



LEAN MATURITY ASSESSMENT:

Assessments, rather than scores and metrics, can be a better tool to gauge an organization's lean maturity.

FROM THEORY TO PRACTICAL USE

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This article focuses on how to assess the lean maturity of an organization. By utilizing the 14 lean principles from the Toyota Production System (TPS), we can avoid an audit approach and use the strengths of lean to accomplish our goals. After establishing the lean maturity process, the second part of this article provides a real example of how to apply the process to a social issue that has experienced a heightened level of attention and research: the gender pay gap.

If anyone is in an organization that has implemented a lean assessment, or what I call the “lean audit,” beware of how the information is reported, especially if it results in a metric or performance score. This is not a lean approach. As we travel through our lean journey, we realize that lean is about the customer and how we respect people, as well as continuous improvement. Anything that deviates

from this path is not lean, produces waste (*muda*), and disappoints our customer. A great example of lean is described in the book *Lean Thinking* by James P. Womack and Daniel T. Jones: “In short, lean thinking is *lean* because it provides a way to do more and more with less and less — less human effort, less equipment, less time, and less space — while coming closer and closer to providing customers with exactly what they want.”¹

As a Lean Six Sigma Master Black Belt, I have taught, attended seminars, mentored, and read educational material in order to keep my skills up to date. In my experience, I have found lean assessment workshops to be detailed and informative, and the flow of the material in assessments provides information on the lean status of the organization. However, the underlying question is: Why is this necessary? What is the marginal benefit of the cost of implementing a lean assess-

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ment? Doesn't the organization already perform these tasks within its routine operations? What is the difference between a score of 3.48 and 3.49?

Addressing the following questions is a good exercise for organizations reviewing the lean assessment:

1. How are we utilizing lean? As a tool or as a methodology? Is it people-focused? Does it produce continuous improvement projects?
2. When looking at the organization, where do we find lean? Is it in the divisions, departments, and/or individuals?
3. When looking at people, who is initiating lean? Is it top management or the everyday knowledge worker?
4. When looking at eliminating waste, have we identified the "hidden plant" (waste within the organization's processes)? Are we scheduling improvement projects to eliminate waste?
5. Has the organization experienced any significant financial impact from lean projects?

To evaluate the cost benefit of this exercise, consider the following:

- Are we utilizing the 14 lean principles of the TPS?
- Are we reducing waste?
- Are we on the path for continuous improvement?
- Are we improving over the prior year(s)?²

The very nature of the lean assessment is to question all aspects of the organization. This is clearly overprocessing (or waste). The organization, especially in a manufacturing environment, has many teams that review its processes. This includes but is not limited to external, internal, and safety auditors, as well as the International Organization for Standardization, Sarbanes-Oxley, and other government agency regulations. All lean organizations practice lean principles and by doing so will benefit from the synergies of this arrangement. We should not add more inspection or rework to our processes than is necessary. Our internal team members can be trained in the lean principles and taught to

look for lean issues as a natural part of their tasks.

The continuous improvement team members are the main source of lean information for the organization. With training, they can provide a true real-time assessment of the organization's lean culture. By utilizing the TPS, the organization can grow its lean culture through visual management, creating its own leaders, developing teams, and helping others across the value chain. By leveraging the strengths of the continuous improvement team members, the lean assessment does not need to be a physical audit. However, there are some obvious exceptions, which will be addressed later on.

Lean is about inclusion, teamwork, and growing your own leaders; assessing lean with a scorecard report to management is the opposite. It is a lean performance audit — subjective by nature and scored as a metric based on financial data, which produces suboptimal results. Projects that are driven by achieving metrics are not lean and do not focus on the customer. Any way you view this exercise, I'd call this lean "under the barrel of a gun."

The lean assessment can be accomplished with existing reports and a few quick lean tools. Reports from customers will help indicate what is and is not going well within the organization. Internal reports, such as the continuous improvement project log (CIPL), will provide the data needed to determine if lean practices are being followed. The marginal benefit of the cost expenditure for the actual assessment and its resources is unjustified.

