

ENTERPRISE RESPONSE TO COVID-19

MODULE 6

GUIDELINES TO IDENTIFY, REDUCE AND ELIMINATE WASTES

IMPROVE PRODUCTIVITY



Can we talk about productivity when many enterprises are recommending or implementing remote work because of the COVID-19 pandemic? In the new normal, we will work in a different way. Whether working remotely or keeping social distancing in factory or offices, there is a danger of rapid decline in productivity, customer service, morale and overall team performance. The longer the stretch, the greater the potential for decline. So how do we ensure that we optimize productivity and limit revenue losses? Companies must be able to assess if there are any wastes and engage their key employees in handling interruptions while learning to react better and faster. By doing so, companies can identify significant opportunities to improve their overall performance.

Production scheduling to reduce overproduction

Following lockdown, there might not be the same demand (in terms of volume) for your products or your best seller products might change. Demand for your products might decrease in some sector or increase if you produce essential items. To better prepare for both scenarios a better production planning or scheduling might come handy. More specifically, production scheduling allows you to arrange, control and optimize work and workloads in a production process or manufacturing process. This will allow you to tailor your production to the actual demand by customers. Thereby reducing all the disadvantages associated to producing in bulk and storing it. This will allow you to better use you plant and machinery resources, plan human resources, plan production processes and optimize purchase materials. The end result will be that you will be able to improve your cash flow as you are ensuring that there is no surplus and no wastage.

Producing more means that you exceed customer's demand, which leads to additional costs but not necessarily to additional sales. Actually, overproduction triggers the other 6 wastes to appear. The reason is that excess products or tasks require additional transportation, excessive motion, greater waiting time and so on. Furthermore, if occasionally a defect appears during overproduction, it means your team will need to rework more units.

Costs associated to over production:

- Capital lock in the form of inventory both of finished goods or raw materials
- Missed opportunity costs if demand for similar type of product rises.
- Resources being used up more quickly.
- Transportation cost increases because of increased movement.
- Labour cost as overtime can increase.
- Undue pressure on the plant capacity can cause bottlenecks in the system.

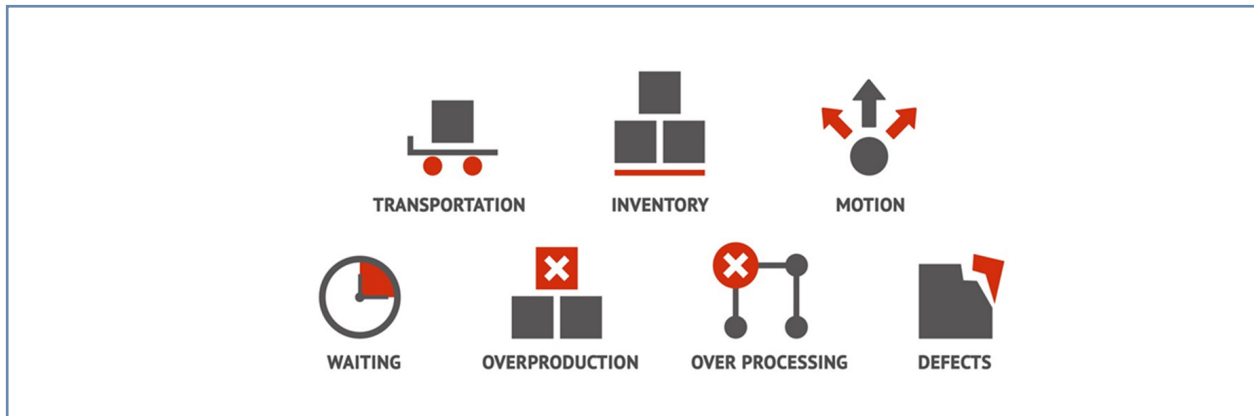
Questions to ask:

- Am I managing customer demand well?
- Are the methods used to forecast demand reliable?
- Is the information available on customers demand, behavior reliable?
- Am I properly analyzing the information available to me?
- Is the supply chain sharing enough information with me to make good decisions?
- Is my company producing more than needed just to cater for defects that the system produces systematically?



