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The Role of Lean in Shaw

Our Technical and Operational Journey

An Operational Practice prepared for SCTE•ISBE by

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Abstract

Cable operators are facing unprecedented levels of competition and technology advancements. Major shifts in technology such as FDX, Fibre Deep, IoT, and 5G/FTTH, competition will only accelerate. To adapt to this competitive and fast paced environment, operators must take effective steps to increase efficiency, identify waste, and empower teams to resolve challenges at all levels of the organization. This paper will present a methodology for identifying, prioritizing and resolving inefficiencies as well as an approach to foster a Lean culture at all levels of the organization.

Lean methodologies are an invaluable tool in identifying and remediating inefficient and wasteful processes in Cable operations. However, the deployment of Lean must be carefully planned and executed. The paper will outline how Lean was deployed at Shaw to improve the efficiency and effectiveness of network build processes and teams, and the outcomes that were achieved to date.

To make Lean truly sustainable and effective though, it must also be engrained in the culture of the organization. Benchmarks from various companies have shown the adoption of new methodologies such as Lean and Agile having varying degrees of success. To increase the effectiveness of adoption, we approached implementation using a three-pillar approach of: People, Purpose, and Process. The pillar approach was augmented with a tactical and strategic lens across the enterprise to maximize cultural adoption by leadership and increase operational improvements. Techniques such as Lean Accelerator, Adaptive Training, Cultural Pull Methodology, Servant Leadership; and avoidance of "One Size Fits All" using an Adaptive Standardization technique has improved exposure to Lean.

Our results demonstrate that a highly focused implementation of the three-pillar approach increases adoption of Lean at the enterprise level. Additionally, it brings a proactive method to identifying Lean process improvement opportunities with rapidly evolving technologies and operational practices.

Content

1. Lean Introduction

Lean focuses on ongoing process improvement with the obsession of eliminating waste. Lean is a systematic, elegant approach which can be applied to any process that enables you to change your workflow for the better. Everything from how you make your morning coffee, to your daily emails, to how you build a rocket.

Lean at its heart is about respect for our employees, it's about delivering a valuable product or service with quality, and managed costs, in an efficient manner; always keeping the customers' needs at the top of our minds. Lean focuses on removing waste and non value-added activities by improving processes, standardization, and fostering problem-solving capabilities at all levels of an organization.

Lean originates from the Toyota Production System (TPS). Several individuals were instrumental in the development of TPS. Some of the key individuals were:

