

# Case study-duraweld

Business



1. List the 5S and compare to the lean implementation at Duraweld. If there are differences, explain them. The '5S' principles which originated from Japanese terms of seiri (sort), seiton (set in order), seiso (shine), seiketsu (standardize) and shitsuke (sustain) are used to create efficient, clean and well organised working environment. Sort - refers to ensuring that each item in a workplace is in its proper place or identified as unnecessary and removed.

When " sorting" is well implemented, communication between workers is improved and product quality and productivity are increased Set in order - The second stage of 5S involves the orderly arrangement of needed items so they are easy to use and accessible for " anyone" to find. Orderliness eliminates waste in production and clerical activities. Shine - refers to a clean work area. This maintains a safer work area and problem areas are quickly identified. An important part of " shining" is " Mess Prevention". In other words, don't allow litter, scrap, shavings, cuttings, etc.

, to land on the floor in the first place.

Standardized - means to formalized procedures and practices to create consistency and ensure that all steps are performed correctly. Orderliness is the core of " standardization" and is maintained by Visual Controls. Sustain - means to keep the process going through training, communication and organisation structure. This last stage of 5S is the discipline and commitment of all other stages.

Without “sustaining”, the workplace can easily revert back to being dirty and chaotic. That is why it is so crucial for the workers to be empowered to improve and maintain their workplace.

When employees take pride in their work and workplace it can lead to greater job satisfaction and higher productivity. Among the benefits of implementing 5S System:- \* Improve safety \* Decrease down time \* Raise employee morale \* Identify problems more quickly \* Develop control through visibility \* Establish convenient work practices \* Increase product and process quality \* Strengthen employees' pride in their work \* Promote stronger communication among staff \* Empower employees to sustain their work area Duraweld applied 'sort' and 'set in order' principles by using a shadow box as proper tool storage.

Storage areas for quick moving materials were set line-side.

Labels were used to ensure tools were stored in proper place. These implantations have help to reduce worker's travel time as all machines, tools, and information related to their task is set within a defined area.

Duraweld ensure 'shine' / cleanliness is practice at the factory. Cleaning and maintenance procedures are advertised in the factory. The floors under the machines were purposely painted in white so as to ensure that spilled/oil leak can easily detected - which can prevent corrective maintenance.

Duraweld created two-cell manufacturing units for repeat stock products.

The floor was painted to define the work area, aisle space and location of necessary items. By linking the routes together, the production team managed to reduce conveyance and set-up time, build awareness of

previous/next process and increase productivity. This 'standardized' process was further enhanced by the implementation of Kanban cards - the visual management system that incorporates scheduling and maintenance. The Kanban cards indicate what to produce, when to produce and how much to produce. These standard operating procedures has help to reduce over-production at Duraweld.

Furthermore its 'pull' as opposed to 'push' system allows better regulation of intermediate stocks in the production cycle. Among the key factors which lead to successful lean implementation in Duraweld is through its 'sustain' processes. The company ensures its employees from shop floor to the top managements are committed to the lean programme. Proper communication sessions via workshops, training were held to explain about the changes, how it affect them, the benefit etc. This helps to instil positive values and make everyone be part of the system - employee engagement.

Duraweld has also invested in an enterprise resource planning (ERP) system to micromanage stock variation and seasonality.

This system link operation across the organisation. The practicality of 5S principals can be seen through various implementations in Durawell as explained above. What makes the implementation of these principles throughout the organisation a big success is its employee's engagement that makes the lean system as part of their culture in their work place and organisation as a whole. The principle aim of a 5S system is improved safety, efficiency, and employee morale.

By deciding what should be kept, where it should be kept, and how it should be kept, 5S eliminates wasteful clutter and creates ownership of processes among workers. The results of 5S are both visually and economically dramatic.

2. Describe which kind of waste was eliminated for each lean implementation at Duraweld. Can you think of other types of waste that could be eliminated? Waste is defined as non-value added activity or expense that the customer is not paying for. By eliminating waste in the operations, we can reduce lead times, increase quality and decrease costs.

Before we can eliminate waste from the processes, we need to be able to identify it.

The following are the wastes most commonly associated with Lean. \*

Transportation: Is there unnecessary (non-value added) movement of parts, materials, or information between processes? \* Waiting: Are people or parts, systems or facilities idle – waiting for a work cycle to be completed? \*

Overproduction: Are you producing sooner, faster or in greater quantities than the customer is demanding? \* Defects: Does the process result in

anything that the customer would deem unacceptable? Inventory: Do you have any raw materials, work-in-progress (WIP) or finished goods that are not having value added to them? \* Movement: How much do you move

materials, people, equipment and goods within a processing step? \* Extra Processing: How much extra work is performed beyond the standard

required by the customer? At Duraweld, the 5S (Sort, Set to order, Shine, Standardize, and Sustain) was the cornerstone that helps the organisation eliminating the waste. The first step taken by Duraweld was converting a ‘  
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push' manufacturing flow to a ' pull' process by creating a visual management system of Kanban card.

