

# RUBIX

## Invend™ Industrial Vending

White Paper

RUBIX



A lean approach to managing MRO supply,  
reducing waste and improving productivity.



## 01

# MRO inventory management practice

## The current landscape

“ Best practice in managing the supply of maintenance, repair and overhaul (MRO) spares, tools and safety products can be one of the most effective ways for manufacturers to reduce costs, improve cash flow and prevent unnecessary downtime.

It can contribute to improved plant productivity and help to optimise health and safety at manufacturing sites. But what is the best way to achieve these benefits without prohibitive start-up costs or a significant investment in time and resource?

This white paper examines the challenges faced by manufacturers in deciding how to optimise the supply of MRO products. It also looks at the pitfalls of failing to modernise outdated inventory management practices, and how vendor-managed industrial vending can be a catalyst for improving plant productivity and eliminating waste. ”

MRO spans a wide spectrum of products and services and accounts for a considerable proportion of total costs of supply<sup>1</sup>. It is essential to retain sufficient product on site that is easily accessible, but keeping large amounts of poorly managed stocks in case of emergencies ties up cash.

Furthermore, products are often bought in large batch quantities to negate the possibility of a stock-out or to achieve a supplier discount. This stock can, over time, become obsolete. Conversely, failing to stock the right items can result in unplanned downtime with a major impact across the manufacturing process and supply chain – on both cost and customer service.

Traditionally, many manufacturing sites operate with a single central stores facility (as illustrated in figure 1 on page 10). Workers in individual production areas who need to access tools, personal protective equipment (PPE) or MRO items walk to the stores, and then experience a

further wait to be served by a stores operative. The time taken to visit stores immediately impacts on productivity in their area.

It can also cause knock-on effects in the overall manufacturing process with delays in subsequent stages of production. After requesting items, workers have to wait for the products to be picked. Meanwhile, stores staff are responsible for logging the transaction, re-ordering – often from multiple suppliers, creating multiple administration and invoicing trails – and then putting away new stock on delivery.

However, in some facilities the central stores may only be open for set hours each day, even in factories operating 24/7 shift systems. This means key MRO items are not always available from the stores when needed. As a result, workers may end up requesting more of a particular item than they actually need, storing the remainder for easy access at their own work station. This ‘squirrel stock’ cuts down on the time workers waste in making multiple visits to

## 01 MRO inventory management practice cont.

stores. However, it can result in over-procurement of high-volume items, reduced traceability of usage, and yet more cash tied up in MRO stock. The products held in these 'rogue' inventories are also subject to a greater risk of damage, loss, misuse or theft.

One way to address this problem has been to use open access bin systems at the point of use. Unfortunately, this can create its own problems in terms of control, monitoring and 'cavalier' product usage – and the possibility of stock-outs of production essential items outside stores opening hours still remains.

Figures from Fastenal, a US-based company who have been pioneers in MRO vending, suggest that the cost of direct and indirect labour may be reduced – but that uncontrolled consumption typically results in product usage increasing by 15 to 30 percent, creating a further disincentive to this approach.

Moreover, within the stores themselves, the tracking and tracing of inventory,

processing of multiple orders and budget management consumes time which could be better spent on value-adding activity.

In practice, it is easy to see how inefficiencies such as lost time, a lack of control over stock once retrieved, loss of product and even unanticipated downtime can result from this approach.

Meanwhile, failure to actively monitor the supply and use of PPE or health and safety items can potentially leave a company open to legal action in the event of a workplace accident or fatality. If an employee requires a particular type of PPE for certain tasks and is subsequently injured at work, it can be difficult for employers to prove that they took the necessary steps to protect their staff. The correct product might have been held in stores, but did the employee have access to it? Did they receive the approved PPE items for the task? Or, alternatively, did they fail in their personal responsibility to wear PPE despite having been issued the required items?

*Failing to stock the right items can result in unplanned downtime with a major impact across the manufacturing process and supply chain – on both cost and customer service.*



## 02

# Streamlining MRO supply management

*Taking all this into account, it is easy to see how a more streamlined approach to MRO spares management, based on detailed monitoring of availability and usage, can deliver real operational and bottom line benefits.*

A key initiative to help the transition toward a 'leaner' process is the use of industrial vending machines to hold and control the dispensing of fast-moving industrial consumables. Typically, items that are small, fast-moving, high-value or can easily go astray – such as abrasives, tools, PPE, cleaning products, adhesives, lubricants and greases – are particularly suited to vending.