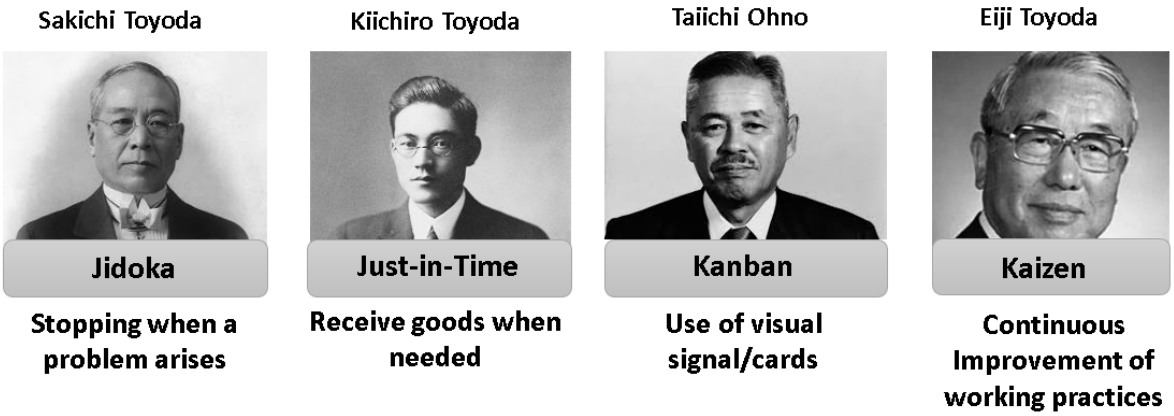

Figure 1 – TPS Key Individuals

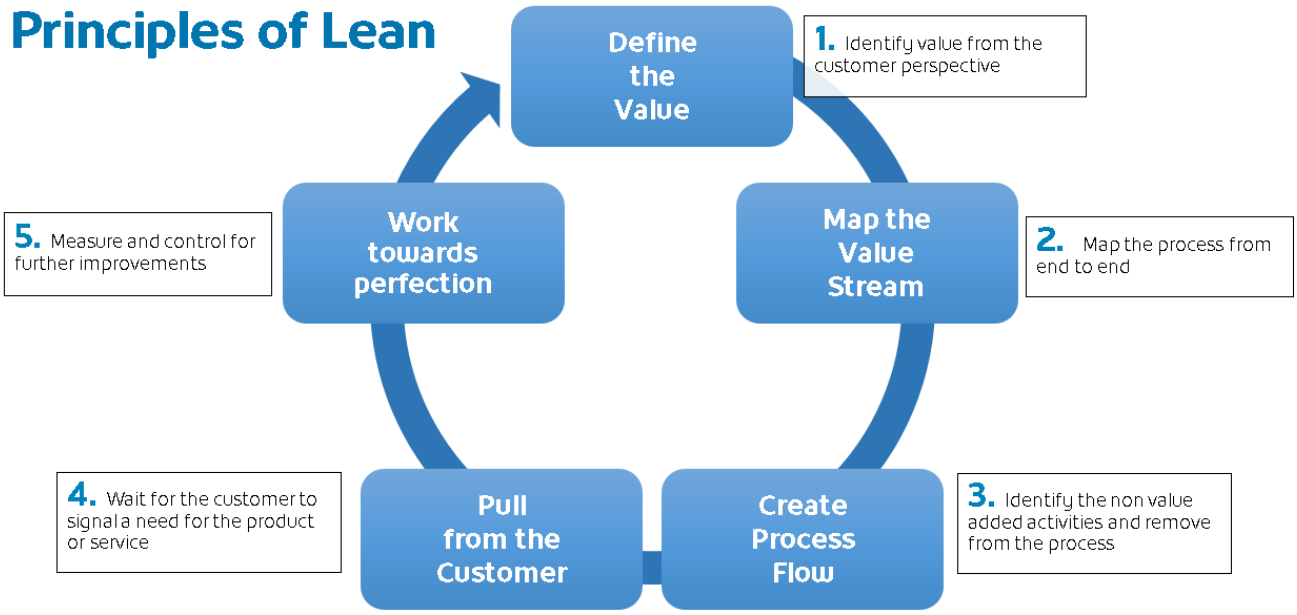

Figure 2 – Principles of Lean

The five Lean principles founded by James P. Womack and Daniel T. Jones [1] encourage the practice of continuous improvement. They provide a framework for creating an efficient organization by focusing on creating a better flow in work processes and building culture.

The principles break out into various tools and techniques to help better understand the value for the customer, the process (either high-level or detailed), and demand. The final step of working towards perfection helps to inspire teams to look deeper into each process after an improvement has been made.

Some of the tools used within Shaw are:

Gemba walks - Gemba is a Japanese word translated to; "the real place" or "where the work happens". Gemba walks allow management to "go & see", show respect for the workforce, and ask "why" while walking the process. The objective is to understand the people, purpose, and process. The more we know about the situation the better we can find solutions to solve with the team. [2]

Voice of the Employee - Voice of the Process/Employee (VOP/E): The voice of the process is the expression or wastes, rework or any other observed challenges or issues experienced by the people within a process.

Kaizen event - Kai in Japanese is translated to "change" and Zen means "for the better". In other words, "change for the good", "continuous improvement". Kaizen events are team led workshops with a set of goals to be achieved to optimize an specific area/process. Process owners and management come together and participate to encourage the team on their future state goals. A typical kaizen event will take between 3 - 5 days. This method allows for the team to experience incremental improvements as they optimize their workflow.

"Sort", "Set In order", "Shine", "Standardize" and "Sustain" (5S) - 5S is a five-step process that leads to workplace organization. Each step in the process is named using a word that starts with the letter "S".

The five steps are:

- Sort (organization, clearing) - Separate what is needed and what is not needed and keep only those things that are needed in the workplace.
- Set in Order (orderliness, configure, simplify) - A place for everything and everything in its place.
- Shine (cleanliness, sweep for abnormalities)- Identify abnormalities by visually sweeping the area.
- Standardize (stabilize, create standards for conformity) - Arrange items that they can be found quickly by anybody.
- Sustain (self-discipline, practice) - Leaders are responsible to sustain the first 4S steps my encouraging the practice of workplace organization.

Leaders are responsible to sustain the first 4S steps by encouraging the practice of workplace organization.

Kata approach – Utilizing the two linked behaviours of the improvement kata and the coaching kata. The improvement kata follows the problem-solving methodology of plan, do, check, act (PDCA) in a repeating cycle with learnings from last target condition applied to the next cycle always heading towards the vision. The coaching kata is a mentor/mentee approach to guiding the student in the right direction but not providing solutions. The most important part of the kata approach is the repetition of the behaviours which helps to build culture.

2. Shaw Beginnings

Lean was introduced at Shaw's National Distribution Center (NDC) in August 2013 by a small team sponsored by the Chief Procurement Officer (CPO) and staffed with one Lean Practitioner and two Lean aware individual contributors. The primary focus was to work with the Reverse Logistics Department to improve efficiencies.

For the remainder of 2013, until February of 2014, the team focused on developing staff training and work stream analysis. Buyers, Managers, and Project Managers were placed in Green Belt training with the goal of expanding Lean skills and leadership to work through selected areas within the NDC. Warehouse Technicians were provided with Lean Yellow Belt training coined "The Shaw Way" to increase awareness of waste and learn problem solving skills.

March to August 2014 saw moderate success in the four selected projects with a heavy lift of resources from the small Lean team. A reduction of Total Process Lead Time (TPLT) averaging 15% was achieved across four selected work streams. However, in following months TPLT began to increase, leveling out at a 6% reduction after six months.

3. Learnings

While initial results were positive at 15%, the reduction to 6% after two months was not fully understood, requiring a deeper analysis. Data collected through Lean tools (such as Value Stream Maps, Spaghetti Diagrams, and Time/Motion Studies) provided excellent historical context, which would not have been available without the implementation of Lean. However, the introduction of leader Gemba walks and voice of the employee sessions provided better insight into the root cause of the 9% loss of efficiency since implementation.

Discoveries included:

- No control plan accountability (Leader Gemba walk)
- Low engagement from warehouse technicians (Voice of the employee)
- Warehouse technician proposals not implemented (Voice of the employee)
- Problems were people-intensive, and resources were already limited with day-to-day operations (Voice of the employee)
- Low buy-in from middle management (Leader Gemba walk)

The five primary discoveries started our journey towards building a culture of Lean. Moving away from "doing Lean" to "being Lean". Our initial culture efforts across the organization followed a Western approach of aligning everyone to think the right (Lean) way. The NDC Lean team embraced the cultural approach described in the article "Lessons from NUUMI" [3]. NUMMI stands for New United Motor Manufacturing Inc. NUMMI was a joint venture between GM and Toyota in the early 1980s. Both companies wanted to learn from each other; as Toyota was interested in getting into the American market and GM wanted to learn more about the Toyota Production System that brought success to Toyota in quality and cost effective ways to produce vehicles. The NUUMI approach focuses on changing how people behave with what they do and increasing employees' trust in management.

