



# Inventory Optimisation



A well-managed inventory brings more than just immediate financial benefits; it establishes a leaner operation that performs better and more profitably in the long-term. But which steps should be taken to achieve inventory optimisation?

The many benefits of inventory optimisation are discussed here by two commentators that offer a broad and deep appreciation of the issues concerned. First, Dr Amar Ramudhin of Georgia Tech's Supply Chain and Logistics Institute of Atlanta, USA, looks at how capitalising on the advice of an expert MRO supplier pays dividends, while Julia Mullar of *ERIKS* views the

question of Inventory Optimisation as a spectrum of possibilities with potential to offer some degree of improvement for the customer at all levels of service.

# Inventory Optimisation

## Dr. Amar Ramudhin,

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One of the most essential elements of the competitiveness of an enterprise is to ensure that its production environment is available and in good working condition to produce quality products reliably. In case of an equipment failure, it is imperative that the right part be available so that downtime is kept to a minimum. Failure to do so results in delays which directly affect performance, and when repeated over time, quickly affects the credibility and hence the bottom-line of the enterprise. MRO management deals with having the right spare parts available for the upkeep of the enterprise and having all the necessary supplies and consumables on hand for the smooth and continuous operation of the production environment. In large enterprises, this may represent a significant investment as a large number of items must be bought, stored and maintained on a continuous basis. It is estimated that in the U.S. only, businesses spent more than \$100 billion on MRO items (everything from light bulbs to cleaning supplies to nuts and bolts) and about 10% of this spend will potentially never get used. This is because a lot of the MRO items being bought are on a just-in-case basis as insurance toward up time. This eventually leads to the high level of obsolescence typical of certain categories of MRO items.

Inventory management for minimising the stock out of any product is a function of

its demand distribution and supplier reliability as to the quantity delivered and delivery lead time. Except for high moving supplies such as fasteners or consumables or lubricating oil, the demand distribution of MRO parts are unknown and more importantly the parts themselves might be not be known until it fails. For organisations that manage their MRO items, ensuring 100% availability of the production environment means having a service level of 100% on all MRO items and this would simply be infeasible and/or too costly. The problem is compounded by the following factors:

- Non-standard coding of parts making them difficult to source, record, manage and track
- Ordering from too many suppliers resulting in complex negotiations and procurement processes
- Reliance on spot purchases with high expediting costs
- Expensing of MRO items at the time of purchase means users are accountable for what they buy and not for what they use which in turn means limited visibility on actual usage
- Hoarding of MRO items in toolboxes resulting in poor usage data and systems performance
- Management of MRO storeroom by maintenance specialists rather than material or inventory specialists

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So what is the alternative for organisations that want to ensure high availability of their production environment without the associated high investment cost? First, it is the realisation that inventory management of MRO items is more complex than raw material or finished goods inventory management where demand is tracked and forecasted. Second, MRO items must be managed with the same tools and rigour as raw materials and finished goods. This means proper order management, stock location, stock level and replenishment, management of issues and returns and record of usage at the point of consumption if possible. A recent study of item movement for an MRO distributor with a large installed base indicated that 30% of stocked items had a demand quantity of only one over a three year period. This means no single organisation can or should stock all MRO

items and the question becomes what items to stock in addition to determining the quantity to be kept.

As the trend towards being leaner and more competitive continues, more and more enterprises are turning to their MRO distributor for assistance and expertise. Some of these distributors have stepped up to provide a vast array of services ranging from a just-in-time delivery (with time windows), vendor managed inventory to a complete takeover of the inventory management of MRO activities allowing the enterprise to focus on its core activities. This is done through negotiated SLAs with well established metrics, processes and contacts to ensure smooth collaboration with the MRO distributor which now acts as an aggregator and manager for certain or all MRO items. For instance,

the enterprise might want to keep direct ordering of high moving items and/or highly priced, highly critical or highly specialised items. The rest can be managed by the MRO partner. The characteristics of such a partnership are:

- A standardised coding and inventory management system for tracking usage of MRO items
- Taking advantage of the distributor's knowledge of the maintenance BOM (Bill of Material) to determine which parts to stock through part criticality analysis and generation of forecast through recommended maintenance policies and frequencies
- Vendor-managed inventory which means the supplier personnel may be on-site to manage the consignment inventory for stocked items. This leads to a reduction in paperwork, inventory transactions and eventually to reduced purchasing cost
- Direct integration with the distributor's ordering and inventory systems for look-ups and ordering of non-stocked items or MRO items managed by the enterprise
- Having well defined SLAs for the parts not stocked on-site
- Automatic use of 'agreed' product substitution in case of shortages or for lower cost
- Automatic suggestion of production substitution in other cases
- The use of automated vending technology for fast moving items, high value or critical items at point of use within the facility





Once implemented and fine-tuned the results of such a system should be a significant reduction of MRO related costs through reduced inventory levels, elimination of hoarding, better control on purchasing costs, a reduction in transportation costs, elimination of obsolete parts, better visibility on MRO item usage and better use of the organisation resources as they are diverted to more value adding or mission critical activities. Lessons can be learned from the healthcare industry where this concept has been pushed to the limit. Supplies ranging from cotton swabs to syringes and prosthetic parts used to be managed by nurses in care units. They would define the reordering levels and be responsible for the ordering of all supplies. Often enough, the result was either too much stock on hand for some items and frequent stock outs for others

resulting in hoarding that could endanger the safety of patients. Today, this function has been transferred to materials management in all major US hospitals which buys supplies from a few distributors. Automated Distribution Cabinets (ADC) are used for more specialised or expensive items at the point of use (e.g. emergency room, operating theatre) to minimise waking and waiting time. The material management inventory system and the ADC are linked to the distributor purchasing and inventory system and supplies are directly replenished to the storeroom or the ADC, and even bar-coded at the item level for tracking and recoding purposes. This collaboration has led to a very streamlined system with nurses focusing on patient related care-activities and people in materials managing the supplies.

For the distributor to deliver such services efficiently, it is critical that parts be available in the right place in its supply chain together with the proper means to move the parts to the right locations so as to satisfy the SLAs negotiated with its customer. The use of advanced network design techniques and transportation planning tools help in proper deployment of the inventory in the supply chain. The advantage to the aggregator is that it sees part usage across various organisations and can better determine the demand profile for those parts over time and geography and can negotiate better prices and delivery lead-times with its suppliers. Hence collaboration between the enterprise and the aggregator helps the latter generate better 'forecast' of parts and collaboration between the aggregator and its supplier helps in negotiation of better prices and the savings passed to the end customer for a win-win situation.

# Inventory Rationalisation

## Optimisation for Improved Financial and Stockholder Value

INVENTORY OPTIMISATION CAN BRING THE BENEFITS OF REDUCED INVENTORY LEVELS, LOWER CARRYING COSTS AND, ULTIMATELY, AN IMPROVED FINANCIAL POSITION THAT OFFERS INCREASED VALUE FOR SHAREHOLDERS. BUT HOW EXACTLY DO INITIATIVES SUCH AS STOCK RATIONALISATION AND VENDOR-MANAGED INVENTORY IMPROVE THE FINANCIAL STATE OF THE COMPANY? AS JULIA MULLAR, OPERATIONS DEVELOPMENT MANAGER AT ERIKS INTEGRATED SOLUTIONS, EXPLAINS, ERIKS CAN SAVE THEIR CUSTOMERS MONEY WHATEVER THE LEVEL OF SERVICE BUT THE CLOSER THE RELATIONSHIP, THE BIGGER THE SAVING.

### Julia Mullar

Operations Development Manager,  
ERIKS

Picture the offers that an engineering service provider can deliver to a business as points on a horizontal axis, with supply and distribution on the left and full service Integrated Solutions on the right. Often, between the repping of product supply and the full service offered by IS, there's a massive void in between, but there is potential to add value all the way along the line.

