

Case study: lean implementation at siemens' kalwa plant

Business



In 2009 Siemens company in India consolidated its place rather than before this factory equipped with the most modern machinery and testing facilities and 40 percent of the India Siemens worked in Kalwa factory, not only they change their role during these years from a simple assembly site to the medium voltage switchboards (MI) producer, medium voltage indoor and outdoor vacuum circuit breakers (MS) producer, gas insulated switcher (MM-GIS) producer in support of the main company, but also they improved their position in the market, now ten company NAS Tactless in Mumbai, N Calcutta, Arranged and GAO, 4000 employees and 11 sales offices, 300 dealers. Furthermore their company is second Siemens factories outside of Germany after Brazil branch. Siemens improve its products in 4 sections: 1- industry 2-energy 3- healthcare 4-consumer products in India and all of the world and our case company manufactured low variety and high variety products which belong to power distribution segment, energy division.

Siemens Company in India competed with ABB, ASEA, Schneider electric on the other hand Kalwa products exported to Bangladesh, Sri Lanka, Nepal, Bhutan, Maldives, Oman, Qatar and etc.

In 2009, 60 to 65 percent of The Switchboard Factory (WOWS) area allocated to manufacturing panels (MI) and MVs (MS) and remain space remains for manufacturing VICE (MS) and MM products. This company had 400 personnel (blue and white collar) and employees worked in 2 working shifts and one additional shift (if necessary). Manufacture cycle - order planning and logistic: Initially, SEE (sales order engineering) was the first segment in MI which had some duties like: design manufacturing, process planning, testing and quality package and dispatch commercial, incoming inspection <https://assignbuster.com/case-study-lean-implementation-at-siemens-kalwa-plant/>

and stores. Local customers ordered to the regional sales team and marketing team focused on export orders. Every order that transferred to the SEE marked and entered to the factory.

All the orders must pass two stages: 1 -Design and engineering stage , 2- order planning and execution stage. After an order received by marketing section, then SEE prepared an engineering drawing with cooperation with sales colleagues and customer (to cover customer needs), these drawing prepared in 2 stage A and B , in stage A : they have all info except wiring diagram which completed in section B . After passing these two levels they sent their drawing to the customer to approve and then send it to the manufacturing. During these processes SEE consulted them to avoid any non standard customer requirement if all the level passed correctly the documents were passed to the manufacturing department.

Technical Order Processing department (TOP) received orders and recorded it in to the production planning database according to their times then delivery committee tried to estimated the delivery date to the customer.

Every order needed two type of raw materials (equipments) : 1- electrical , 2- mechanical , the top staff wrote the necessary equipments in a list that called (MM) bill of materials list . The BOMB sent by enterprise resource planning software (ERP) to the material planning department, mechanical equipments were existed inside of the company and electrical needed to order to the supplier. Then procurement cycle started next equipments release to the shop according to the requirement.

The existing manufacturing system had many errors, waste and inefficiencies in shop floor and logistic (they wasted long time and valuable raw materials and sometimes the manufactured panels wasted because of weak layout design), on the other hand in 2006 customer demands increased around 75 percent and managers need to enhance their manufacturing process efficiency to reduce their costs and respond sooner to the customer demand. In October 2006 Siemens GAG sent a letter regarding the implementation of lean management in Koala many Ana Montreal team eagerness to improve Koala Doctoral Like ten toner branches during the world. They expected this implementation will enhance company's capacity to triple during five or six years.

Lean management implementation steps: The lean management team visited Siemens site in Turkey which managed in lean management methods then consultant added to the team members, one of the most important duties for managers and team member is to clarify how much this implementation is vital for the company to hold its market share and all the personnel had a critical role to achieve this goal, thus managers started the Lean management process with brain storming among all the company sections, they asked which points make waste during production process? They wanted to know and eliminate any waste of time and raw material during production line.