4. Pivot Points

Implementation of the TPS approach from the "Lessons from NUUMI" learnings required a complete change to the training and implementation. Instead of providing training to front office staff, focus was shifted to the warehouse technicians working with only the Lean tools that would benefit the specific problem areas identified, exclusively from the Voice of the Employee.

Methodology changes included:

- *Right Size Approach to the training model*
  - *"Sort", "Set In order", "Shine", "Standardize" and "Sustain" (5S) Workshops* - Targeting smaller groups in localized areas to help team "see" results in a shorter time frame.
  - *Kaizen Events* - Engaging the Warehouse Technicians in targeted training and hands-on improvements.
- *Culture as an action instead of a label* - Increasing middle management buy-in through on-the-floor process walks with warehouse technicians, and Lean improvement projects becoming part of the management standard work with a sponsorship instead of a directive approach.

5. Results

The revised approach to training and culture resulted in significant improvements across the NDC Test & Repair, and Customer Premise Equipment (CPE) fulfillment areas.

Figure 3 below shows the CPE fulfillment area prior to the three-day kaizen event with the warehouse technicians shown in the image. As evidenced in the photo, there is a clear lack of flow in the process, there are multiple stations completing the same task, space is not used efficiently, and large amounts of inventory are on the floor.

Figure 3 – CPE Fulfillment - Batch Processing

Figure 4 below showcases the results of the three-day kaizen event within the CPE fulfillment area, all improvements below were designed, implemented, and executed by the warehouse technicians shown above in figure 3. These individuals received training on day one, planned on day two, and executed the improvements on day three.

Figure 4 – CPE Fulfillment – Single Piece Flow

Results from the three-day kaizen event shown in figure 3 and figure 4 with the warehouse technicians yielded significant improvements in inventory savings (cost avoidance), through-put of units (efficiency), and reclaimed floor space (cost avoidance). Highlighted below in figure 5

Figure 5 – 2014 Results

Following the successes at NDC, Shaw's Regional Distribution Centers (RDC) adopted improvements implemented at NDC and began development of their own Lean programs. The original NDC Lean team moved to a support and reporting role, refining "The Shaw Way" training with vendor augmented classroom training, expanding tools and templates, and implementing a robust 14-point Lean maturity index report for Supply Chain.

The Lean Maturity Index shown in figure 6 below, was used to capture current state of results and activities at a glance though a spider chart format. The higher the number, the better for each monthly period. The chart was posted within the NDC and RDC work areas to highlight progress to our individual contributors. The fourteen highlighted areas were:

1. Management Support (Results)
2. Culture (Results)
3. 5S (Activity)
4. Value Stream Mapping (Activity)
5. Setup Reduction (Activity)
6. Total Productive Maintenance (Results)
7. Pull Systems (Activity)
8. Production Flow (Results)
9. Plant Layout (Results)
10. Standard Work (Activity)
11. Safety (Results)
12. Quality (Results)
13. Workplace Audit (Results)
14. Continuous Improvement (Activity)

Using a combined result and activity based chart helped to paint a picture of our Lean maturity. While the charting was beneficial in our journey, providing us focus areas, there was no vision defined for the end result. In essence, "doing Lean", not "being Lean". For example, culture was graded as a high number (5.0). But this came from the notion of doing Lean just to get a score. Instead of truly understanding that being Lean was the overall outcome through the application of thinking and practicing the philosophy.

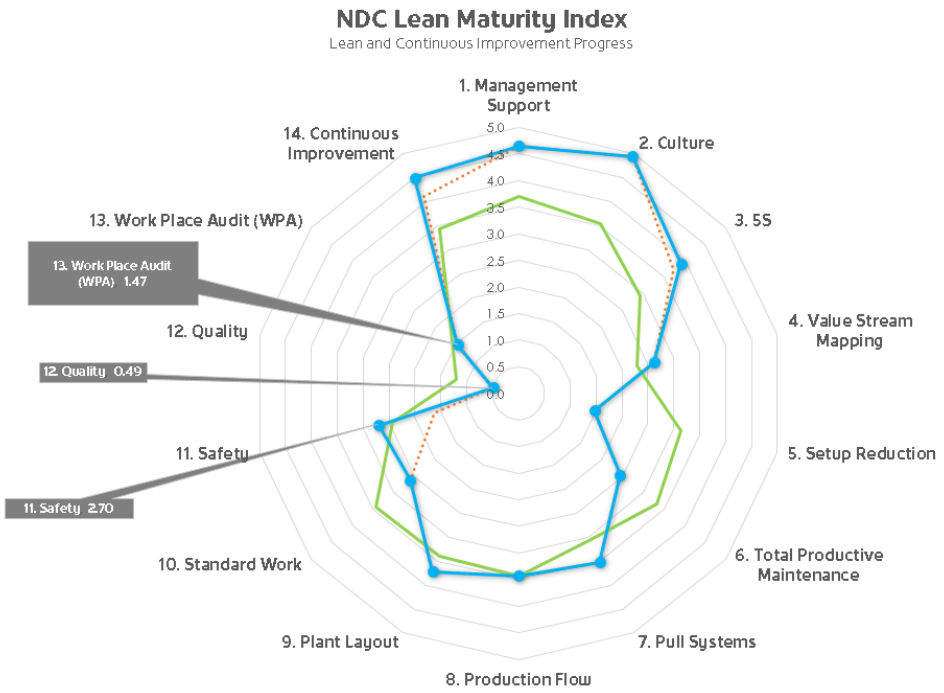

Figure 6 – Lean Maturity Index

Results from NDC and RDC showed targeted improvements with positive results. However, it was felt that a "Continuous Improvement" culture had not yet manifested. Most improvement activities were still executed under a project-based approach. Additional learnings from the metrics reported through the Lean maturity index showed they provided awareness to management and individual contributors. But, the supporting processes around these 14 tracked points and actionable paths to improvement were not clearly defined.

