Show Me the Money: an MRO Inventory Analysis

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You don't have to be a genius to recognize that a lot of money is tied up in MRO inventory…. especially if your business requires the use of capital-intensive equipment. Literally millions of dollars are tied up in spare parts for day-to-day Maintenance, Repair and Operations (MRO).

Historically, no one ever really 'owned' inventory, so stocking another item "just in case" had very few, if any repercussions. Inventory was often seen as a necessary evil of doing business. The term **Inventory Management** was almost an oxymoron. There were few procedures for setting up an item, no standard structure or format. Item information was written in the manner of each individual….first onto cards, which were later transcribed into a computer system. More often than not, there were no stock review processes. The only 'management' of inventory came with its annual physical count undertaken for financial reporting purposes.

Typically over time, Stores inventory grew… and grew… and grew… to the point where the numbers were just too big to ignore. That's when inventory gets the attention of management: when the numbers are just too large to ignore any longer. After all, that's real money tied up in parts. Good money… paid out to suppliers… for maintenance workers' peace of mind.

The ironic thing is that maintenance workers do not often have much confidence in Stores inventory. They do not trust that parts are really there in the quantities stated, or that they are still usable. They might even keep a private cache of parts hidden somewhere for their own use. Or they might by-pass Stores altogether and just order the part directly from the supplier. These scenarios are real and they add further to costs.

When a formal inventory review is undertaken, we often find that unfortunately, many item descriptions are inadequate, with spelling errors or missing manufacturer names and/or part numbers. Often the part descriptions are unrecognizable by a tradesperson.

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Before any inventory analysis can take place, inventory item description data must first be cleansed. Any sort of benchmarking activity requires that you know your starting point (i.e. what you currently have on hand).

Once data has been cleansed, we typically find duplicate items ranging from 5% to 15% within a given site. The percentage of commonality of items across multi-site companies can range as high as 25%.

Inventory can then be sorted into typical commodity groups: Bearings, Industrial Supplies, Electrical, Instrumentation, Fluid Power, and Pipes, Valves & Fittings. Commodity groups can then be segmented into categories: required active, excess active, and inactive. Required Active inventory includes commonly used parts that must be stocked. Excess Active inventory is the overstock of Required Active items (i.e too much of a good thing).

Inactive items can be further segmented into: critical spares, slow-moving, and obsolete materials. Critical spares are items essential for the business to run…stocking out would significantly impact production quality, safety, or costs. Slow-moving inventory includes parts with long lead times, parts which might affect plant efficiency, "recommended spare parts" for a piece of equipment or "emotional" inventory (i.e. parts that are kept to satisfy risk aversion).

Optimization or rationalization of each inventory category is serious business and can return serious dollars.

Typically we find that Required Active inventory ranges from 25%-30%. Excess Active inventory ranges from 10%-20% and Inactive inventory ranges from 50%-60% of inventory… of which Critical spares represent 15%-20% of inventory, Slow-moving inventory represent 20%-25% and Obsolete items represent 15% of inventory.

The opportunity for savings predominantly comes through the elimination of duplicate items and the rationalization of Excess Active and Slow-moving inventory. These items can be used down through attrition, sold back to the Supplier for credit, or sold to a third party for cash. Obsolete items may also offer some opportunity for generating cash.

Let's look at a case study example to illustrate typical findings when an MRO inventory analysis is performed. A multi-site manufacturer with eleven locations decided to undertake a pilot inventory analysis project at

their four Wisconsin sites only. If the project created enough value, then it would be extended across the entire organization.

MRO data was cleansed consecutively for all four sites. Item descriptions were standardized into a noun/modifier format, using industry nomenclature. A Corporate Catalog was created consolidating all items from the four sites.

Site by site, the cleansed data was first sorted for duplicate identification, then it was segmented by commodity group into categories and analysed by usage and supplier.

The results were impressive enough to attract the remaining sites:

- duplicate items represented approximately 9% of inventory. Item bins were consolidated. It was determined that the overstock would be used down through attrition;
- about 20% of inventory items were found to be at excess stocking levels (Excess-Active). They were returned to the Supplier for credit, yielding cash savings of $1.1 million;
- obsolete materials were identified and disposed of, generating $100,000 in cash;
- a long-term plan was designed to address Slow-Moving inventory items to determine the value/life of the part and its appropriate stocking level;
- and at the same time, the company decided to share highly valued spares within the regional area, further reducing stocking levels at all four locations.

With a return of more than $1.2 million, the pilot project was deemed a success and plans are currently underway to implement MRO inventory analyses at each of the remaining sites.

MRO inventory ties up a lot of money for capital-intensive, multi-site manufacturers. It takes a proper inventory analysis project to reveal the opportunities for transforming some of that inventory into cash. With a little effort, you too can turn your necessary evil into a corporate good.