Case Study:

Lean Process Improvements in a Print Testing Enterprise (Part II)

What were the benefits and impact of Lean Project?

The team had many immediate benefits of the Lean Project. For example, one of the trainers said the following:

> **"Before embarking on the project, everything was manual, including the measuring of weight and recording it on Excel, which resulted in numerous errors. Sometimes data go missing as it was deemed unsafe to put these information on Excel. Hence we received a lot of complaints from our engineers. Currently, we are able to store everything in the new system, and in doing so, we avoid all problems stated above."**

Also, with the implementation of visual management, the supervisor cited:

> **"With one chart, we know the current status and where we used our resources. Based on that, we can do better resource planning and further improve our future processes. I can also use the chart as validation for engineers to better strategise resource and capacity planning. Also, this is easier for us to identify issues."**

In addition, the Lean Project has affected how engineers and operators work with each other. In the past, engineers did not understand how operators do scanning work in detail. Similarly, operators did not know why engineers requested certain tasks or why everything needed to be scanned. This has changed during the project and they have learnt more about each other's jobs and challenges through various activities facilitated by the Lean coach.

The enterprise has achieved the ultimate goal of the programme, which is to encourage Lean thinking capability and to reinvigorate the Lean culture among employees. "The real measure of success is whether Lean thinking continues after the project is over," the coach commented. This was achieved as team members were willing to take on leadership roles and facilitate future improvements after the project. They also started to think about management systems and how to continue the efforts in future.

Many project members said that they started to use what they had learnt and apply Lean thinking principles. Although they have achieved the project targets, they are still working on further refinement and improvement. With these changes, they can then focus on value-added activities, which have resulted in a positive change on the overall mindset and culture. This was observed by one of the operation team members as described below:

> **"When we see a problem and observe things that need to be improved, we're ready to gather the necessary information. We need to understand what we are doing. Before this, we merely followed instructions. But now, we need to clarify work processes with engineers and understand the rationale before embarking on a task. At the same time, we are always actively trying to search for better alternative ways."**

From the perspective of the management, managers have started to observe the different attitude and behaviours such as more openness to change and bottom-up change initiatives.

> **"The key change I observed is the people. They started talking more about Lean and they are more open to talk about what should be changed. Instead of us telling them, they are telling us 'can we do this?' When their supervisors became more accepting to the Lean Project, it encouraged them to speak up more often."**

With all the benefits experienced through the Lean Project, the team is not stopping there, but following

up on the evaluation of the outcomes. The team has mapped upcoming projects and is planning to redo the time studies and the Value Stream Mapping (VSM) to further identify areas for improvement.

What were the challenges?

While the project team faced many difficulties, the biggest challenge cited by many project members was the lack of resources, especially time. In addition to performing their daily job functions, members had to find time to do the improvement project. When they had any emergency work issues, they often had to delay the project work. This was further aggravated by limited manpower.

Another challenge was dealing with operation team members who were directly affected by the change but were not part of the project team. Most of them did not fully understand what the project team was trying to do at the beginning. For example, some operators preferred more overtime work as they wanted extra income. The project team overcame this resistance by explaining that the project was not intended to reduce their working hours or headcount, but to help them do more valuable work. Hence with constant communication and the reaping of benefits after implementing some changes, they started to understand and support the project activities.

Conclusion

There are a number of key success factors for this project according to the project members.

- Unlike the previous Lean experience where only operators were involved, there was strong management support, which encouraged participation and support from different departments. This allowed the project team to have a holistic view of the entire print testing process and understand the issues and tasks handed by other departments.
- The management team tied the Lean Project goals to the Key Performance Indicators (KPI) of the team members who were involved in the project. It was intended to track the progress, formally recognise the efforts of team members, and enhance the sustainability of the project outcomes.
- The Lean Project was different from other consultancy projects. The Lean coach and SIT members followed and supported the team through the entire project cycle until it was completed. The project was also aligned with the organisation strategy and objectives which was based on Industry 4.0. In fact, the Lean philosophy of continuous improvement is well aligned with the organisational vision of continuous 'reinvention'.

In summary, the Lean Project has been successfully integrated into the enterprise culture of reinvention and generated substantial short-term results and long-term impact. It has contributed to reinforcing the vision, "to create technology that makes life better for everyone, everywhere", by continuous reinvention and improvement.

Millie Lee | Adjunct adult educator and researcher | Institute for Adult Learning Singapore (IAL)

Specialising in workplace learning, Millie has assisted enterprises with designing and implementing various workplace learning interventions. She has also coached and supervised new workplace learning specialists in their certification journeys and has been involved in IAL's research projects on topics related to workplace learning and assessment. Recently she worked closely with the Lean Transformation and Innovation Centre (LTIC) at Singapore Institute of Technology (SIT) to integrate Lean management and workplace learning programmes.

Mark Tan | Assistant Director | Lean Transformation and Innovation Center (LTIC)

Mark is in charge of delivering Lean training and project works with the industries, including SMEs. The Centre aims to promote and develop Lean practices among local enterprises and drive adoption of Lean thinking, culture and mindset. Prior to joining LTIC, Mark was a Certified Lean Six Sigma (LSS) Black Belt (BB) practitioner mainly with the private sector (across both manufacturing and professional services) for more than 12 years, responsible for both local and regional process improvement initiatives.