6. Journey to a Modern Shaw

With the continued successes of Lean at NDC (driven by implementation of the pivot points) and adoption of these principles at RDC, Lean methodologies were implemented into Shaw's wireline network build teams, starting with the creation of a Lean Networks team in November 2017. This team focused on identifying and removing waste within network build processes through targeted training and Black Belt staff augmentation in support of broader strategic objectives.

With the complexities associated with the network build process, initial work focused on gathering a 30,000-foot view of processes. Simply put, gaining a better understanding of what activities each department or team performed, followed by secondary review with upstream and downstream partners. This provided the ancillary benefits of: introducing Lean in a positive manner to departments and teams who had no previous exposure to Lean methodologies, better understanding of work that moved between teams, and gaining top-down and bottom-up support.

From these discoveries, the Lean Network team organized their approach using three workstreams focusing on the strategic objectives of: Node Activity, Network Operations, and targeted Green Belt training which complemented the strategic objectives. Green Belt Training was supported and mentored by the NDC Lean team.

Utilizing the workstream approach allowed for a first level prioritization. However, resource constraints required the Lean Network team to implement additional strategies to allow for further prioritization of opportunities. It was recognized that while all opportunities were important, the ability to translate qualitative comments on "the problems" to a quantitative approach was critical for narrowing the focus to drive actionable improvements.

The adoption of an Opportunity Matrix methodology which allowed for quantitative charting of potential benefits and anticipated difficulty provided a clear agnostic direction to senior leadership on which opportunities to action, aligned to the strategic objectives.

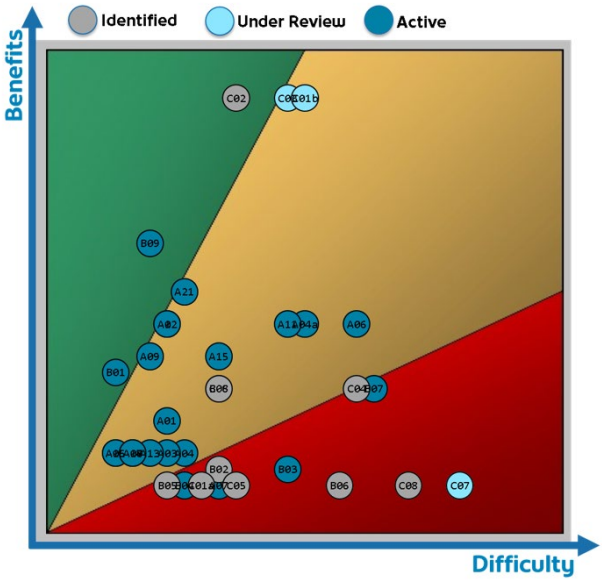

Figure 7 – Opportunity Matrix

7. Results

A total of 41 strategic network build process initiatives across the node activity and network operations workstreams have been implemented since the second fiscal quarter of 2018 (December 2017). Improvements to the overall network build process have resulted in significant improvements in areas such as: fibre splicing cost consistency, inventory management, reduced tech call volume, distributed access architecture (DAA) installation, truck standardization, move, add, change, delete (MACD) process improvements, optical node radio frequency (RF) module upgrade processes, return band upgrade support processes, and numerous quality and data accuracy improvements.

Figure 8 shows the cumulative savings from Q2 F18 to Q2F19 (December 2017 to December 2018). The optical node radio frequency (RF) module upgrade process was responsible for the majority of the cost avoidance. This Green Belt project in the network operations team reduced the total process lead time on each upgrade from 37 minutes to 13 minutes per unit by updating workstations, improving flow from station to station, and removing unnecessary testing. This improvement is now on its third iteration reducing the need of new equipment purchases on 3 of our optical node lines. The return band upgrade support processes and reduced tech call volume provided the majority of time savings within the network operations workstream, accounting for approximately 6000 of the hours saved.

