Lean opportunities in MRO Procurement

Improved productivity and reduced waste helps bottom line

Productivity is output, efficiency, and production. In economic terms, it is the rate at which a company produces goods or services in relation to a needed amount of materials and employees. Productivity can be defined in two ways:

1) ***Total labor productivity*** is simply output divided by the number of workers, or by the number of hours worked. Output can be anything from number of packages to airline miles flown, but more generally it is some very broad aggregate like gross domestic product. Measures of labor productivity capture the contribution to output of other inputs than hours worked.

2) ***Total factor productivity***, by contrast, captures the contribution to output of everything except labor and capital. Innovation, managerial skill, organization, waste minimization (all forms) and even luck can contribute. 1

The two productivity concepts are related. Increases in ***total labor productivity***, the amount of output created (in terms of goods produced or services rendered) per unit input used, can reflect the fact that each worker is better equipped with capital. Alternatively, gains in ***total factor productivity***, or any effects in total output not caused by inputs or productivity, are frequently obtained through the use of innovative process improvements or organizational change.

What is waste?

Waste can be identified many ways and as many things, but ultimately, it is any activity that requires allocated resources but adds no value from the customer's perspective. Some activities, while not directly adding value to a product or process – such as time spent on equipment maintenance or the accounting function – are necessary in the production of goods or services and must be perpetuated. Other types of non-value-added activities, like maintaining underutilized inventories or the time wasted searching for tools, must be reviewed and constantly re-evaluated, and if identified as waste, the appropriate steps must be taken to eliminate them.

Many initiatives and systematic approaches for improving efficiency have been adopted by manufacturing organizations to help improve their products and processes by focusing on quality, improving productivity and reducing all types of waste.

Productivity improvement methodologies

The Toyota Production System (TPS), developed in Japan in the 1940's, is the framework and philosophy organizing the manufacturing facilities at Toyota and the interaction of the facilities with their suppliers and customers. The philosophy was largely developed and popularized by Toyota engineer Taiichi Ohno. The main goal of TPS (commonly referred to these days as **lean methodologies**) is to eliminate all forms of waste within manufacturing operations, but has become a very popular tool for improving efficiencies in ALL types or organizations.

Another improvement method, called **Total Quality Management (TQM)**, is a management approach for an organization. TQM is centered on quality, based on the participation of all organizational members and aimed at long-term success through customer satisfaction and system-wide benefits. Popular in the U.S. during the 1980s, it was developed by W. Edwards Deming and is largely based on the quality revolution started in Japan in the 1940s.

Six Sigma was pioneered by Bill Smith at Motorola, and popularized in manufacturing environments by General Electric's former CEO Jack Welch. It emphasizes the use of mathematical and statistical tools to manage process variations that can cause defects, and systematically works toward managing the ultimate goal of consistent and measurable quality.

These approaches to improve productivity and minimize waste are being used by many organizations to improve their products and processes. A 2008 study also reported that a number of organizations have attempted to identify the key Lean principles that can be applied to the supply chain. Lean adopters reported improved collaboration, an increased use of standards and processes and materials, reduced sku counts and inventory levels and a general reduction in cost of goods sold when compared with non-adapters.[2]

Lean – Initiatives for reducing waste

Lean methodologies based on the Toyota Production System are management philosophies that focus on the reduction of "the seven deadly wastes":

- ***Overproduction***
- ***Waiting time***
- ***Transportation***
- ***Processing***
- ***Inventory***
- ***Motion***
- ***Scrap in manufactured products or any type of business***

By eliminating waste (roughly translated in Japanese as ***"muda"***), quality is improved, production time is reduced and cost is reduced. Lean "tools" (more than three dozen and growing), include constant process analysis and continuous improvement (***kaizen***), "pull" production (by means of ***kanban***) and mistake-proofing (***poka-yoke***). Lean, as a management philosophy, is also very focused on creating a better workplace through the Toyota principle of "respect for humanity."

While some believe that lean methodologies are a set of problem-solving tools, most experts agree that it is a holistic, comprehensive, enterprise-wide program designed to be integrated into the organization's core strategy.

Key lean principles also include:

- ***Continuous improvement*:** Efforts to reduce costs, improve quality, increase productivity and share information.
- ***Flexibility*:** Efforts to produce different mixes or greater diversity of products quickly, without sacrificing efficiency at lower volumes of production.
- ***Supply chain enhancement*:** Building and maintaining a long-term, strategic relationship with suppliers through collaborative risk-sharing, cost-sharing and information-sharing arrangements.