Process Improvement by Elimination of 7 Wastes or MUDA

Typically, in any process there can occur seven different types of wastes.



Over production which we can overcome by better planning our production is followed by six wastes as per the above diagram. It is important to understand the cost implication of the above wastes so that we can minimize their occurrence in our processes.

Muda of transportation

This type of waste is when you move resources (materials) and the movement does not add value to the product. Excessive movement of materials can be costly to your business and cause damage to quality. Often, transportation may force you to pay additionally for time, space and machinery.

Transportation cost:

- Maintenance cost,
- Cost of buying gas/Diesel,
- Cost of buying material handling equipment like forklifts.
- Labour cost.

Questions to ask:

- How much money do I spend on buying material handling equipment in my business?
- How much is spent on salaries of forklift drivers, order picking operators, storekeepers?
- Am I using the equipment at full capacity or did I buy excess material handling equipment?
- How much money is spent on maintenance costs?
- How much is spent on gas/ diesel per week/month/year?
- How much time is spent just on transporting goods from one place to another.
- How can I reduce the costs associated with transport?
- Can I minimize unnecessary movement of goods?

How much time is spent just on transporting goods from one place to another?



Muda of Defects

A product defect is any characteristic of a product which hinders its usability for the purpose for which it was designed and manufactured.

Costs associated:

- Cost of rework like labour, materials and other resources
- Loss of time. Time is equal to money
- Loss of money if goods cannot be re-worked on. (Scrapped waste)

Questions to ask:

- Why is the system producing wastes and their causes?
- How much waste is generated for each production batch?
- Can I reduce this waste?
- What is the cost of wastes in my company?
- Can I rework on the waste or not?

Muda of Over-Processing

This type of waste usually echoes on doing work that does not bring additional value or it brings more value than required. It can be by adding extra features to a given product that the client did not ask for but by doing so you are increasing your business costs. For example, doing more than required quality checks before sending out a product, nobody will use or find value in it.

Costs associated:

- Cost of resources increases.
- Labour cost.
- Time loss
- Operational cost increases.

Questions to ask:

- Did the customer ask for additional features?
- Am I capturing customer requirements properly?
- How many operations are needed for the process?
- Can I reduce the number of operations?
- Do I know who are the final customers?



Muda of Motion

This kind of waste includes movements of employees (or machinery) which are complicated and unnecessary. It can cause injuries, extended production time and more. In other words, do whatever is necessary to arrange a process where workers need to do as little movement as possible to finish their job.

Cost associated:

- Loss of time due to unnecessary movement
- More time is taken to carry out operations/activities
- Increase sick/ injury leaves if employees are injured
- Overtime cost to cater for sick leaves/ injury leaves

Questions to ask:

- Can I reduce the unnecessary movement of employees/machines during operations?
- How much time is lost due to these movements?
- Can I redesign the layout to limit these movements?

Muda of Waiting

Whenever goods or tasks are not moving, the waste of waiting occurs. It is easily identifiable because lost time is the most obvious thing you can detect. For example, goods waiting to be delivered, equipment waiting to be fixed or a document waiting for approval from executives.

Cost associated:

- Time loss: Delays in decision making
- Time loss: Delays in manufacturing.
- Idle time is high.
- Throughput time is high.
- Time = money

Questions to ask:

- How much time is loss?
- What are the causes of these "waiting" time?
- Can I reduce / eliminate it completely from the system?