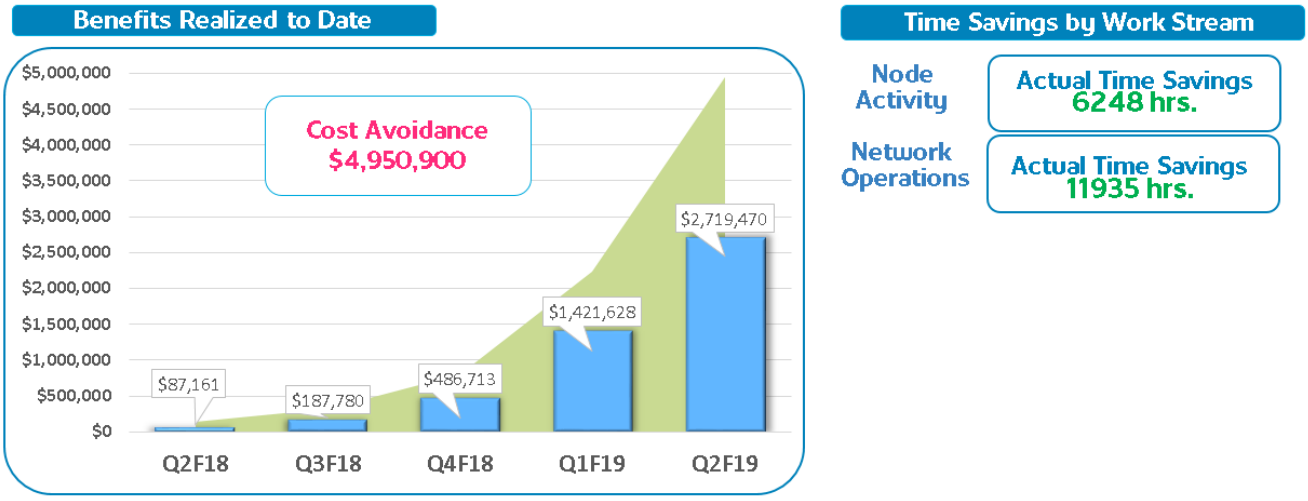

Figure 8 – Network Build Process Results

8. Learnings

Integrating Lean principles into the network build process yielded better-than-expected results, which remained steady and did not experience the dip observed during the initial NDC implementation. This was credited to a significantly more robust control plan for each improvement, engagement at the subject matter expert (SME) level, leadership support and sponsorship to implement SME recommendations, and dedicated Black Belt resources allowing for a more robust mentorship of Green Belt projects.

Discoveries included:

- Improvements were project-based, secondary improvements from trained Green Belts were below expectations.
- Second wave of external vendor-based training pressured teams to fill seats, instead of selecting candidates based on strategic vision, leading to long lead times while projects were found.
- Establishing a strategic direction was critical for success. However, a unified vision was missing leading to Black Belts being deployed in a trusted advisor role similar to Business Analysts.
- Results of improvements were heavily highlighted driving pressure to focus on bigger opportunities instead of all opportunities, constantly looking for the “big win”.
- Benefit reporting required significant effort (80+ Hours/Month)
- Discovery activities with larger opportunities took too long, leading to lost sponsorship and unrealized efforts from the team.

9. Lean Enterprise Office Introduction

With a shift in the corporate direction to maintain a competitive advantage the Total Business Transformation Office was formed in January 2018. Spearheaded by the CPO, the Lean Enterprise Office (LEO) was also created at this time with the purpose of becoming the central “hub”, or Center of Excellence to the “spokes” like the Lean networks team and existing Lean teams within Supply Chain.

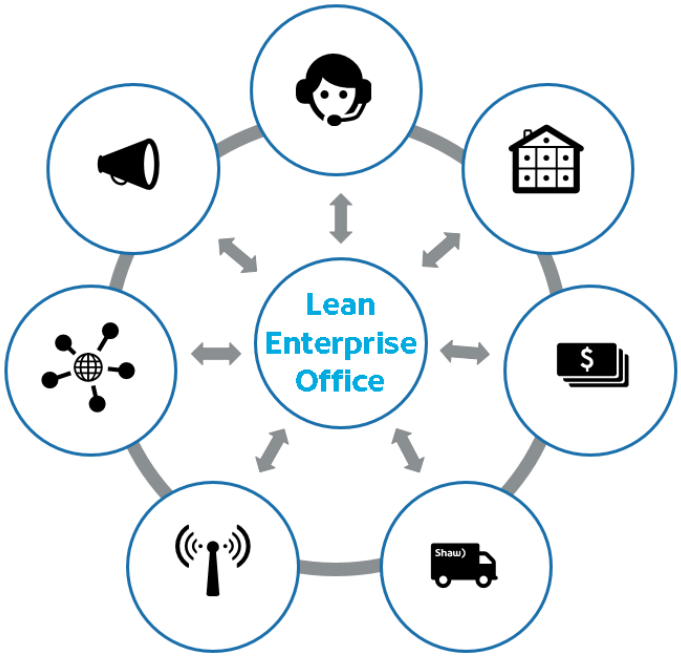

Figure 9 – Hub and Spoke Model

With a significant amount of learnings gathered from the previous Lean implementations, the first five months of focus of LEO were used to define the goals, vision, cultural strategy, and tactical processes to launch Lean to the organization. The initial step was to determine a clear set of goals to strive towards.

LEO established the following goals:

- Guide Shaw towards becoming a learning organization using Toyota Production System methodologies (Kata Approach)
- Enhance cultural engagement at the company
- Drive a culture of continuous improvement versus solely project based improvement

To support these goals, the team defined its vision: to empower and inspire everyone at Shaw to live into a continuous improvement mentality by challenging the status quo and always asking, "Is there a better way to do this?"

10. Strategic Cultural Plan

The next steps involved creating the strategic cultural plan and tactical processes to increase adoption. This presented unique challenges as current Lean methodologies used within Shaw were showing positive results. However, the current methodologies were tailored to the reverse engineered approach outlined in the Toyota Kata, with a managing by results (MBR) approach instead of a managing by means (MBM) approach. [4] To introduce new behaviors and actions, while maintaining positive momentum and remaining operationally relevant, a significant amount of effort was invested in the strategy of culture and tactical processes.

With the experience of our learnings and benchmarking of other organizations we realized the importance of a strong cultural message. Cultural adoption requires that the tactical processes implemented to achieve improvements reinforce the culture.

To support our cultural plan, LEO implemented the three-pillar approach (widely used in other organizations) with a focus on what that meant for LEO in terms of delivery and anticipated outcomes for the departments and teams.

Table 1 - Three-Pillar Approach - Defining Principles

Area	People	Purpose	Process
Lean Enterprise Office *(Delivery)*	Servant Leadership	What do our customers want?	Adaptive Governance - Guardrails to Train Tracks
	Support Focused		Adaptive Training
	Cultural Pull Methodology	Clear brand message delivery: "Is there a better way to do this?" and "Always asking Why?"	Clear step by step approach to improvements
Departments & Teams *(Outcomes)*	Established Trust	Keeping customer needs at the top of our mind	Tools to fit the opportunities
	It's all about you!		Accessible Training
	Respect for Employees		Developing Problem solving capabilities
		Consumable brand message	

The primary purpose of the three-pillar approach was to establish a brand for Lean within Shaw and establish clear messaging to drive our Lean culture. As we had learned earlier in our journey of making culture an action instead of just a label, we applied the same methodology to our three-pillar brand with well-defined delivery actions expected from the LEO team and outcomes to strive towards with our customers instead of just words in a presentation, as shown in table 1 above. This actionable brand provided a tie-in and benchmark to the tactical processes which compliments the three pillars.

