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Lean *Kaizen*: How to Rapidly Identify and Agree on Improvement Ideas

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Kaizen Events & The DMAIC Method

Lean problem-solving and improvement methods have a rich, established, and proven history of helping organizations to improve the quality, speed, and cost of their products and services by focusing on value while removing waste. The collective body of knowledge related to Lean practices has continued to grow and improve over the years as organizations, quality associations, and individual contributors have documented and published various ways to facilitate improvement activities.

The scope of Lean improvement practices covers many different subject areas such as:

- Leadership and systems thinking
- Building a continuous improvement culture
- Visual management
- Lean tools such as Critical-to-Quality and Value Stream Mapping
- Structured problem solving

The goal of this paper is to provide you with a focus on how structured problem solving is used to rapidly identify various ways to improve any problem. To provide a bit of historical context, structured problem solving was historically introduced to the Lean body of knowledge as a discipline largely due to the influence that Dr. Edward Deming had on the Japanese economy during its post-World War II recovery period. While engaged with supporting the post-war Japanese census as a statistician, Dr. Deming was invited to speak on several occasions in the 1950s to the Japanese Union of Scientists and Engineers (JUSE). They had been tasked with the advancement and improvement of the Japanese society by improving quality and eliminating waste. It was during this period that Dr. Deming lectured on statistical quality control and what was then often called scientific management.

Scientific management focuses on creating a management discipline around quality improvement by establishing a formal quality process that has become known as PDCA (Plan, Do, Check, Act). The PDCA approach was successfully leveraged by the Japanese economy and was incorporated as a discipline of structured problem solving along with the *kaizen* improvement model within TPS (Toyota's Production System), which would later become known more generally as Lean management.

Building on the obvious positive impact that Lean management approaches yielded for Toyota, in the 1980s an engineer by the name of Bill Smith developed the Six Sigma techniques and tools for process improvement based on Lean concepts. The Six Sigma approach expanded on many of the early Lean methods and included the development of the DMAIC (Define, Measure, Analyze, Improve, Control) improvement model based on Dr. Deming's PDCA approach. The DMAIC improvement model is an expansion of the earlier PDCA approach to structured problem solving and has the added benefit of reinforcing key behaviors for successful problem solving and improvement. The DMAIC improvement cycle is the central focus used to drive Six Sigma improvement projects. However, DMAIC is not exclusive to Six Sigma and can be used as an approach to structured problem solving for any improvement opportunity.

Today, many organizations use the DMAIC improvement model to provide structure and a disciplined approach to Lean *kaizen* events. Specific Lean tools and methods such as voice of customer, value stream mapping, root cause analysis, incremental improvement, and documentation have become aligned with various stages of the DMAIC model. Each phase of the DMAIC model collectively supports the *kaizen* event's focus on making tangible and sustainable improvements.

The next section of this paper focuses specifically on an example set of activities and approaches to support the improve phase of the DMAIC Model.

The DMAIC: Improve Phase (Developing & Implementing Solutions)

The goal of the improve phase is to develop a list of improvement options or countermeasures to apply to the problem statement defined during the DMAIC's define phase. Data related to the impact of the problem is collected during the measure phase and then analyzed to establish the factors that contribute to the problem while ultimately attempting to establish the final or root cause. However, the goal of a *kaizen* event is to solve the problem or at least advance this situation through improvements and countermeasures that are identified and implemented during the improve phase of the DMAIC approach to problem solving.

Analytical Approach

Examples of Lean tools that are often used during the analyze phase of a *kaizen* event include a Pareto Chart, Ishikawa diagram, and a 5-Whys analysis. These provide methods to help pinpoint the causal factors contributing to the root cause of the problem. However, they only define the problem and not the possible improvements or countermeasures that may be applied.

The first step in developing a set of improvement opportunities comes from the findings of the analysis phase when the participants of the *kaizen* event work with the output of the 5-Whys assessment and define countermeasures or mitigation strategies in response to the data derived from the data analysis. While this is a good first step to identifying possible solutions, the list of improvements may be enhanced and added to significantly by facilitating the *kaizen* participants through a series of fun and creative ideation activities.

The Creative Approach

While the analysis phase uses a left brain or analytical approach, it is also a good idea to augment the output of the analyze phase by engaging the creative or right-brain thinking approaches.