Industrial vending takes technology previously only utilised for consumer goods, such as drinks and snacks, and applies it to MRO product supply. Machines are situated in convenient locations around the manufacturing facility – meaning they are accessible at any time, even when the main stores may be closed – and configured to stock the items needed most commonly at each location. They use an internet connection to flag up the need for re-stocking, as well as providing real time management information on usage by user and cost centre.

An initial evaluation by a supply partner will help to reveal which products need to be stocked in which areas and in what

volume. This allows machines to dispense the most appropriate products to each individual or team and negates the need for an individual to leave their work station to go to the stores.

However, the issue of cost also needs to be considered. For a company to purchase its own vending machines and software represents a significant upfront capital investment, to say nothing of ongoing servicing and maintenance costs. Furthermore, self-purchase means that the in-house stores team is still responsible for monitoring usage and ensuring vending machines are re-stocked correctly. This ignores the potential benefits of a vendor-managed approach.

Some MRO suppliers have attempted to make industrial vending more attractive to customers by renting equipment to them. However, the cost of the initial batch of consumables still has to be borne by the customer at start-up. Furthermore, in many cases, the monthly running costs charged by these suppliers can significantly reduce any potential savings achieved in terms of, for example, reduced product consumption.

It is perhaps small wonder, then, that the implementation of industrial vending has, until now, been accessible to only the largest companies, who are able to commit substantial capital investment and in-house resources in order to reap the productivity and cost-saving benefits.

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## 03

# The advantages of fully vendor managed industrial vending

*Locating commonly used items, in a controlled manner, where they are needed, reduces employee motion.*

*An answer to this problem now exists in the form of Rubix Invend™, a fully managed industrial vending service. Invend™ effectively removes these financial barriers and makes the benefits of vending available to manufacturers of all sizes.*

Through Invend™, the complete upfront cost of the industrial vending equipment and software is met by Rubix, with customers paying only for the items they use.

All that is needed to install the equipment is a power supply and internet connection. Working alongside Rubix, manufacturers can identify which products are suitable for a given production area and restrict access to those items to approved employees. Invend™ machines are operated by a customer's employees using a personalised barcode or individual numerical code, allowing full control and visibility of usage.

Using access-controlled vending machines ensures employees are more likely to take only what they really need. They have a

shorter journey to the dispensing point – reducing the need to keep large stocks at their station to save time – while the machines can be configured to only dispense one product type at a time.

Andy Spence of Industry Forum, an organisation that helps manufacturing businesses achieve sustainable, profitable growth through Lean and Total Productive Maintenance (TPM) programmes, explained: "One of the 'Seven Wastes' addressed by lean manufacturing is excessive 'operator motion' – moving a resource more than is needed to complete a task.

Employee time spent going to stores to retrieve spares or consumables and then returning to work stations is a classic example of unnecessary motion. Locating commonly used items, in a controlled manner, where they will be needed, reduces employee motion, increasing the time they can spend on value-adding activity."

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### 03 The advantages of fully vendor managed industrial vending cont.

Knowing that products can be traced back to them also causes employees to think more carefully about their consumption of MRO spares. This makes them more accountable and careful with their usage whilst reducing the risk of pilferage.

Beyond this, the availability of real time reporting on usage means companies can assess their working practices. For example, where an employee is found to be requesting an unusually high number of items, managers can determine if the correct methods and products are being used and whether that employee could benefit from, for example, extra training.

The implementation of Invend™ invariably means that companies are working with a single MRO supplier for a higher proportion of the product lines being vended, which may previously have been bought from multiple suppliers. This plays a key role in reducing the amount of time spent by stores staff in ordering, receiving goods and putting away stock. It also lowers the costs associated with raising and processing multiple purchase orders

and invoices, reducing the transactional costs associated with indirect labour. This allows stores staff to focus on larger or more critical spares management, as well as maintenance and value adding activity.

Figures provided by Fastenal, using this approach in the US, put the saving range for procurement at between 10 to 50 percent per individual item stocked, while overall inventory levels have been seen to be reduced by around 30 to 50 percent.

Rubix is confident that Invend™ has the potential to drive continuous improvement in line with modern manufacturing strategies such as lean manufacturing and total productive maintenance (TPM) – but believes it can add significant value in virtually any manufacturing or operational environment. The company's own experience of operating industrial vending solutions suggests that using this technology to manage point-of-work MRO supplies and tools can deliver a reduction in product consumption of between 25 and 40 percent.