11. Tactical Processes

Prior to development of our tactical processes it was important to evaluate our defined goals against identified challenges to achieve the most value from a cultural and improvement delivery perspective. Each tactical process developed reinforces the cultural adoption by individual contributors and teams.

We determined the challenges to address were:

- Maintaining strategic big-picture improvements while executing smaller improvements quickly at an enterprise level.
- Implementing a Mentor/Mentee to Plan, Do, Check, Act (PDCA) with limited resources.
- Aligning the organization to a benefit realization language that shows operational relevance but highlights a MBM approach.
- Increasing waste identification and Lean engagement and excitement at all levels of the organization enterprise wide.
- Black Belts being deployed in a trusted advisor role similar to Business Analysts.
- Discovery activities with larger opportunities took too long, leading to lost sponsorship and unrealized efforts from the team.
- Second wave of external vendor-based training pressured teams to fill seats, instead of selecting candidates based on strategic vision, leading to long lead times while projects were found.

- Results of improvements were heavily highlighted driving pressure to focus on bigger opportunities instead of all opportunities, constantly looking for the "big win".
- Benefit reporting required significant effort (80+ Hours/Month)

11.1. Tactical - Focus Areas

To maintain the strategic big picture improvements, increase the velocity of smaller improvements, increase waste identification, and engagement LEO focus areas were developed. The concept for our focus areas came from the learnings of the workstream approach implemented within the Lean Network team. The three key focus areas created were:

- Strategic Improvements
- Standards
- Training & Engagement

While our focus areas aligned to our overall vision, additional granularity was required with a secondary vision for each area shown below in table 2.

Table 2 – Focus Area Vision Statements

Focus Area	High Level Description	Vision Statement
Strategic Improvements	Doing things right	Leave behind the tools and culture for teams to live into the "Culture of Why"
Standards	Doing the right things	Engaging the senior leadership team (SLT) with the right story of the "means" instead of the "results"
Training & Engagement	Building Lean culture	"Being Lean" instead of "Doing Lean" The Kata mindset is part of our Deoxyribonucleic Acid (DNA)

Each focus area concentrates on delivering specific services which laterally align to services provided within the other focus areas. Implementing this highly focused approach encourages ownership and accountability from a LEO team member to the services required by our customer. An additional benefit was the ability to make simple lateral moves with efficient hand-offs of complimentary services between the focus areas.

We refer to this as "Adaptive Standardization". Internally, the LEO team has clearly defined standards and processes with expected outcomes for each service, aligned to the overall vision, and the vision of each focus area the customer may be part of.

However, each department (or team within a department) brings unique improvement opportunities and challenges to LEO. This could be attributed to our Training & Engagement focus area services, or simply a desire to access training for their team. The customer roadmap, or ask, dictates the LEO team response, which is the heart of our cultural pull methodology. No matter how a team or department engages LEO, there is a clear internal process to help them achieve their goal and clear roadmap to move forward. We manage the means to help our customers achieve outcomes.

This approach also mitigates most resource challenges within LEO. If an improvement is categorized as large (crosses multiple departments) it can be divided across our training channels of: Yellow Belt Accelerator (YBA) and in-house Green Belt training with strategically targeted areas of improvement. This allows our Black Belts to provide support and mentorship to the training channels, ensure the overall strategic vision is on track, address the improvements which require more advanced Lean skills, and correctly prioritize the improvements. Also, leaving behind the tools and culture across the departments to continue improvements.

Figure 10 below provides a high-level overview of the focus areas. LEO team members are assigned to spearhead a program or process within the focus areas. A weekly agenda driven touch base with the team provides visibility into each focus area between the team members.

Figure 10 – Focus Areas – High Level

11.2. Tactical - Services Breakdown

Service provided by LEO aligned to the focus areas detailed above in figure 10 allow us to deliver multiple improvements conncurrently while leaving behind the culture and tools for teams to continue improvements on their own. Each service within a focus area listed below in table 3 aligns across all focus areas to increase efficiency of hand-offs between LEO team members.

Table 3 – Services Breakdown

Focus Area	Services
Strategic Improvements	Strategic Yellow Belt Accelerators Strategic Green Belt Projects Black Belt Projects Strategic Improvement Vision Alignment Mentorship
Standards	Lean Tools & Templates Enterprise Project Tracking & Training Metrics Resource Capacity Management LEO Adaptive Standardization Process Control Project Governance Benefit Realization Reporting
Training & Engagement	Online White, Yellow, and Green Belt Training In-House Green Belt Training Workshops Yellow Belt - Self Led Improvements Yellow Belt Accelerators Enterprise Communication & Brand Management Training Pathway Maintenance

11.3. Tactical – Yellow Belt Accelerator

To increase the speed of smaller improvements. The development of a new program was required, this is our Yellow Belt Accelerator Program. This flexible program and approach allows us to engage teams in identifying improvement opportunities, provides training and skills to teams ranging in size from five to forty people, while introducing PDCA in a Mentor/Mentee approach. YBA improvements are targeted towards specific teams controlling the sphere of influence to no more than one outside team. This provides a secondary benefit of increased engagement within the team as results are delivered in one to three weeks.

The YBA program also allows for implementation in Strategic Improvements with teams working through an identified opportunity that benefits the Strategic Improvement.

