Managing your tooling inventory with 5S methodology to save time and money

How to support lean manufacturing by using **5S** principles in your tooling inventory management

CRIBWISE

Tooling inventory management software can be used by machine shops to implement 5S methodologies that save them time, increase their efficiency and boost their bottom line.

Disorganised working practices can lead to a disorganised workplace. And, in today's ultracompetitive business environment, disorganised working practices could put a machine shop out of business. Take inventory management, for instance. When it comes to organising their inventories, machine shops have a fine balance to strike. They need to ensure that vital tools, consumables and safety equipment are available for those critical jobs, but a bloated inventory can create a host of issues that kill their profitability.

Hidden costs

The costs associated with an out-of-control inventory can be significant. Huge amounts of time can be wasted maintaining and managing a tooling inventory, including ordering tools, putting them away, and picking, counting and relocating them. The larger the inventory, the greater the number of transactions and the greater the number of people involved. If the tooling is obsolete, as – according to a survey undertaken by Sandvik Coromant – 60% of it will be, this time is wasted.

A disorganised tooling inventory can create chaos on the shopfloor. The Sandvik Coromant survey found that 30–60% of tool stock is uncontrolled and is often just piled-up by machines, obstructing machine operators as they try to work and sometimes even posing safety risks. A bloated tooling inventory makes it harder to find the tool that is needed, when it is needed— typically, 20% of an operator's time is wasted looking for tools. This can cause orders to be delayed, tools to be re-ordered unnecessarily and costly mistakes to be made. Indeed, 15% of jobs can be stopped or delayed due to a lack of the correct tools. Most strikingly, the survey found that 80% of work is performed with only 20% of the tools in an inventory.

A large inventory can mask fundamental problems with the operation of a machine shop. A bloated inventory might ease concerns associated with long vendor delivery times, critical machine breakdowns, long equipment set-up times, production schedules not being met and even absenteeism.

If, however, inventory has to be reduced because the high costs associated with it cannot be absorbed for extended periods of time, these problems must be dealt with. It is better to do this through choice, rather than necessity.

Finally, space used for storage is space that cannot be used for other purposes, such as a new production line, new machinery, office space and more, which may cause a company to expand or relocate its facility prematurely. Further, money tied up in unnecessary assets is money that could be spent elsewhere on profitable endeavours.

Effecting change

Owners and managers of machine shops that recognise any of the issues above in their own operations should be keen to effect change. As they research their options, they will undoubtably come across the practice of 5S - a system for organising spaces so that work can be undertaken efficiently, effectively and safely. Its principles can be summarised with the often-repeated phrase "a place for everything and everything in its place."

5S began as part of the Toyota Production System (TPS), which was developed and implemented by leaders at the Toyota Motor Co in the late 1940s and has been steadily refined by the company ever since. This system, which often referred to as principles of lean manufacturing, is designed to create processes that eliminate waste. This waste could take the form of overproduction to meet perceived or forecasted demands, defects or bottlenecks in production processes, redundant inspections or requirements, excess transportation, idle time, the unnecessary motion or handling of products, and the overall “culture” of a given operation.

5S is considered a foundational part of the TPS because, until a workplace is clean and organised, it can be difficult to achieve consistently good results. An untidy, overcrowded space can cause mistakes, slowdowns in production and even accidents, all of which interrupt operations and impact the profitability of a company.

The term 5S comes from five Japanese words:

- Seiri
- Seiton
- Seiso
- Seiketsu
- Shitsuke

In English, these words can be translated to:

- Sort
- Simplify
- Shine
- Standardise
- Sustain

The **5S** methodology

1. Sorting

The first step of 5S, sort, involves going through all of the tools, materials and equipment in a work area to determine what needs to be there and what can be removed. Some questions to ask during this phase include: what is the purpose of this item? When was this item last used? How frequently is it used? Who uses it? Does it need to be here?

Answers to these questions help to determine the value of each item. A workspace might be better off without unnecessary items or items that are used infrequently. These things can get in the way or take-up space.

2. Simplify

Once clutter is removed from the work area, work groups can devise strategies for sorting the remaining items. The things that they need to consider include: the people (or workstations) in the area and the items that they use; when the items are used; the items that are used most frequently; how items can be grouped and the most logical, and easy-to-access, places in which to keep them.

During this phase, logical arrangements should be determined. That will require thinking through, for instance, the tasks that are undertaken, the frequency with which they are undertaken, and the paths that machine operators will take through the space.