However, changing the working methods which many person work with it for many years has some resentment among different groups. The lean team decided to divide their changes to: 1-layout 2-support system 3- vendor

management 4-cultural changes , which these changes caused to improve the Koala company efficiency. Lean team had meeting with personnel of sections that ad more errors after lean implementation, team members tried to find out problems and seek to solve the issue. 2. 0 QUESTION 1 Has Siemens Koala plant been effective in achieving lean implementation? In our opinion, Siemens Koala Plant has been affective in achieving lean implementation.

The main contributing factors for an effective lean implementation for Siemens Koala Plant are as follows: 1. Top Management provide a very good support and clear direction a. Lead by Global Head, Mr. Seawall b. Siemens Koala Plant General Manager, Mr. Kandahar c.

Mr. Kandahar, demonstrating “ walk the talk” by showing his commitment by loosely involved in the implementation activity to ensure the workers understood the objectives 2. Proper planning in understanding the as is process and to be process d. 6 months of impact assessment and feasibility study on Vacuum Circuit Breaker (VS.) existing product line processes 3.

Lean objectives and target was communicated clearly to the whole team in Koala plant e.

Introduction of Seawall to the shop floor workers and office employees to clearly communicate the initiative and the lean implementation objectives f. Clearly communicate that lean implementation to be introduced to only manufacture f panels and VS.. G.

Provide clear reason on why the two (manufacture of panels and VS.) was chosen 4. Formation AT Implementation team to operationally Ana moonlit n. Clemens Koala Plant General Manager, Mr. Kandahar as the head for both the panels and VS.

implementation team I. Supported by Mr. Veda for VS. J. Working group from cross functional team managers and executives 5.

Site visit to learn from a real life lean implementation k. -3 team members and Mr. Veda visited lean plant Marti I. Kandahar and Veda visited Siemens Switchboard in Turkey 6. Appointment of consultant to help on the lean implementation insulate provide tangible potential benefits I. Increased productivity of labors it.

Reduction in Inventory Level iii. Improve space utilization m. The n. Knowledge sharing and best practice based on real life lean implementation from other industries 7. Organization are highly committed and motivated in implementing lean Group leaders support the workers maintaining the pace of the line p. Kandahar and his management team will attend the dashboard meeting to resolve issues q.

By the actions of 7. A and 7. , the employee realizes the importance of the initiative and start to commit themselves in making it a success r. With proper training, the employee feels engage and motivated to ensure the initiatives is a success The 7 contributing factors above enable Siemens Koala plant to effectively implement the changes required below: 1 . Layout changes a.

Assembly line introduced b. Work station based on order c. Fixed “ take” time 2. Support System changes d. Introducing Dashboard – for issue escalation e.

A fix time to discuss the escalated issue. The and mandatory for the Training to ensure the employee has the right skill-sets 3. Vendor Management g. Able to adopted Just In Time (TIT) supplies delivery h. Able to embrace “ Pull” Philosophy 4.

Cultural changes I.

Team “ belongingness” J. Uniform dress-code After 12 months of implementing lean, Siemens Koala Plant achieved its 3 main objectives for implementing Lean processes bases on the followings business outcome: 1. Panel throughput time on the shop floor had reduced by approximately by 30 per cent 2. First Pass Yield (FAY) had increased by approximately by 40 per cent 3. Worker productivity had increased approximately by 30 per cent Siemens Koala plant should further refine and improve the improved processes/functions or to include other processes/functions which not part of the original scope to be part of he lean implementation.

Siemens Koala plant should look into implementing lean to ten remaining processes/Tunnels as snow Dowel: 1 Design department processes/functions 2. Engineering department processes/functions 3. Vendor and supplier manufacturing processes/functions The approach above combine with the adherence to lean principles and lean steps should ensure lean implementation is sustainable. 3. 0 QUESTION 2 How was the organization’s

change process managed? Actually this company had different sections which needed to change during lean management theory for example : shop floor , design and engineering departments, ender and suppliers all of these sections work in traditional methods .