Figure 11 below showcases our YBA program process. Each YBA takes approximately two to four weeks to complete the training cycle with the participants. Identified opportunities from the workshop through submitted problem statements, the stupid rule game, or through the supplier, input, process, output, customer (SIPOC) activity are either actioned immediately through a just do it (JDI) activity or prioritized with the group leader (sponsor) for action in the coming weeks. Upon completion of the initially identified opportunities LEO continues to support and guide future improvement opportunities with the team.

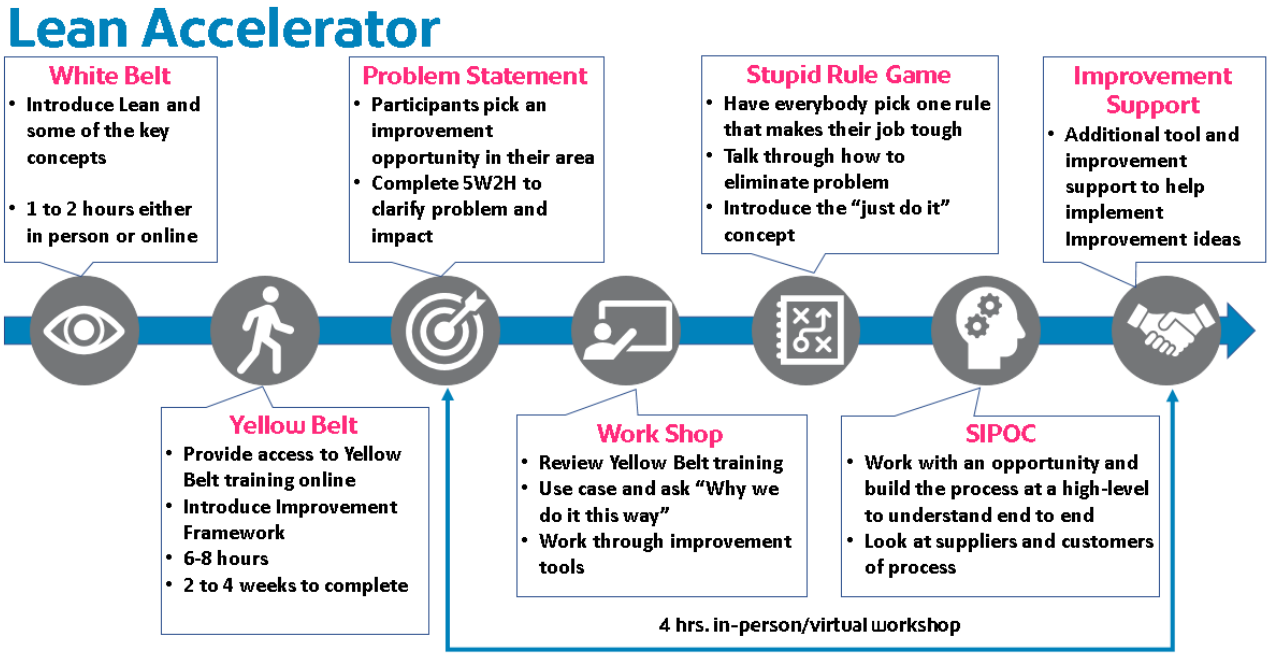

Figure 11 – Yellow Belt Accelerator Program

11.4. Tactical – In-house Green Belt Training

The previous approach to Green Belt training with outside vendors has been replaced with vendor-supplied online training augmented by in-house Green Belt training workshops. This change mitigated earlier challenges and pressures to fill seats in the class, and eliminated the long lead times associated with finding a project. All participants in the Green Belt training only begin training when an improvement project has been identified to benefit a Strategic Improvement. This change has also significantly decreased the low secondary improvements conducted from trained Green Belts due to the increased number of identified opportunities discovered via the Strategic Improvement or through YBA programs.

11.5. Tactical – Kata Vision and Target Condition Identification

To mitigate Black Belt deployment in a business analyst role, we implemented the requirement for strategic improvements to define a vision prior to discovery of opportunities. This approach allowed for the overlay of the Kata approach using target conditions moving towards a vision. At this time, the methodology to reach each target condition is left to the discretion of the Black Belt either using Define, Measure, Analyse, Improve, and Control (DMAIC) or PDCA. However, we encourage using PDCA and a Mentor/Mentee approach as much as possible. Secondary benefits from the vision first approach is the reduction in lost sponsorship and unrealized efforts as the sponsor is engaged in developing the vision. Should priorities shift elsewhere, time invested is reduced to two-to-four hours instead of months on discovery activities.

11.6. Tactical – Benefits Realization

Our biggest challenge was influencing the culture of MBR towards MBM. Previously highlighted results had focused on either time savings or dollar savings, both of which we considered appropriate for roll-up reporting. However, the use of multiple loaded head count rates, value creation forms, limited finance

oversight, calculating efficiency into dollars, multiple reporting teams, and saving categories with vague descriptions influenced our initial decision to not add an additional report using LEO defined categories and calculations from activities in our scope.

Using our own methodology of asking "Is there a better way to do this?" we developed a multi-level plan to standardize benefits realization across the enterprise and begin the cultural shift towards MBM for Lean reporting. Following our vision to "engage the senior leadership team with the right story of the 'means' instead of the 'results'".

Our first discovery was that various teams had started to implement benefit realization approaches as they faced the same challenges identified above. Following a simplified pareto analysis, we aligned to the team with the greatest amount of support within the delivery and execution teams.

Our next step was to identify the data points required to implement the aligned benefits realization approach, and to identify additional data points that would help move us towards MBM. Our primary focus while identifying MBM based data was to incorporate actionable metrics and leave vanity metrics out of future reporting. Our criteria for actionable metrics involved whether a split test could be conducted on the data point.