Lean basically gets the right things to the right place at the right time in the right quantity while minimizing waste and being flexible and open to change.[3]

Lean implications for MRO/indirect materials procurement and inventory

Indirect procurement activities concern "operating resources" that a company purchases to enable its operations. It comprises a wide variety of goods and services, from standardized low-value items like office supplies and products used in facilities maintenance, repair and operations (MRO), to complex and costly goods and services like heavy equipment and consulting services.

Purchasing organizations in many industries sometimes assume incorrectly that "just-in-case" stores of indirect goods, specifically those used in the maintenance and repair of plants and facilities, are less costly than the cost of downtime or lost production. The perceived pain of not having what may or may not be needed in an emergency or downtime situation often creates inventories of things that are never used or become obsolete or damaged. In lean terms, these underutilized or obsolete inventories, and the associated procurement activities (those not directly related to production), are considered waste, or *muda*.

The time and resources involved with information administration and gathering, supplier contacts, background reviews, negotiations and fulfillment activities of indirect materials create waste and reduce overall production activity if often intangible but very real terms.

Many organizations have strategic sourcing initiatives in place, but they do not extend to the indirect purchasing categories, specifically MRO. Literally hundreds of thousands of products can be considered MRO in categories such as lighting or safety products. Of this category of products, buyers consider about **40%** of requirement are for spot buys or ***unplanned purchases***.

What is an unplanned purchase?

Unplanned purchases refer to the type of buying occasion associated with maintenance, repair and operations (MRO) products that are bought infrequently and needed on an unpredictable basis and not typically purchased year after year. The purchase is unplanned not because someone isn't a good buyer or maintenance professional. While frequently considered emergency downtime situations, these occasions are unplanned truly because of the way the item behaves in a facility. An example would be an elevator's up and down button. Neither purchasing nor maintenance plans for the button to go out: and when it does, purchasing typically needs to place an order for the item if it is not found on a storeroom shelf. [4]

Supplier consolidation lowers costs and improves productivity

The trend in the facilities maintenance business is moving toward organizations trying to reduce the number of suppliers and lower the cost of procuring tools, safety equipment, lighting and other maintenance products used to keep their businesses running. What is actually required in these situations are lean supply channels that:

1. Possess more of a thorough understanding of customer need; and,
2. Are able to provide needed goods at the appropriate place and time as determined by demand (*pulled*).

This methodology would solve three problems:

1. The reduction of the costs (*waste*) associated with holding rarely used items in inventories
2. Allowing organizations to focus on their core competencies and production efforts
3. Not spending time (*waste*) sourcing and procuring infrequently used MRO requirements

For planned purchases, a typical company will use 5 to 10 suppliers from whom they purchase a few high-volume commodity items. For unplanned purchases, a typical company will have more than 20 suppliers to buy thousands of different products every year. Managing those relationships and adjusting to different suppliers takes time and affects productivity. Managing as few relationships as possible for making unplanned purchases will minimize procurement complexity and its associated costs.

In some cases, MRO suppliers even offer discount structures tied specifically to the indirect spend for buyers who use a consolidated approach for MRO purchases. Consolidation to one source simplifies the process, save valuable time and reduces costs for product search and availability, resulting in increased productivity.

Vendor Managed Inventory (VMI)

Vendor managed inventory involves utilizing a supplier to count, track, replenish and/or re-stock products within a facility. The value to the customer is the time that is normally spent by personnel managing these tasks is now provided by the supplier.

While vendor managed inventory can provide multiple benefits to customers, there are many components of inventory management that need to be defined and agreed upon within the customer's facility for the service to provide a benefit to the customer and prove worthwhile to the supplier. These components may include:

- Selecting the products to be managed
- Standardizing on specific products
- Understanding usage needs to accurately set inventory levels and reorder points
- Consolidating purchases to a supplier that will provide the product and manage the program

With all of the agreed upon components in place, a vendor managed inventory can provide long-term sustainable benefits to a customer.

Grainger offers a wide variety of MRO inventory management services to help you identify and improve your procurement processes. Many of these solutions can be fully integrated with your current purchasing systems or Grainger.com®.

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