'Lean' Lessons at Astra Metal Systems Pvt. Ltd. 2012

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A few years ago we discussed the future at Astra Metal Systems Pvt. Ltd. (AMSPL) – our customers, growth of the organisation and its people and our suppliers. One of the discussions led us to the subject of Lean Manufacturing. Just as we were excited of this new learning and willing to go, the crash of 2008 held us back until more recently we took a step forward and commenced our journey. As we are in the early phase of our journey, I wish to share some of our learning's.

Our notions initially were; that lean is a time bound program that will end in six to twelve months, that by teaching lean tools to the people we will become lean, that the middle management will carry the responsibility of its implementation and so on. When we asked our Sensei (Lean teacher) to spell out exactly where would we be three, six, nine and twelve months from now? He said "wrong question, you may not even commence your journey in twelve months," we were surprised. What he really meant was that we would understand it at the intellectual level, but unless we relentlessly practiced it we would never go lean. He also told us that supplying to non-lean customers by adopting lean manufacturing would need lean appreciation and respect from our customers and so it will have a bearing on the pace of implementation. He told us that once the implementation starts the leadership must lead the execution. There should never be lack of leadership in the execution phase. He told us that we (the leadership) must lead by example, which is by doing and not by merely speaking. He said 'lead, do not delegate' is a success mantra. This means stay in-charge and do not let go of the controls on implementation so that no variations are created which may slowdown or spoil the process. The ability of any leadership is exposed when challenged to follow this.

Diebold India Pvt. Ltd., had invited us into a program where we were given the exposure to value stream mapping. While we liked the subject and the teaching, we were not able to integrate it into our daily working. When we relearned this subject we were more prepared to accept its benefits. AMSPL has basically been a metal fabrication shop with well equipped modern facilities, quality systems certified and catering to a variety of customers supplying from simple parts to complete assemblies including surface treatment. Lean organisations work with 'flow rate', a derivative from the 'demand rate' to make their production plans. That's how they are connected to the actual consumption in their planning. While conventional or non-lean organisations base their plans on their MRP or ERP systems. Lean companies have done away with conventional 'MRP thinking' because of included errors, inaccuracies and knowing that real solutions still are elusive no matter how complicated the ERP system; while others continue to bank on it. This was going to be our first challenge as all our customers worked with customised ERP systems.

Manufacturing is an area of great discipline, and companies that can imbibe this lean culture become examples of excellence. Culture is what we do and how. It means how well our business processes are and their interactive processes set up and practiced. Since our customers worked with MRP's and periodic plans adopting the demand rate would be difficult in the beginning, while moving to the signalling system that would be possible with the required understanding from our customers. Toyota is the best quoted example in lean manufacturing, and we had read that Toyota makes production plans twice a month, the first one for the first twenty days and later the second one for the last ten days.

Once these plans are made the discipline is that 'nobody' can change them. Their plans are based on demand rate and executed through signal cards; there are no MRP translation errors

and interpretations, hence works efficiently. In their success their mentality was obviously NOT 'today's production first, tomorrow's lean later,' as such attitude does not help any organisation to succeed.

We were used to making our plans on a monthly basis, and made numerous changes during each month to accommodate the changes in our customers' plans when such requests came by – only too frequently

This led to enormous amount of 'wastes' in setup changes, accumulated WIP, loss of capacity and productivity, enlarging throughput times, making part production more expensive and therefore limiting our top line and eroding our bottom-line. Understanding the inadequacy of MRP thinking and also understanding the need of short delivery times from our customers, we decided to move into working with a weekly plan instead of a monthly plan. Forecasts and MRP's drive schedules based on 'PUSH' encouraging over-production and inventory Vs lean that focuses on production based on true customer demand - 'PULL'.

"Lean is not about tools and techniques, these are just means to an end. Teach people to recognise and remove waste, practice it every day, build this work ethic to succeed," said our Sensei to us. He also told us that if we can conquer this discipline along with adhering to plans using FIFO and make one and move one then we can graduate to the signalling card system. This would enable our customers to receive even faster deliveries and hence project orders with more accuracy or be closer to near term forecast and hence the hope that there will not disturbance to our production runs with requests for changes. Presently what is showing up is the continuance of MRP errors that our customers are unable to correct and show up in the form of asking for plan changes. However changing from the monthly program to a weekly one has meant the waiting time for our customer has reduced from the earlier 30-75 days down to 14-21 days, almost one third of before. And we are working to bring this down further.

Manufacturing deals with meeting the consumption requirements. And in the dynamic markets we live in where customers expect fast response, we are never allowed to rest from working on methods to deliver faster, at AMSPL this is being accomplished through waste removal. We put in relentless daily lean work and work to build this work ethic to succeed. We may not have reached the levels we would have liked to, but, we have taken forward steps. Our throughput times were seen to vary from 30 to 170 days from the maps. Today most of these have come down to, 4 to 12 days, though there are a few that are greater and pending productivity improvement. Our imbalanced, mismatched and hoarded WIP and FG inventories have nearly vanished because our velocity has improved. We know we have a very long way to go, but I think we have begun to learn.