With an aligned team-based approach and actionable metrics gathering in place, we incorporated a benefit language statement and syntax approach matched to the categories of: cost avoidance/risk mitigation, cost savings, efficiency, and revenue instead of category descriptions. The benefits of this methodology include less room left for interpretation compared to a category description, simplicity to contributors less familiar with expressing savings, requiring less rework and follow-up from LEO, and reducing time spent collating reporting with automation techniques allowed due to common syntax.

Category	Plain Language Statement	Benefit Syntax	Example Benefit Statement
Efficiency	We will reduce the number of truck rolls	E: Reduce ## truck rolls per ***month/year***	E: Reduce 500 truck rolls per year

Figure 12 – Benefit Syntax Example

Our final step entailed a transitional period of introducing MBM based data while maintaining previous time and dollar savings on improvements already underway, followed by the incorporation of the new benefits realization approach on improvement initiatives kicked off after the cut-off period. This revised approach has reduced benefit reporting from 80+ Hours/Month to an average of 5.25 Hours/Month.

12. Results

Improvement opportunity results since the implementation of LEO shown in figure 13 below have continued to remain steady with the benefit of learnings from the Lean Network team. However, a significant increase in adoption of Lean across the enterprise has been realized with 6 new departments in F19, 30,000 hours saved, and 40% of improvement opportunities solutioned immediately through JDI's. This trend based on current statistics indicates we have achieved our goal of increasing velocity of improvements. From a Training and Engagement perspective, we have experienced a 96% increase in belt acquisition through online and F2F training from individual contributors compared to F18 and the 65 participants in Green Belt certification is a 15% increase from F18.

Figure 13 – LEO Results – F19

Figure 14 below highlights the training and engagement statistics. As of June 2019 20.6% of the enterprise has received training in white belt via face to face (F2F) training, or through our online training platforms. This totals approximately 2000 individual contributors. Upon completion of yellow belt training, each graduate is required to complete a small improvement within their area. These improvements range from 5S of their workstation or desktop, up to organizing their trucks. This small improvement helps cement the learnings and provides a small efficiency increase to the enterprise.

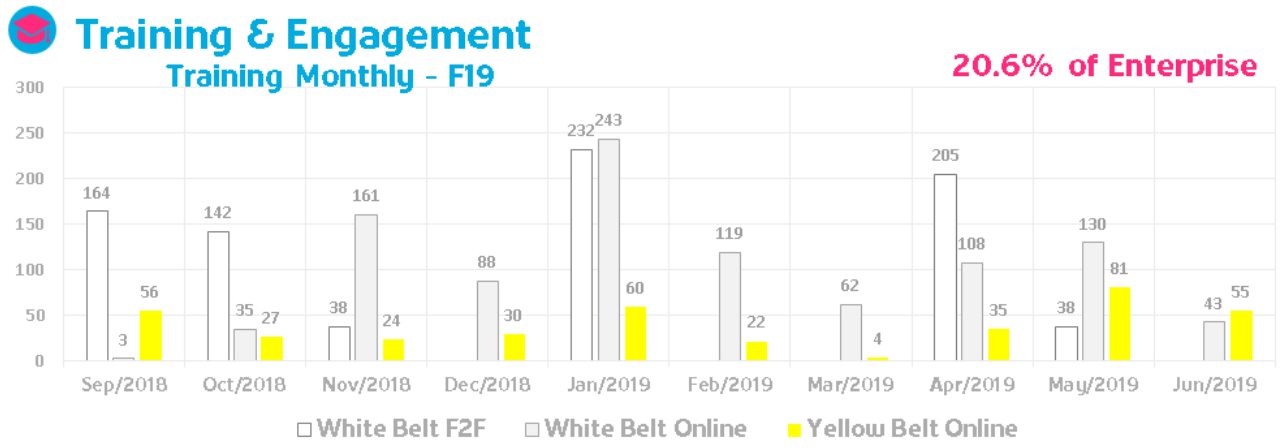

Figure 14 – Training and Engagement – F19 Totals

Conclusion

Through learnings and benchmarking over our seven-year journey in Lean we have found that sustainment of a Lean program requires a focus on culture that is integrated with all aspects of the strategic approach and tactical processes put in place. By analyzing the challenges and learnings within an organization and defining a clear vision and goals, a tactical plan can be formulated to reinforce the culture of continuous improvement through behavior enhancing processes and programs.

The tactical processes in place at Shaw like the Yellow Belt Accelerator program, vision statements and target conditions, and adaptive standardization ladder up to the three-pillar approach principles by way of clear actions, defined outcomes, and processes that reinforce the culture of continuous improvement. The methodologies for changing cultural approach outlined here are built on Shaw principles and existing culture, adaption to your unique environment may be required. It is important to implement an approach as described in this paper based on the learnings, discoveries and challenges within your organization.

Abbreviations

5S	"Sort", "Set In order", "Shine", "Standardize" and "Sustain"
CI	continuous improvement
CPE	customer premise equipment
CPO	chief procurement officer
DAA	distributed access architecture
DMAIC	define, measure, analyse, improve, control
DNA	deoxyribonucleic acid
F2F	face to face / face 2 face
JDI	just do it
LEO	lean enterprise office
MACD	move, add, change, delete
MBM	managing by means
MBR	managing by results
NDC	national distribution center
PDCA	plan, do, check, act
RDC	Regional Distribution Centers
RF	radio frequency
SIPOC	supplier, input, process, output, customer
SLT	senior leadership team
SME	subject matter expert
TPLT	total process lead time
TPS	Toyota production system
YBA	yellow belt accelerator
VOP/E	voice of the process/employee

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