*Through Invend™, the complete upfront cost of the vending equipment is met by Rubix, with customers paying only for the items they use.*



*“ Another of the ‘Seven Wastes’ is excessive inventory, tying up cash with a high cost to manage and reorder. Localised uncontrolled stocks of consumable products often build up and time is lost searching for items where one person has taken too much stock, leaving none for others to use. ”*

## 01 The advantages of fully vendor managed industrial vending cont.

Each machine automatically alerts Rubix via the internet when individual products hit their re-order point. This ensures they do not run out before they can be replenished and that mistakes are not made when ordering. The vending machine is re-stocked by Rubix as and when required, freeing customers from the responsibility of monitoring stock and placing orders and saving further time. This ‘leaner’ model – with reduced employee motion and routine stores activity, as illustrated in figure 2 on page 10, falls very much into the realm of Vendor Managed Inventory or VMI – a concept with which many companies involved in implementing ‘lean’ processes will already be familiar.

As Andy Spence states: “Another of the ‘Seven Wastes’ is excessive inventory, tying up cash with a high cost to manage and reorder.

Localised uncontrolled stocks of consumable products often build up and time is lost searching for items where one person has taken too much stock, leaving none for others to use. This is particularly critical when trying to manage the inventory of safety consumables such as gloves or masks.”

The issue of health and safety is a key one in times of increasing litigation in this area. Figures from the Health & Safety Executive state that in 2010/11, the total financial cost of workplace fatalities and injuries in Great Britain equated to £5.76 billion<sup>2</sup>. Invend™ helps to ensure that employees have access only to authorised PPE as well as creating a useful audit trail. Where workplace accidents occur, employers can use the reporting records kept to help prove that the correct PPE was available to staff.





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## 04

# Conclusion

## The current landscape

*As a fully vendor-managed service, Invend™ combines ease of access and 24/7 product availability for employees, visibility and control for production managers and automatic restocking for stores managers.*

This in turn addresses a number of the core problems linked with a traditional approach to managing MRO supplies – such as direct labour time wastage, wasteful product consumption and labour intensive procurement processes.

Also, a significant number of working hours can be reclaimed simply by removing the necessity for workers to make long trips to stores. Time is further saved within stores themselves as the need to process, receive and replenish products is drastically reduced.

As Andy Spence comments: “For many companies, maximising equipment production time is a primary profitability driver. To support efficient 5S and autonomous maintenance activities as well as minimising ‘short stops’, it is important to have the right products in the right place and available to the right people at the right time.

This is integral to minimising downtime and optimising overall equipment

effectiveness (OEE) as part of continuous improvement programmes, whether these are related to lean manufacturing, TPM, or any other manufacturing improvement strategy.”

For manufacturers of all sizes seeking to enjoy the numerous benefits of industrial vending, Rubix Invend™ makes the service truly accessible -- by negating the need for upfront investment by the customer while managing everything from initial installation to ongoing replenishment and support.

Making the decision to use Invend™ will therefore, almost inevitably, improve the effectiveness and profitability of a manufacturing business. required items?

*Switching to this system for fast moving MRO consumables and PPE products can significantly reduce product consumption and lower inventory costs.*

### References:

1. Cost management across firm boundaries – a case study of MRO procurement, Anna Dubois and Lars-Erik Gadde.
2. Costs to Britain of workplace injuries and work-related ill health: 2010/11 update, HSE, 2012.