Lean is a culture or a way of life that goes beyond conventional logic of the mind. Our culture was based on our own thinking and the driven result of how we responded to our customers. We had to learn that waste removal is not only in the material transformation process, but more importantly it lies in the communication process. A multi pronged multi layered communication channel can only spell disaster. We realised this being its victims. Our challenge was to restrain ourselves to our spelt out discipline; and still is. Going lean is also a huge lesson in self improvement.

It takes conquering our bad thinking and bad habits to succeed. None of us Directors have had a long stint of working with any professionally managed organisation prior to becoming Technocrat Entrepreneurs, and we have been exposed to the biggest challenge of system disciplining

ourselves. Lean is a top down approach and not the other way around. Staying committed one hundred percent to the lean implementation always / everyday is the only way forward. If leadership commitment demonstrated through behaviour is not there lean will not succeed. During the past months we have been so challenged to think lean that we have seen faltering is easy. Now we understand why most companies never really become lean and join that elite lean club.

Unlike Six Sigma, which is a selective approach, where only an expert team decorated with coloured belts is allowed to dictate; lean is an end to end solution that involves everybody concerned at the Gemba (work place) – everyone responsible for all interacting processes. At AMSPL we involved the workmen from the beginning. We introduced the concept of Quality Circles to the workmen and they formed the circles and work in team's every day. They make use of the problem solving techniques taught to them and come out with solutions that makes their work place better, improves material handling, reduces defects and reworks, improves working convenience, educates them and thus motivates. We are now retraining them to achieve an improved level education. Unlike we had thought before, workmen are never the problem in any improvement process (as long as there is no hidden agenda). The challenges are in the levels that manage the workmen. Toyota has smartly done away with the decision making at this level through its signal card system and the FIFO discipline. AMSPL's next challenge is to get there.

From a discrete business process we have been somewhat resilient adapting to the lean practices. But we stake no claims here as we know we are yet to beat many personal challenges of bad habits to become lean. Our business process today has a lean orientation. Our first internal process to action an order is the contract review, without which the ERP will not action sanction of material for processing. This also terminates instructions going to shop floor supervisors from various customer personnel about what to load (change) and when. This has led to the creation of a Sales function that has been beneficial to the customer as the channel for all communication and planning. We have a vision to let customers do the production planning as it happened in Mysore Kirloskar's Hubli factory (probably India's first home grown lean story that won appreciation from Toyota Group). In the process we have done away with the traditional Production Planning and Control department and that has resulted in reduced inventory and faster delivery.

Every day live data is captured and recorded in the Production Control Charts and analysed for throughput times, actual cycle times, gap analysis which is analysing the waste of waiting and imbalance in cycle times, from where we work on systemic corrections through the mapping process.

The supervisory and managerial personnel work every day on the waste removal process and making systemic improvements. When I say at AMSPL alone we have licked over 250 problems over the past ten months may not sound very big, but, at a problem a day I think we are learning the culture of waste removal, which is so central to the leaning process. Besides learning to practice, different personnel have been reading to appreciate lean manufacturing better.

One of our weaknesses was in having proper data. When we began to ask questions we saw our shortfall. To collect data and track improvements, we set up a weekly MIS measurement system that gets reviewed beginning of every week as the 'performance review'. In this we also complete the management responsibility required in quality systems. We found our organisation

structure was discrete overlapping many responsibilities and functions, multiple channels of instructions and communication, unequal distribution of workload, and hence a discrete structure. We had to reorganise our organisation structure being made lean and value stream compliant where departments merge seamlessly. We defined the KRA's and KPI's of each function and integrated the lean matrix into the performance evaluation system. We can thus recognise the contribution done by each employee in taking lean implementation forward.

To support the management take corrective actions in overcoming weak areas and the shortfall in results, the CEO set himself up with a daily time table that would indicate the areas he would cover every day. This hourly time table ensures him to pay effective attention to every department during the week at different locations. To enable him concentrate on the lean implementation process, we also delinked the sales responsibility from him and put up a separate functional head for sales that could devote more attention to customers, and the CEO to the lean implementation.

We have seen that to build the lean culture everybody from top to bottom has to integrate his or her daily behaviour and habits practicing the lean principles and removing wastes. The leadership needs to be committed one hundred percent to the lean implementation always and every day. If leadership commitment is not there, lean will not succeed. Lean is not a project. It is a process of gaining competitive advantage by adapting lean as a company strategy (vision). To succeed one must have the willingness to really attempt to change v/s going through the motions as taught or instructed. And this can happen only by putting in relentless daily lean work.

Lean is a journey and not a destination, so build this work ethic and succeed.

- Pradip A. P. Da'Costa