3. Shine

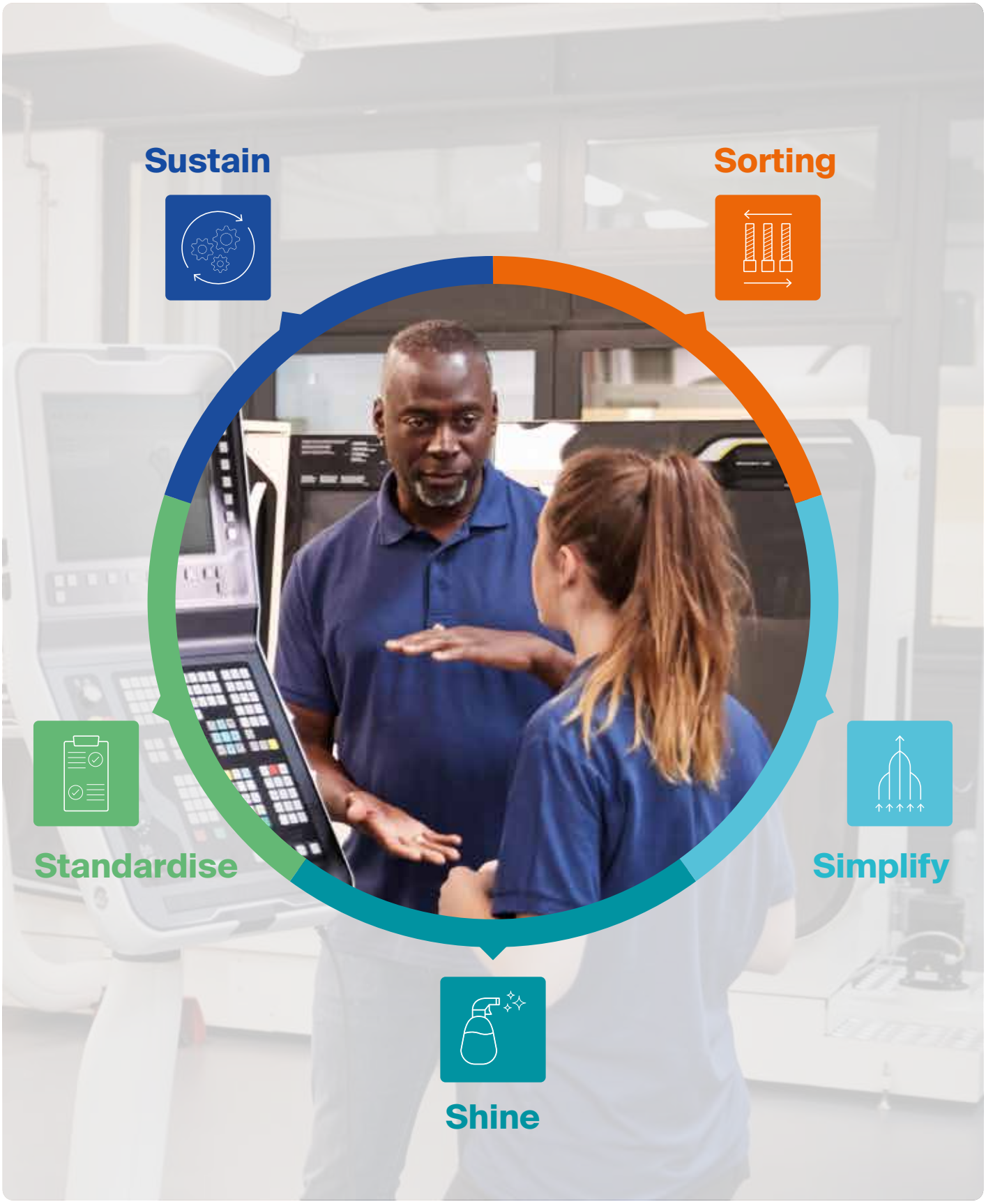
The Shine stage of 5S focuses on cleaning the work area and maintaining the equipment and machinery in it. Planning for maintenance ahead of time means businesses can catch problems before they cause breakdowns, eliminating wasted time and costs related to work stoppages. In 5S, everyone shares responsibility for the cleaning of their workspaces, a task that should be carried out daily.

4. Standardise

As a principle of 5S, to standardise essentially means to document procedures for sorting, simplifying and shining a work area to turn one-time efforts into lasting habits. Through standardising, regular tasks are assigned and schedules are created.

5. Sustain

Once standard procedures for 5S are in place, businesses must maintain these procedures and update them, as necessary. Sustain relates to the process of keeping 5S running smoothly, but also to the process of keeping everyone in the organisation involved. Managers must participate, as must machine operators on the shop floor, in the warehouse and in the office. Sustain turns 5S into a long-term programme, rather than an event or short-term project, and embeds 5S in the culture of an organisation. When 5S is sustained over time, businesses will really start to notice the benefits.


Sustain
Sorting
Standardise
Simplify
Shine

Applying 5S to inventory management

How then can the principles of 5S be applied to inventory management in a machine shop? In the past, an out-of-control inventory could be a costly and complex problem to solve, but simple and cost-effective cloud-based inventory-management software simplifies things considerably.

As owners and managers of machine shops work to implement such a system, they can evaluate their current stocks of tools and consumables. Through this process, they can determine the items that they need, and in what numbers, and they can discard items that are either obsolete or unnecessary. They can also identify tooling that requires maintenance or repair at an earlier stage, before it has an impact on performance or causes unnecessary time wastage.

Once these sorting and simplifying processes are complete, they can begin to shine their work areas. Modern vending machines could be a good option for effectively storing tools on-site until machine operators need them. Vending machines come in all shapes and sizes and with different configurations and security options. They are easy to access and can have a small footprint, allowing them to be placed in strategic locations close to the machine operators that need them.

Using inventory-management software, standardising and sustaining this new lean, tidy tool crib is relatively straightforward. Using intelligent rule-based systems, the process for ordering new tools can be highly automated. Smart vending machines can send restocking orders to the supplier(s) of the tools, which ensures that machine operators will always have the tools that they require. Having the confidence that the right tool will be available for the job, just when it is needed, can do much to reduce tool spend.

Vending machines can also enable tool-usage to be monitored. They track who is using what on the shopfloor and managers can use this information to assess the productivity of their machine operators, machines and processes. Alternatively, many of these functions can be implemented using a simple hand-scanner. Tooling consumption patterns and spending over time can be tracked to identify areas for improvement.

Tool inventory management software can also be integrated into existing enterprise resource planning (ERP) systems to simplify the management of orders, the goods-received process and invoicing.

CRIBWISE
Storviltsgatan 10
11542 Stockholm
Sweden

Phone: +46 (0)8 456 1100
Email: info@cribwise.com
Web: www.cribwise.com