Figure 1

# Traditional MRO Supply Model

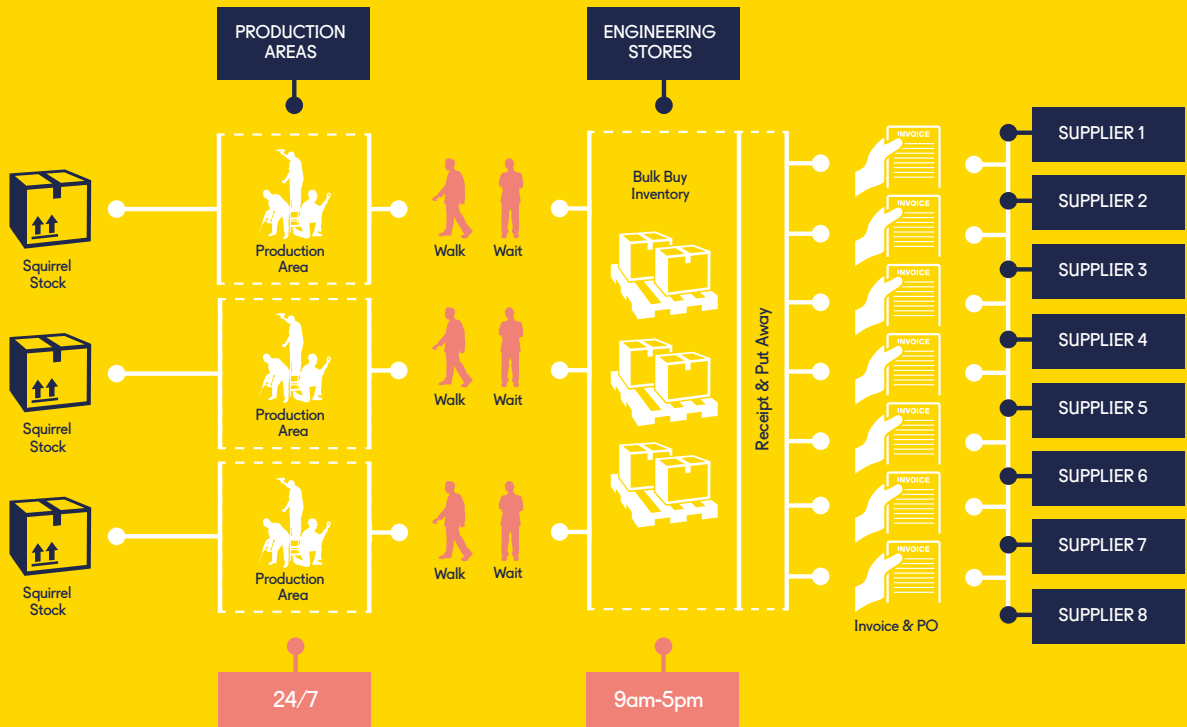
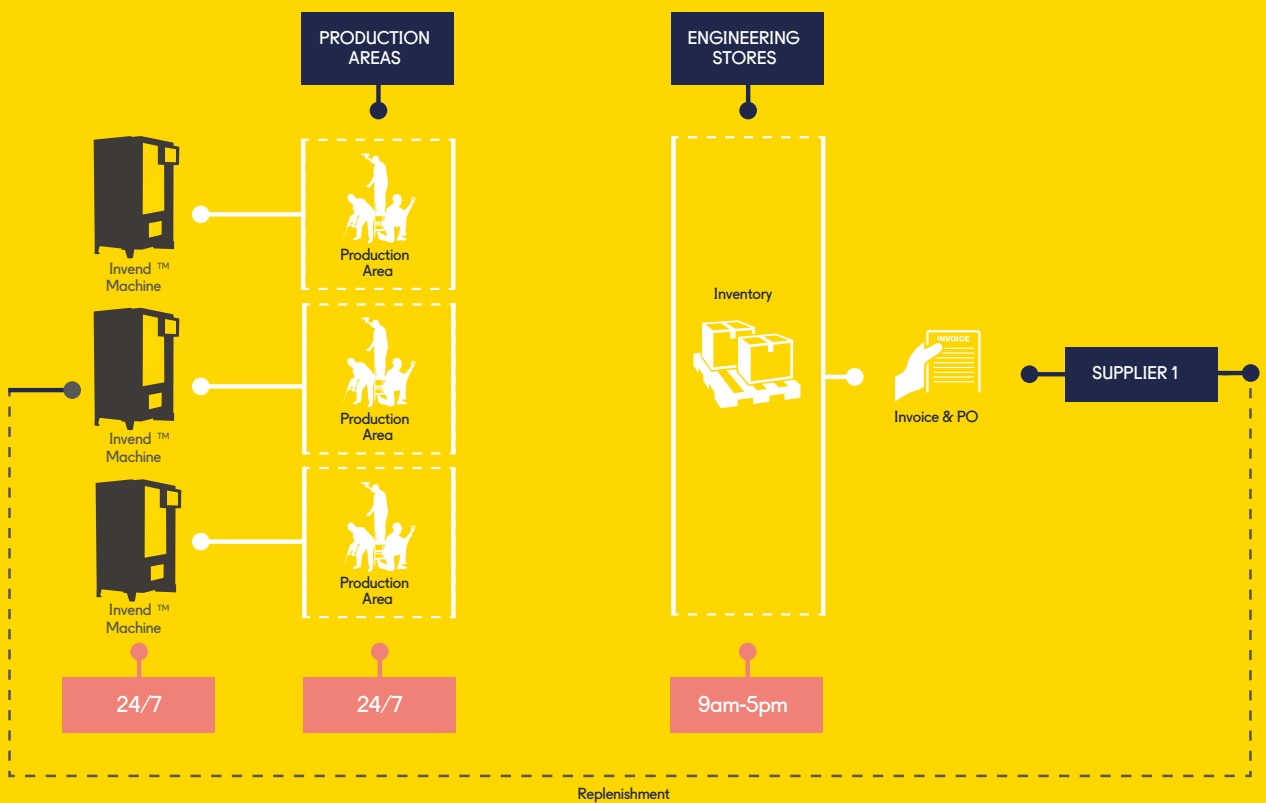