In the other these company use two different kinds of resources 1- mechanical , 2-electrical which mechanical components exist in the company warehouse. But; electrical components needs to order and buy from suppliers, this company manufacture in mass customization method. As a matter of fact changes had started with cooperation between Mr.. Giuliani with corporate strategy department to find out feasible switchboard part for implementation lean management in process , on the other hand management replacement occurred ; Mr.

. Giuliani was promoted to director of Medium voltage Division and Mr.. Kandahar raised to general manager for WOWS factory . Following, Mr.

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Seawall worldwide person in charge of lean project in the Siemens Switch Boards arrived at the Koala factory , and manager introduced him to the shop floor workers and office employees and they decided to implement lean management in the VS. company too. In the first step Veda and some members of the team had a trip to the lean plant of Marti and they could understood benefits of lean management at the same time some American consultants arrived to the Koala factory to cooperate with them in lean management process implementation. Initially consultants had a meeting

with manager and explained for him benefits of lean management like: increase productivity, reduction in inventory levels and improve space utilization.

In 2008 Kandahar and Veda visited Siemens site in Turkey and surprised of implement lean management results in company efficiency.

Managers needed to restructure layout and process to implement lean management . Obviously errors, inefficiencies and wastes were not clear before implementation, during this process managers asked every department idea to achieve efficient ways and reduce next impact between personnel. Koala Company needs this process because total demands enhanced for their panels. Company must changed exist traditional layout in operating sections that needed unity among workers and supervisors. They decided to cultivate workers with rewards if they will catch the enough production monthly.

They decided to prepare six work stations along their five assembly lines and they made this process flexible to use leader worker team to help the other assembly line (if necessary).

As a Matter of fact, it's accessory to change support system for new layout, managers used a board at the beginning of every assembly line which describe who are person in charges? Production features and their quantity? And necessary raw materials this board called Sonora Ana Nell to ten company to Tina out ten maltase or weakness points during the process. Seriously, suppliers were one of the most vital parts for their KIT and lean

management. Lean companies need the correct part in a correct time because they do not have inventory any more.

In the beginning there were many inconsistency between company's operational section and suppliers which cause to direct meeting between lean team members with them and team members describe that it is possible this methods make extra cost for you but in long time this method will improve company production quantity and improve your selling. Mr..

Kandahar decided to gathered every line member (engineers , workers , etc) as a team to improve their organization culture , for feeling team belonging he decided to take 30 min for their pray and sport activity daily. 3. 0

QUESTION 3 What resistance did Kandahar face in implementing the change and why? Lean is consider one of the most important success factor in an organization strategy s one of its main focus is to diminish impediments to the production line in order to ensure smooth process flow by eliminating waste.

As noted in the article, time waste was evident throughout the department in the value chain and this requires major changes to the process flow. Since this would involve adjustment to the process flow and directly impact the way employees had been performing their task for years, it has created resentment from various groups of employees. Eventually, most of the departments involved are becoming defensive of their own approach and the way hey do their work.

At the beginning of every line there were dashboards installed throughout the shop floor, SEE and right to the dispatch section. The shop engineers and workers will post all issues that occurred on the line including the names of the people involved.

The errors uncovered from various departments thru lean system which are overlooked previously has formed strong resentment among the workers especially for those who weren't at ease in admitting their mistakes. This has leads to workers blaming each other which ended out with heated arguments among the departments. Furthermore, the structure change within the team, high human intervention in team activities and lack of synchronization between departments has contributed to high numbers of errors. One of the main reasons that contributed to this resistance is because the workers view the lean system as Just another initiative from the management.

Furthermore, the workers bonuses were solely dependent on the line's productivity.