The organization's culture, life cycle, and departments (e.g., the accounting department) can also be determining factors when implementing change. Some adapt faster than others, and some have more hurdles to overcome than others. Do not assume everyone will follow the same path at the same rate. Such an assumption can lead to an inaccurate analysis of the financial impact of lean projects and bring disillusionment to future projects. Provide realistic expectations so that the

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teams can use what they know for continuous improvement. For example, if the team is not trained in visual management, do not anticipate the improvement projects to utilize this lean tool.

The goals of the organization are incorporated within all of its facilities. The recorded results in the financial and operating metrics will explain anything the lean assessment wants to know. (Other groups within the organization can obtain any additional information as needed.) Performance reviews should be led by measureable results with clearly defined parameters. Lean is about involving everyone within the organization in continuous improvement; this includes thinking every day about how to make the process better, cheaper, easier, faster, and safer.³ Remember: “You are what you measure.”⁴

Traditional lean organizations, such as Toyota, do not implement lean assessments. If the leaders of the lean doctrine do not use lean assessments, why are any organizations implementing them?

Recommendations for improvement

If, for example, the current structure of a lean assessment does not utilize all of the lean principles (the TPS and the eight wastes), the organization can use the foundations of lean (i.e., the knowledge workers) to report all instances of waste.⁵ Detecting and reporting waste is an important aspect of lean. It is the duty of all employees in a lean organization to help report and eliminate waste. This is not only part of their performance review but also part of the lean culture.

By setting up a three-tier approach to review continuous improvement projects, the organization can reduce waste from overprocessing and provide for a positive inclusion of lean. Tier one is a validation of the financial impact and a review of the continuous improvement team’s notes on their projects. Tier two integrates the tasks from tier one with an additional discussion of any results with the on-site continuous improvement group. If there are any issues that cannot be resolved, tier three will launch a full investigation into the unfavorable results. This is part of the normal monthly review process to

investigate defects or results that are unfavorable to profitability and not aligned with the voice of the customer. One way to view this is through the organization’s lean balanced scorecard.

Lean balanced scorecard

By implementing a balanced scorecard with the lean principles from the TPS and the eight wastes, organizations can visualize where they are in their lean journey. Using this as an overall visual scorecard, we can use three color codes to identify how the organization is progressing yearly. We can easily provide parameters to incorporate this lean visual management functionality by using the color codes of red (bad), yellow (average), and green (good). For example, red can indicate no financial impact for continuous improvement projects within the reporting year, while green can mean that the financial impact is achieving corporate goals. Yellow is everything that is not red or green. See Exhibit 1.⁶

Continuous improvement team

By communicating with each continuous improvement team member, we can get real-time assessments of the lean journey. This type of networking will allow the organization to accurately assess what is occurring at each location. Reviewing the results of the continuous improvement projects can be communicated monthly. Successful projects can be rewarded with a team visit to the location to see how the transformation occurred so that the results can be replicated in other locations (otherwise known as a *gemba* walk). Thus, we can reduce waste not by auditing the facilities but by utilizing current processes correctly and avoiding additional quality checks and overprocessing.

Synergies of department

If every group from the organization employs the lean principles (or lean eyes), the need for additional quality steps is unnecessary.⁷ Standardized reporting from all aspects of the organization will pro-

EXHIBIT 1 Lean Balanced Scorecard

LEVEL 1:

ORGANIZATION		
FINANCE	CUSTOMER	OPERATIONS
LEARNING AND GROWTH	LEAN ORGANIZATION (TPS)	EIGHT WASTES




LEVEL 2:

LEAN ORGANIZATION (TPS)		
<i>Hoshin kanri</i>	Continuous flow	Pull system
<i>Heijunka</i> – Level workload	<i>Jidoka</i> – Quality is right the first time	Create standards
Visualize	Keep it simple	Grow your own leaders
Develop teams	Respect partners	<i>Gemba</i> – Go and see
<i>Nemawashi</i> – Start slow then fast	<i>Kaizen</i> – Learn and reflect	

EIGHT WASTES		
Transportation	Inventory	Motion
Wait	Overproduction	Overprocessing
Defect	Resources/Talent	

