
- **Standard naming conventions for multiple locations** – Develop and implement standard naming conventions and formatting of descriptions, etc. for all MRO materials and capital assets; Apply standards across company lines and locations; Reduce inventory based upon redundancy of items
- **Compliance** - Measure compliance monthly with all programs to ensure cost savings and process improvements are obtained; Establish timeframe to achieve compliance goals
- **Change management** – Develop and implement comprehensive change management program to reduce time required to successfully implement all changes to the Materials Management and Maintenance departments
- **Inventory reduction strategies** – Utilize cross-functional teams with key stakeholders to develop and implement inventory reduction strategies that focus on inventory dollars. Common methodologies include periodic reviews of usage and lead times, reducing/eliminating safety stock, ABC inventory analysis, improving integrity of CMMS databases, revising MRO ordering guidelines, and re-structuring supplier relationships
- **Inventory investment recovery strategies** – Develop and implement inventory and asset investment recovery programs for obsolete assets and MRO materials
- **Vendor Managed Inventory Programs** – Analyze cost vs. benefit of Vendor Managed Inventory Programs whenever possible in order to lower the TCO
- **Standardization (equipment and spare parts)** – Develop and implement MRO material and equipment standards whenever possible working with key internal stakeholders
- **Tracking Delivery metrics for MRO** – The ability to track and measure the velocity for all inbound and outbound MRO materials and capital assets has a significant impact on the confidence of the Maintenance and Operations business units with respect to Materials Management managing the MRO materials and asset management programs. Utilizing bar codes, these metrics and subsequent reports are important tools.
- **Reporting** – Developing and generating timely, accurate and targeted reports that detail cost, efficiency and overall effectiveness of all purchases and utilization of MRO materials and capital assets.

Best Practices

If Purchasing and Materials Management is not involved today and the facility is running “normally”, the question that will be asked by your management is why change? Why fix what is not broken? The answer is simple and clear. The cost savings and process improvements that will result by implementing a Best Practices inventory/asset management program can be significant for most companies (5-20% reduction in costs). Cost savings and process improvements will span across many departments and business units resulting in lower labor costs, lower material costs, higher productivity rates, better utilization of working capital, improved profitability and earnings per share. If it sounds too good to be true, it's not! What types of inventory management programs should be considered in your organization to achieve these results and where should I start? The answer is that many solutions exist today that when used in concert with each other can deliver the maximum savings. The first step is to conduct a Business Process Assessment of this function, which will capture and analyze all

the costs associated with these functions. A component of the BPA includes process mapping and analysis to ascertain what disconnects exist today. When this activity is completed you will have established a baseline cost and process flow for all operations involving MRO materials and capital assets. Working in cross-functional teams, a list of priorities and a plan of attack will then be generated that will start you on your journey to Best-in-Class. Some of the solutions you should consider utilizing, which represent a Best Practices approach include the following:

- Current version of CMMS systems, such as Maximo, that can provide a suite of functions with respect to planning maintenance activities, tracking labor and material costs, maintaining repair history, provides for ordering directly from the CMMS system, and can be integrated into existing ERP systems. When properly and fully utilized, this type of system provides great insight into the how, when, why, where, and how much is being consumed with respect to maintenance and capital asset management. This information is vital when determining when an asset should be replaced vs. repaired.
- Utilization of Third Party Vendor Managed Inventory (VMI) programs when and where the TCO is lowered and continuous process improvement is guaranteed throughout the life of the program.
- Use of bar coding for tracking MRO materials and capital assets and a robust data base program to maintain this information and generate timely and accurate reports. Many times organizations lose track of assets and as a result purchase unnecessary or redundant assets and MRO materials. Bar Coding of these items provides the tracking and measurement tools that allow for intelligent decision making by the Materials Management and Maintenance organizations. In addition to the increased accuracy, other benefits provided through bar coding are the velocity measurement of material delivered, received, distributed, installed, and returned.
- Utilize Total Cost of Ownership for determining actual cost of all MRO material and asset management program. Establish baseline cost and benchmark vs. Best-in-Class organizations in your industry or in similar industries.
- Pooling of capital spares is commonly utilized with little or no impact to service levels of organizations. Risk management decisions can be made in advance that will allow for acceptable risk in using common spares to support multiple locations.
- Availability information regarding current inventory levels of MRO materials and capital assets company wide for all facilities. Many times items can be easily used at other locations at reduced costs if that information were readily available to the Planners.
- Utilization of an integrated inventory management system. This system will track, receive, issue, return and maintain history of all items utilized within the organization. This system will trigger auto-replacement orders or will have the capability of generating those internally. This system will be tied into the Accounting system and will directly or indirectly generate daily, weekly, monthly, and annual reports on all key performance metrics.
- Highly rationalized supplier base. Companies providing MRO materials today should be reduced whenever possible in order to drive out cost.
- Outsourcing the entire Facilities Maintenance Organization. This scenario is rapidly becoming the solution of choice as one company can now bring in all the software, tools, management expertise, subject matter experts, shared labor, and rationalized supplier

base resulting in the lowest cost solution. Additionally, these third party outsourcing solutions can be implemented the fastest with companies such as EMCOR, delivering guaranteed cost savings year over year for 3-5 year contracts. These programs are very attractive due to the immediate impact to the balance sheet and the tools, software, resources, and expertise that are delivered as part of these services.

- Utilization of current technology

Summary

There are many factors that must be considered when reviewing any MRO materials and asset management program. In those organizations where Purchasing and Materials management are not directly involved or empowered to impact the management and direction of these programs, significant opportunities exist for cost reductions and process improvements. The key to success is to measure and base line the TCO of current operations, mapping the process flows, ascertaining and achieving cost savings and productivity improvements, and improvement in asset utilization. Develop a Best Practices solution that can be implemented utilizing those concepts and tools commonly used in business today, and present your recommendations to the management team. Most organizations will give serious consideration to this type of recommendation due to the significant competitive pressures all companies are now facing.

Footnotes

1. Timme, Stephen G. and Williams-Timme Christine "The Real Cost of Holding Inventory," *Supply Chain Management Review*, (July/August 2003), pp.31-37