In the event where throughput of the line is hampered due to issues, workers' productivity as well as their salary will be affected as they need to wait until the issue s resolve and might need to extend their working hours. Therefore, the disruption was unacceptable and was compounded by the labor union. Vendor management Is consolable one AT ten toughest Issues Ana It posed major challenges for Koala plant. All this while, vendors were so used to supplying in batches the required materials and goods for a large

numbers of orders by a certain date. Thus majority of the vendors could maximize the cost advantages due to supplying materials in bulk.

However, with lean implementation, the material is only required once the individual panel came on the production line since there is no longer needs for materials to be delivered by batch or by customers order. The change had a vast impact to suppliers where vendors were required to be constantly reminded of the new arrangement and to deliver the goods the following day which impede their profits since they could no longer exploit the economies of scale. Additionally, the new set up has also leave an impact to the material planning group as they need to arrange order for individual panels constantly instead of ordering in bulk and require to be in constant contact with the suppliers to ensure the material is delivered on time.

5. 0 QUESTION
4 How did Kandahar handle the resistant to change?

The company faces several challenges despite the benefits of successful implementation were attractive.

The challenges among others include restructuring the organization, getting the staff to accept the lean implementation and handling the resistance from internal and external stakeholders. One of the way Kandahar handle the resistance to change is by organizing meeting to explain to the employees the importance of adopting lean to cater the growing demand for panels. This lean was implemented at the shop floor which also requires the supporting department to adopt the lean implementation which includes layout changes, changes in the support system, changes in vendor management and cultural challenges.

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As for the layout change, the group leader plays a role to support the workers in maintaining the pace of the line. The workers will press an “ and on” light which would then light up another “ add on” lamp in the manufacturing department’s office in the event there is an issue with regards to the material or drawings. The TOP material planning or the equipment group would meet the worker to discuss the issue and subsequently the light would be switch off upon the issue is settled.

Kandahar also attend meeting with a few other head of departments to discuss on the issues involve as well as those individual staff names which is listed on the dashboard.

The meeting which is conducted every afternoon 2 pm for an half an hour provides the basis for managers to identify number of panels manufactured for the day, how the line is progressing and identify the issues that hampered the line’s progress. During the meeting, the issues are gradually addressed; the individual staffs involved were required to solve the issue by performing kazoo root cause analysis. Kandahar also ace challenges to implement the lean as the vendors face problem to supply materials as and when required when the respective panel come on line as previously the materials were supplied in batches as per the agreed timeline. Hence, to overcome tens Issue, ten lean team vaults ten vendors Ana presents ten Detente AT lean program. For short term, it was decided that vendors will manufacture the material in bulk but delivery of the materials as required by the line.

Kandahar also introduce Joint prayer and exercise session at each assembly line at the beginning of every shift. This concept was also introduced to the personnel in office. All the members involved in the lean project were given a T-shirt with lean logo which represents the “ team effort” which was later introduced to the workers besides to the office staff and management.

Kandahar also introduce key performance indicators and the workers performance bonuses are determine based on the agreed panel produced, I. E.

Six panels per day per line. The abovementioned solutions were identified and implemented by Kandahar to handle the resistance to change to successfully implement the lean at Siemens’ Koala Plant. 0 QUESTION 5 How was the lean implementation institutionalized in the new set-up? When Siemens GAG (headquarters) decided to implement lean manufacturing in the Koala factory, few initial steps were taken to ensure a proper foundation in terms of knowledge and understanding of lean manufacturing is first build in the Koala factory. Mr..

Seawall, global head for spearheading lean project was brought in to the Koala factory to educate the top management level on what lean manufacturing is all about and how it can improve and benefit the factory. One of first few actions that Mr.. Seawall took was to form a lean implementation team with Mr..

Kandahar as the project leader and Mr.. Veda as the lean manager. Mr..