EXHIBIT 2 Eight Wastes

EIGHT WASTES		
<p>Transportation: Unnecessary movement of material or product</p>	<p>Inventory: Material or product that is used to cover for inefficiencies</p>	<p>Motion: Unnecessary movement of people; multiple hand-offs</p>
<p>Wait: Elapsed time between processes when no work is being done</p>	<p>Overproduction: Making or manufacturing in excess of customer requirements; providing a service that is not really needed</p>	<p>Overprocessing: Adding unnecessary steps to a process; redundancies between processes</p>
<p>Defect: Anything that does not meet the acceptance criteria</p>	<p>Resources/Talent: Demotivating the workforce by not asking for input or recognizing success</p>	

vide the information needed to satisfy any assessment at any level.

The CIPL

The CIPL is a reporting document that stores all of the details for every attempted continuous improvement project. This data will provide all of the information needed to prove if the elements of lean are being encouraged and implemented in the organization. One quick test is to determine the correlation between the results of the CIPL and the financial statements. For more details on the CIPL, please read my article in the March/April 2016 edition of *Cost Management*.⁸

Avoid adding waste

Lean professionals need to avoid adding unnecessary quality steps or overprocessing of the lean methodology unless required for compliance purposes.

Summary

Lean is a journey, not a destination. Lean assessments that include a report on per-

formance review to management is not what lean is designed to accomplish. To establish a lean culture, lean professionals need to adopt a proactive view of inclusion in order to integrate the lean philosophy throughout the organization.

A case study: A social commentary on the eight wastes and the gender pay gap

We have studied the seven wastes of the TPS. The eighth waste is the waste of resources or talent. This includes demotivating the workforce by not including your team members in the input phases of the process, not aligning resources and tasks effectively and efficiently, or not recognizing success. See Exhibit 2. The famed management consultant Peter Drucker indicated that it is management's responsibility to align tasks with resources (or knowledge workers). If performed properly, the knowledge workers will be more motivated to accomplish their tasks, and the organization will profit.

Part of lean is the utilization of resources, which includes team mem-

bers. Thus, lean is people-focused. Let team members know the expectations for each task, be able to influence and correct problems, and come up with methods to keep problems from returning. Lean also promotes mutual trust. Create a positive environment in which team members can voluntarily contribute to continuous improvement efforts, develop skills, and promote teamwork. Lean is not a one-size-fits-all approach. Lean needs to fit within the organization's expectations of cultural, environmental, social, and economic norms without violating the core principles. Thus, lean will change over time. This was described in *The Machine That Changed the World* by James P. Womack, Daniel T. Jones, and Daniel Roos.⁹ Also, see my article "Lean Fundamentals for Accountants" in the January/February 2016 edition of *Cost Management* for details on the 14 lean principles of the TPS.¹⁰

One of the current socioeconomic topics, which has been discussed over the past 50 years, is the issue of equal pay for women in the United States. With a record number of women in the workforce and two-thirds of women functioning as the primary earner in the family, equal pay is critical to families' economic security.

At this point we see the intersection of lean methodology and social activism. The lean methodology leads with data. Some of the best W. Edward Deming quotes reflect this approach: "You should not ask questions without knowledge," "You can't manage what you don't measure," "...all others bring data," and "Quality is everyone's responsibility."¹¹

There have been many studies that indicate the gender pay gap. The book *Lean In* by Facebook's COO Sheryl Sandberg demonstrates the issue through a hiring experiment conducted by Facebook.¹² There was also a study performed by *Harvard Business Review* titled "Coaching the Alpha Male" that discusses how the management style of women is more likely to produce positive results in today's business environment due to the emphasis on teams and collaboration.¹³ Then there are the cold facts driving these

results: Over the past 25 years, women have outpaced men in earning college degrees by 20 percent. However, the top management and board positions held by women are 20 percent and 25 percent, respectively. Why this variance still exists 50 years after the Equal Pay Act is a good question for our time.