Figure 2

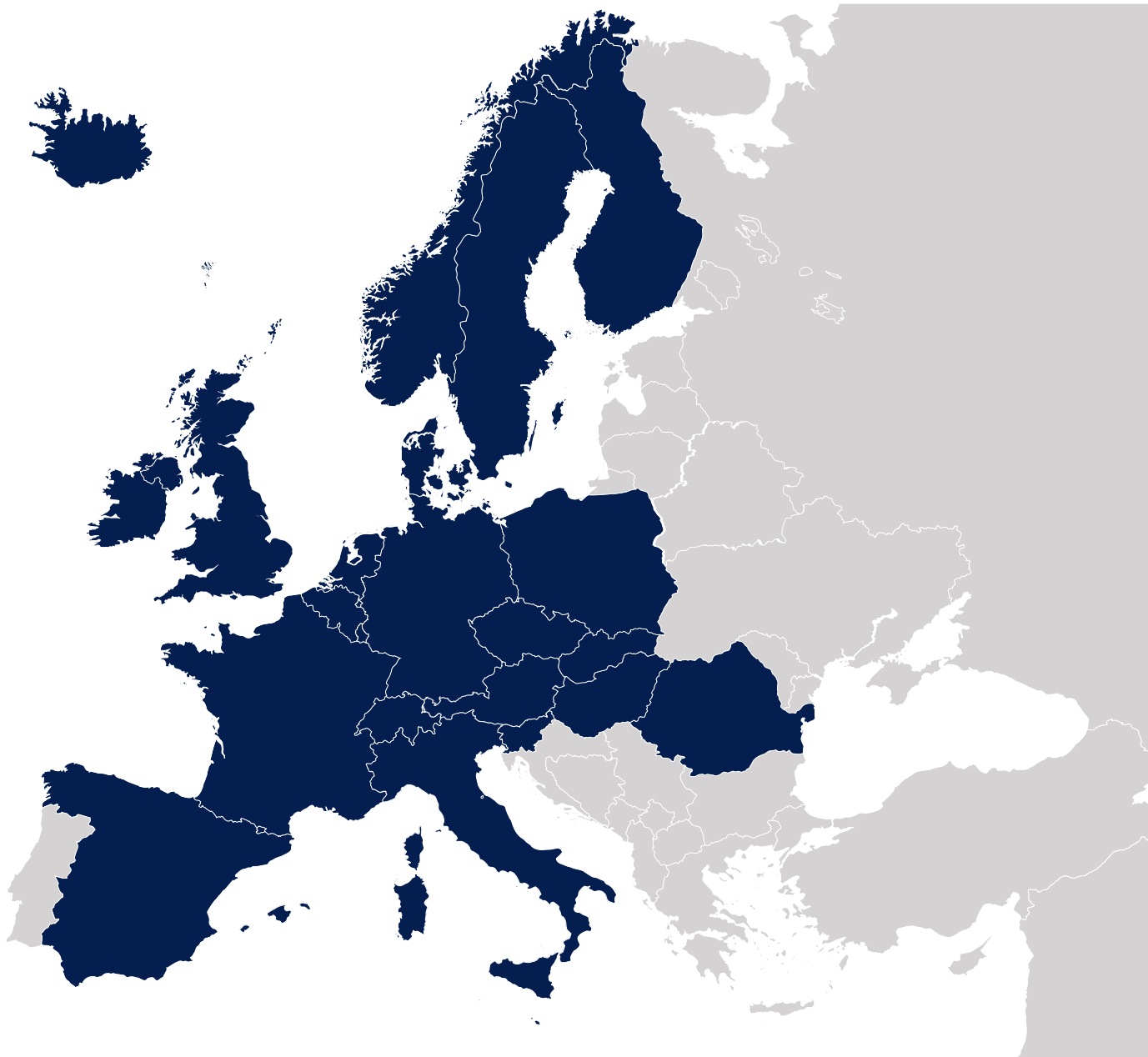
# 'Lean' Vendor Managed Industrial Vending Supply Model



# RUBIX



With our specialist expertise, international strength and local presence – combined with an experienced understanding of your industry – we're ready to keep you moving and help you reduce costs



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