Clearly, Integrated Solutions can offer the biggest savings. When a business expends resources employing staff to get quotes on three prices when buying parts, it may save on price but it is adding time and cost to the purchasing process. Worse still, the production line may be down while a buyer is arguing over small margins on the price of a bearing. So, establishing a close, one-supplier relationship cuts the sourcing and purchasing time, as well as the cost. The customer not only saves money on the number of orders raised but also enjoys greater operating efficiency because the supplier develops a thorough knowledge of the plant

and, for example, ensures that the right product is forward deployed on-site or at the local branch of its stores, cutting the time it takes to get the right product on-site. Another issue is that most MRO stores are overstocked, because the reasoning is often, 'I don't know exactly what I'll need or when I'm going to need it so let's keep lots of it in stock just in case!' This means that money is often tied up in stock, and if you can picture those lumps of metal on a shelf as piles of five and ten pound notes you will see the potential of inventory optimisation. Of course, it is wise to maintain fast access to critical and fast-moving items but the items in storage are not always necessary. Often, the list of spares established when the plant was opened is out-of-date, as engineers have long since made changes and, indeed, the needs of the plant at large may have changed. Consequently, it may be that only a small proportion of those spares are fast moving, with some barely moving at all. A close relationship with a solutions provider, which understands the company's needs, brings hard

savings by applying its know-how to streamline what is held in stock. There's also an operational benefit here because there is only one port of call. With a close supplier relationship, the business doesn't need to spend time and money calling three separate suppliers to quote on each product. There's also a price reduction in terms of part cost because the supplier will be buying in large numbers.

E-commerce is a powerful force for optimisation, especially now that it offers a cost-effective and sustainable option for lower levels of supply than the hundreds of weekly orders that were once required to justify the expense. An early adopter of EDI was Ford, and the first MRO supplier to establish an EDI connection with Ford in Europe was *ERIKS*, back in the early 1990s. Since

then, the systems have simplified, the set-up costs have shrunk, and *ERIKS'* experience has grown enormously. Now Ford makes several million pounds of purchases annually via e-commerce, with a significantly optimised inventory. From an inventory in the region of 800,000 euros, we identified that only 100,000 euros of stock moved in an 18-month period. An expensive example of 'just-in-case'. Until Ford established the close relationship it now shares with *ERIKS*, the potential inventory saving was not identified. Now, with *ERIKS* acting as a consultant as well as a supplier, we can reduce stockholding by saying, "Actually, you don't need to stock this particular bearing or that particular belt because it is going to take you eight hours to get to it in a machine and we can get them to you from our main stores within six hours."

“*ERIKS* can save their customers money whatever the level of service but the closer the relationship, the bigger the saving.”



## Inventory Rationalisation

Optimisation for Improved Financial and Stockholder Value



“From an inventory in the region of 800,000 euros, we identified that only 100,000 euros of stock moved in an 18-month period.”

The benefits we offer to Ford through e-commerce are increasingly available to smaller businesses through the growth of the Internet, and the increase in digital systems such as SAP. E-procurement can now be highly viable on a far smaller scale for any organisation that want to cut costs, minimise paperwork and increase purchasing efficiency.

*ERIKS* can enable complete Inventory Optimisation through IS but, thinking back to our axis of service, we also provide solutions whatever the level

of contact. We fill the void between simple supply and full-scale IS with our Core Competence Centres, each with its own sphere of expertise to deliver engineering solutions that improve profitability. And even at the level of supply, we try to add value through our rep service by offering our customers advice on what they can do to optimise their inventory. Rather than just taking the order we will ask questions about how those parts are used to see if we can suggest a better solution.

At all points of contact with its customers, *ERIKS* is ready and willing to provide added value in its service that can help its customers to achieve Inventory Optimisation and the closer the relationship, the greater the potential to save money.