A recent study performed by the American Association of University Women and the National Partnership for Women and Families indicated that as of 2013 women earned 77 cents compared to every dollar earned by men. After controlling for factors known to affect earnings, such as occupation, college major, and hours worked, a 7-percent pay gap exists between male and female college graduates just one year after graduation. The study also identified that women of color experience a larger pay gap, the disparity is even greater in higher-paying careers, the wage gap will disappear in 2086 for the state of Michigan, and the average loss for women in their career is over \$530,000. This is called the cost of poor quality of a process. This is the time I ask: What is your favorite color? That's the color of your favorite sports car that you will never own due to you or your family not receiving equal wages.

Another study performed in 2015 by the *Business Insider* article "Women in the C-suite" provides additional evidence that the lean principles are not being followed.¹⁴ Overall, women make up 47 percent of the workforce, and 51 percent of those women hold management positions. This means women are paid 78 cents for every dollar earned by men. In the leadership positions of Fortune 500 companies, women account for 17 percent of board members, 15 percent of C-suite executives, and 5 percent of CEOs. Other biases were very revealing; for example, men receive a 6-percent pay increase for having a child while women lose 4 percent. Finally, research by McKinsey and Deloitte linked a diverse executive team with business success.¹⁵ If this indicates a profitable road map, then why are organizations not adopting this strategy? It suggests that companies are

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not taking advantage of C-suite diversity and how it will benefit customers.

Now that we understand the financial impact for both single- and dual-earning families, how can lean help resolve this issue? In our case, the United States is considered a relatively mature environment that emphasizes equality for all citizens and participants. The strategic planning, laws, and social expectations reflect equality; inequality is not tolerated and is considered a violation of lean principles. Using our lean balanced scorecard, we can start to resolve this issue by understanding where the violations occur. We can identify several lean strategies that, if employed correctly, can prevent inequality:

- having a long-term philosophy (basing decisions on long-term goals);
- having quality right the first time (stop, fix, and do it right, or *jidoka*);
- creating standards (ensuring continuous improvement);
- visualizing (don't hide information);
- growing your own leaders (understanding, living, and teaching work);
- developing teams (success is based only on teams);
- respecting partners (helping and challenging suppliers);
- going and seeing (experiencing the situation); and
- learning (reflecting, measuring, and improving, or *kaizen*).

As lean professionals, we identify and eliminate waste when we can. For my part, I identified several continuing-education professionals who have had a difficult time finding work even after completing classes. Using visual management, I documented every student's information on a spreadsheet as well as on a visual board. I quickly realized that women transitioning from a non-manufacturing to a manufacturing environment were having the most difficulty. This group of nine women were contacted and asked to participate in a women's forum to discuss their issues regarding employment. During this lean "huddle," we identified the gaps needed

for employment and met the following week in a *kaizen blitz* to improve each professional's résumé, LinkedIn profile, and elevator speech. This was all completed in one session with industry experts for each area. The results were impressive, with seven of the nine women receiving job offers within 30 days and all nine receiving job offers within 60 days; thus, mentoring programs work. In recent research published in UCLA's *Women's Law Journal*, Schipani et al. demonstrate how mentoring programs, both formal and informal, produce positive results. They also discuss how the gender pay gap issue is not a supply problem. The numbers identify this clearly:

- The workforce is represented by 42 percent men and 58 percent women, a 53-percent increase since 1963.
- The number of working mothers has grown to 70 percent from 54 percent in 1962.
- A record number of Title VII sex discrimination cases were filed in 2012.
- 88 percent of women completed high school or more.
- 37 percent of women completed four years of college.
- 11 percent of women completed graduate school (compared to 8 percent of men).¹⁶

The conclusion from this exercise is that the elimination of the eight wastes is a great foundation for any professional to utilize. By using the lean tools, especially the 14 lean principles from the TPS, and our "lean eyes," we can identify and accomplish many things quickly. We can implement revised performance reviews that adopt these principles in order to avoid violations, create mentor programs that promote wage equality, and continue with legal enforcement and new regulations to ensure equality. As I witnessed the change of attitude in the women's forum participants, my understanding of the lean principles were enhanced. Lean is more than just the metrics — it's the people, too.

LEAN IS MORE THAN JUST THE METRICS — IT'S THE PEOPLE, TOO.

For additional information on lean, please see my article “Lean Fundamentals for Accountants” in the January/February 2016 edition of *Cost Management*.¹⁷ ■

NOTES

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