The cards indicate what to process, when to process and how much to produce. Not only it reduces over-production but allows better regulation of intermediate stocks in production cycle. Only the required amount is produced in every stage.

This process eliminate waste – no work was carried out unnecessarily, machine time is lesser, better utilisation of space in factory. The use of shadow boards helps to organise the essential tools. Relevant machines and tools were aggregated in cells. Floors were painted in white to assist warning of maintenance issues or detect early wear.

Labelling program ensures item/tool used returned to their designated location.

This helps in reducing motion of workers i. e. one of the wastes in production line whereby workers can find all machines, tools, and information related to their task is set within a defined area without having to travel around to find what they need. The preventive maintenance by ensuring early detection of wear machine or tools can reduce maintenance cost. The 3S – sort, sort in order and shine exercises as explain above also found waste from plastic cuts from the production line which can be recycled and reinserted the manufacturing cycle.

The implementation of visual management technique and clear work area organisation ensure people were kept working which means the resources are fully utilised. This eliminates unproductivity among the workers – their <https://assignbuster.com/case-study-duraweld/>

movements are fully controlled not only by the supervisors but also by the workflow process/schedules. Duraweld made big investment by using an integrated enterprise resource planning (ERP) system to manage stock variation and seasonal stock adjustments. The system allows materials movements, stocks, and production schedules to be managed and monitored through a database in a computer.

By using this technology, Duraweld can reduce its manpower cost whereby less supervisor is required to monitor the database as compared to more supervisor required to monitor each task if it's done manually. Communication is the key success to sustain the lean implementation in the organisation.

Clear message was sent across the board on how the changes are required to be done, the benefits and the impact of the implementation to the workers effectively communicated. This not only gets rid of grievances among the workers which are a waste in any organisation but improve employee morale and create sense of belonging to the organisation.

The tracking and elimination of waste is an on-going process. When waste is not actively sought and removed, it will continue to build in your company. 3.

Considering Duraweld's situation, explain which elements of the lean system you would further implement and what would be their positive consequences on the company. As discussed in question no. 2, one of the important elements in the lean system is eliminating the waste which in Duraweld's case, the 5S systems are used as a tool to eliminate the wastes within its factory.

On top of that the use of Kanban cards system help to increase efficiency in its production cycle by replacing the ' push' system with the ' pull' system. In my opinion, the following elements of Lean can be further implement at Duraweld:- 1) Visual Management: A Standard Operating Procedure and a step-by-step instruction which implemented through the visual management such as a manual board/instruction board at each workstation and machine can be used to show how each task is perform or machine is operated.

When this visual management is fully utilised, not only the production flows are in order, job rotation among workers can be perform effectively – any employees can be trained to do any task or operate any machine by referring to the instruction board.

This will reduce the company dependency of particular skilled workers.

Everyone in the shop floor is multi-tasked. 2) Quality at the source: The quality at source require the production line to do things right the first time. This will eliminate the opportunity of waste i. e.

waste of raw material, defect outputs etc. hich will help to reduce cost. At the early stage of production cycle, the workers will inspect, analyse and control their own work to guarantee that the goods and services passed on to the next process stage meet the specification/requirement. 3) Continuous improvement: Conventional wisdom told us “ if it ain't broke, don't fix it! ”

The reality of today's business environment is that if we're not improving our business processes and meet and exceed customers' expectation, our business will not survive. Many organizations create change either by vision or by crisis.



The latter seems to be the most prevalent.

A major crisis takes place that forces a company to make an improvement.

When a crisis hits, it's because the vision or change efforts were not sufficient to avoid it. Quick fixes are then applied, and teams are formed to root out the problems. We have to take the time to step back, identify, and analyze what the real issues are, and the type of method to use. There are numerous improvement choices; Kaizen, Lean Manufacturing, Six Sigma, TQM, Process Reengineering, Value Propositions, etc. 4) Standardized Operations

One of the most important tools of lean manufacturing is standardized work.

When starting a 5S program, the cleaning, organizing, and developing of sustainable practices is done so the elements of work can be standardized.

In lean product development deployments, by developing and releasing design guidelines, we are in effect implementing standardized work for engineers. The principles of lean and flow production do not work well when everyone is allowed to choose the method or sequence in which to do the job; quality suffers, and productivity drops.

This reduces throughput and the carefully developed production system develops unanticipated bottlenecks. Standardized work is a detailed, documented and visual system by which associates develop and follow a series of predefined process steps.

It should be used whenever the work requires completing a series of tasks.

Production workers, shipping departments, and warehousing teams all can benefit from implementing standardized work. References:- 1.

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