Seawall with the help of consultants from United States held few meetings with the management to explain the potential benefits of the implementation. Through brainstorming and awareness sessions, the consultant team also gave presentation on the successful lean implementation in other companies especially at Toyota. Apart from that, Mr. Kandahar and Mr. Veda also had a series of factory visits to companies which have completed the implementation of lean manufacturing. The main purpose of all this tenting, presentation and visits were to create the management's confidence and prove how the implementation will be beneficial. Creating the belief and confidence of the management is essential in ensuring the success of the implementation.

Once the lean team has been formed and the essence of lean manufacturing has been incorporated in them, the team starts the implementation process. Figure 1 show the implementation process. Observations Waste ; Analysis of Current process flow Identify Area Identify Changes and Implementation Monitoring Performances Key Activities * Process Mapping to understand how the current process works Current process flow chart is derived from the process mapping activity. Key Castles * From the derived process flow chart, waste or non value added works are identified. * Through brain storming, the ways and means to make this process efficient are discussed.

Key Activities * From the analysis, changes are identified and the implementation process begins. The changes will cover:- a) Layout changes b) Changes in support system c) Changers in vendor management d) Cultural changes. * The monitoring Kips were defined. * A monitoring team

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was formed to document, analyses and report on these Kips. Figure 1: Implementation process of lean manufacturing. As mentioned in question one, lean manufacturing by principle is the elimination of waste or non-value added works.

As such, Mr.. Kandahar and the lean team realized that they need to restructure both the layout and the process itself to eliminate non- value added works.

Rather than blindly doing the implementation process, the team first did process mapping for the existing process to understand how it works. In the process mapping stage, the lean team held discussion with the entire department in the value chain regarding their process flow.

The outcome of this activity was process flow chart. Next, the lean team analyzed the process flow chart to identify all non- value added in the flow. A brainstorming session was done with all the related personal to decide the changes that need to be made to make the process more efficient. At this stage the lean team also held meetings with all the employees to explain what lean manufacturing is all about and why it is important for them to adopt lean in their workplace.

This was an important action by the lean team as there were signs of resentment and skepticism among the employees.

From the first two takes of the implementation process, changes that are required to eliminate waste were identified. The changes are as below:-

Layout Changes The lean team realized that physical structure of the layout

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needed to be changed, as there were wastage in terms of workers movement and the flow of the product or material. For the layout changes, the assembly line concept was adopted. Assembly lines with workstations were formed. The time per workstation was fixed and their work content was adjusted. An efficient flow of the products and worker movement were also considered in the new layout.

Apart from that a communication system teen worker level and the executive level was also created to improve response time. Changes in support system Apart from layout changes, lean team also made changes in support system for the production line. The main idea here is to introduce ownership concept to the production Ellen winners ten owner NAS to De answerable to all problem Tanat Arles under his ownership. Dashboards were introduced at the beginning of each assembly line. Any issues in the production line will be highlight in the board with name of the related personal.

Meetings will be held on daily bases to oversee all the issues. The dashboard also will display daily out of each assembly line to show progress in each line.

Apart from that skill assessment of the employees and top management were also done continuously to identify skill gaps and appropriate training are arranged. Change in Vendor Management. Implementing lean manufacturing in the Koala factory alone would not be sufficient to eliminate waste.

With vendors continuously supplying material or part in bulk orders, wastage of storage or inventory space occurs in the factory. With the availability of extra material or parts, manufacturing mistake will go unnoticed. As such, vendor management was also needed to be changed. The main idea here is to have the right quantity of parts available at the right time with the right quality. Vendor will have to supply each order quantity accordingly rather than supplying in batch.

Because of some difficult faced with the vendors, short term and long term plans were made. Long term plans are to implement lean principle at the vendor's end. As for short term plans are the implementation of pull philosophy of the lean system whereby vendors will manufacture material in bulk but deliver it to factory as added by the line. This is to reduce storage and inventory space in the factory. Occurs of manufacturing mistake or defects will come to the knowledge of the line managers or supervisors. Cultural Changes Activities such as Joint prayers and exercise session were introduced to instill a sense of team belongingness among employees.