Time Loss

Delays in decision making



Inventory Management

The amount of goods and materials stored by a company at a particular time depends on the company; this includes parts, products being made, and finished products. Ideally, companies should be able to sell all the products that it makes within a short time. However, sometimes companies produce to stock as a strategy hoping that they will eventually be able to sell it. However right now to ensure that we have sufficient cash flow it is necessary to keep inventory to the optimum level as per the demand as there are several costs associated with inventory:

- **Holding Cost-** Cost of storing inventory like energy, pest control, rent, insurance, perishable products. Producing excess of products or overstocking means that we need to invest money to keep the stock and ensure that the products will not perish or get damaged.
- **Ordering Cost-** Cost of consumables like ink printer, paper, invoicing, Quality checks
- **Shortage Cost-** Cost of not having enough products to sell. Example. Loss of customers

Questions to ask:

Case 1- Overstock

- Do I need to stock excess inventory if my supplier is reliable and regular in supplies?
- Can I sell the excess inventory like raw materials to other companies to increase cash flow instead of paying money to hold the inventory?
- Should I review my ordering system and buy in small quantities but more frequently to minimize ordering cost?
- Can I save money by stocking less goods?
- Can I use the Just in Time concept to decrease overstocking in my warehouse?

Case 2- Understock

- Do I have a shortage of inventory?
- What are the repercussions on operations, production?
- Will I be able to produce if I am short on inventory?
- Should I re-schedule operations/production to meet demand?
- Should I review my ordering system and buy in bulk to have bulk buying discounts and increase my cash flow?



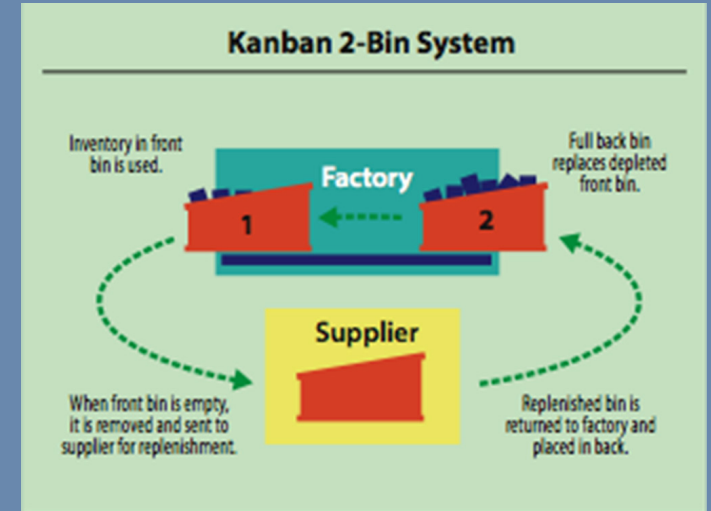
Inventory and Just-in-Time Concept

The Just-in-Time (JIT) inventory system is a management strategy that aligns raw-material orders from suppliers directly with production schedules. Products are produced when they are needed and, in the quantity needed. Companies employ this inventory strategy to increase efficiency and decrease waste by receiving goods only when they need them for the production process, which reduces inventory costs. This method requires producers to forecast demand accurately and that processes are efficient and do not produce any waste.

Companies work closely with their suppliers and choose suppliers who can rapidly procure raw materials in a really short time. Companies closely monitor their stock levels and use Kanban which is visual manner of relaying information, to better monitor and manage the flow of work-in-progress, goods, and demand requirements within the process and thus are able to link their production with their supplier in a systematic and efficient manner. Kanban serves as the control method that signals when it is time to pull raw materials or parts, causing the company to send a purchase order to the supplier who then subsequently delivers the parts or raw materials in the right quantity or amounts.

Supplier Management and Inventory

- If you have a reliable supplier, try to re-negotiate terms and conditions so that they are more flexible with their delivery and can deliver within a really short time.
- Ask customer if extra care like packaging can be done while goods are in transit to limit breakages.



Source: <https://www.creativesafetysupply.com/articles/kanban/>



The Clean and Disciplined Workplace using 5S

COVID-19 has changed the way we must operate in the workplace. Thus, The Japanese tool of 5S becomes important. We need to keep our factories/offices clean and ensure that we have a good housekeeping procedure well in place in our workplace.

Seiri - Sorting

We must ensure that we do not keep unnecessary items in the workplace. Remove all unnecessary items from the workplace to reduce surfaces/objects that can get infected. Keep only the necessary items in the workplace. For example, a mechanic will need to keep all his tools handy. Keep in mind that we need to prevent employees from moving to one department to the other, thus the need to only keep items that we need.

Seiton - Set in order

Keep all necessary items in order and in a systematic manner to ensure that they can easily be located and cleaned. Keep in mind that we need to wear our gloves and masks while touching our tools and materials. Materials and equipment should only be issued when required. Try to see if we can limit lending of tools/files etc. by issuing each person with his/her own set of tools and giving the workers a specific space to store their tools/files/materials.

Seiso - Cleaning

Clean the entire office and factory. The whole area must be sanitized prior to resuming work with either a chlorine-based detergent or 70 % alcohol product. Keep in mind that we must sanitise from the door knob to the boards and all the surfaces that we come in contact with during our work.

Establish a cleaning schedule for each area and determine their frequency of cleaning. Ideally sanitization should take place daily, prior to the start of the day or shift. High risk zones such as mess room, cafeterias, toilets, lifts must be cleaned more frequently than other places. Shop floors must be sanitized daily in the morning, during lunch and at the end of one shift.

Seiketsu - Standardise

Seiketsu means "standardized cleanup". It derives from the one-time Seiso step which made the factory "shiny clean" and set the standards for cleanliness. Seiketsu makes it possible and feasible to live up to that standard. To ensure that we keep up the above, devise ways to make employees responsible for their small workplace. For example, a worker will be responsible for cleaning his own machinery with the required detergent thereby ensuring that the workplace stays safe and sanitized. Regularly communicate on the importance of keeping the workplace clean in this crisis through posters, small messages, etc. and ensure that supervisors are systematically checking that cleaning is being done up to the standard as required by the company.

Shitsuke - Self discipline

Shitsuke, means 'Discipline.' The emphasis of Shitsuke is on elimination of bad habits and constant practice of good ones. Once Shitsuke is achieved, personnel voluntarily observe cleanliness and orderliness at all times, without having to be reminded by management. Efforts can be recognized by management in terms of employee of the month or 'COVID-buster' of the month, certificates or any other means of recognition deemed appropriate by management.

5s

Sort

Set in Order

Clean



Standardise

Self discipline

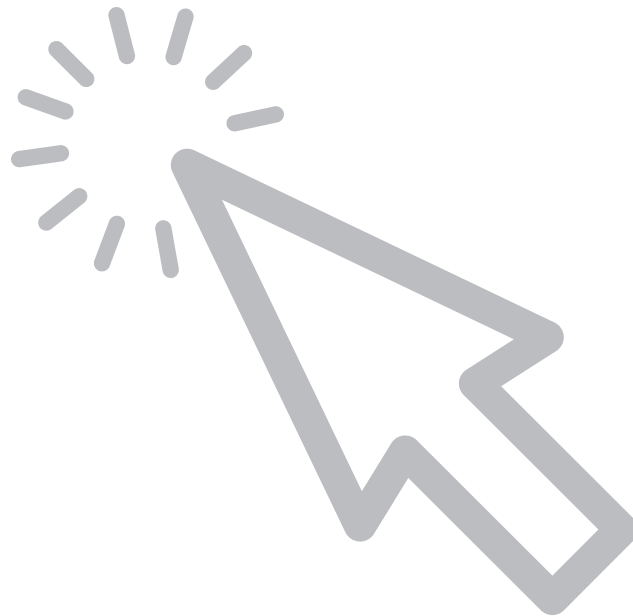


Multi Skilling of Workforce

Due to the exigencies of social distancing it might be a good idea to cross train your employees so that one worker can work on two or more machines near to him/her thus reducing the number of employees in a given shift at a given time. This will reduce the risk of physical contact between employees. Cross-training employees provides flexibility. It allows leaders to shift people around to adjust staffing when there are shifts in demand especially if we need to create more shifts but with a given number of employees.

Sources

- www.industryweek.com
- www.lean.org



Cross-training Employees...



...provides Flexibility



The NPCC can facilitate the discussions for the modules where you need us most.
We can arrange for online discussions and group work.

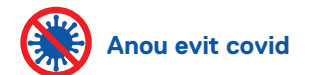
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