The following list of progressive workshop activities provides an example of a set of sequential and facilitated activities designed to bring general feedback on process effectiveness to the point where improvement activities have been identified and prioritized.

Note: These activities can be carried out in correlation with a full *kaizen* approach using the DMAIC model, or they can also be used as a stand-alone improvement workshop to rapidly define and agree on steps to be taken forward for process improvement.

Exercise 1: Smiley Face/Sad Face is a visual flipchart or whiteboard exercise designed to elicit from the participants what things are working well and what is not working well with the process.

The facilitator of this exercise initially establishes a reference for the target state of the process. They review the goal, scope, process steps, and intended output of the process under review. Following a brief explanation of what is supposed to be happening, the *kaizen* facilitator creates a vertical line on the flipchart with a happy face on one side of the line to represent what is working well and a sad face on the other side of the line to represent a column for what is not working well.

Using this visual aid, the workshop participants are asked to document and capture in bullet points what is working well and what needs to be improved with the process that's under review. Once the participants' observations are captured on both sides of the chart, the facilitator reviews each item with the participants to ensure the clarity and understanding of each item is shared by the group.

The next step of this activity is to ask the participants to assess the issues with the process from the point of view of prioritization and identify the top two or three challenges that need to be addressed for improvement. This activity can be rapidly performed through an exercise called multi-voting.

Multi-Voting is conducted by providing the workshop participants with the ability to vote on their top issues listed on the "sad face" side of the chart. This is carried out by providing participants with instructions that they can vote on their top three issues. Voting can be done by using sticky dots on the flip chart paper or by simply placing a tick mark on three of the items listed on the chart. One ground rule is established so that each person can only vote once for each item. Once all participants have had a chance to vote it quickly becomes very clear which issues are deemed to be the most problematic, according to the group.

Exercise 2: Brain Writing uses the output of the first exercise. The second exercise is a form of silent brainstorming that enables the workshop participants to write down what they believe the contributing factors are for the issues listed in Exercise 1. The silent nature of this exercise enables the participants to contribute without being concerned

with how others will react to their input, and it encourages involvement from all participants and not just a select few. Once the participants write down their views on the contributing factors for the issues being reviewed, they are asked to stick them on a whiteboard or flipchart and take time to read what others have posted. After reading the other sticky notes, they may come up with new or modified ideas that, again, they are encouraged to add to the working surface. They continue to add ideas about causal factors to the working surface until the creative process has slowed down.

Exercise 3: Affinity Mapping– takes the sticky-note output of Exercise 2 and has the group work on moving the sticky notes into groupings that represent similarities. The workshop participants are instructed to move similar causal factors written on the sticky notes into like groupings or themes. If necessary, moving an idea multiple times is permitted and encouraged.

Once all of the sticky notes have been moved to “affinity groupings”, the facilitator will work with the participants to identify the theme of each group by giving it a label or name that represents the issues identified within the affinity circle. The next step is for the group to define and agree on a problem statement for each affinity grouping and to establish at least one key question to be addressed by the problem statement that’s based on each affinity group’s theme. They key question should be worded in such a way that it expresses a clear gap that needs to be closed and is related to the problem statements. For example: How do we improve “X” by “Y” within the next “period of time”?

By the end of this exercise, the group will agree on several key questions to be addressed in the ideation activity in the World Café exercise.

Exercise 4: World Café – the key questions from Exercise 3 form the basis for running a World Café session. A World Café exercise is facilitated by creating a pleasant café-like environment with several round tables with chairs. Each round table has a large sheet of paper with one of the key questions from Exercise 3 listed at the top.

Workshop participants are asked to self-select a table and a key question and are encouraged to develop ideas on how to solve or improve the key question listed on the sheet of paper. After 15 or 20 minutes of this activity, the facilitator asks the participants to switch tables. At the new table, they start by reading the work that has been completed so far, modifying it, and adding new ideas to the growing list. Depending on the number of key questions documented on the tables, this process continues at least

three or four times until each key question has multiple improvement approaches identified.

Following the last iteration, the members of each table are asked to once again multi-vote and prioritize the top two to three ideas listed on each sheet of paper. The outcome of this session will be several lists of improvement ideas and suggestions that have been identified by the workshop participants.

Selection and Implementation

This list of improvement ideas developed during this workshop is added to the solutions and improvements developed out of the analysis mode. This provides the team working on the *kaizen* event with a significant list of options to review with respect to the root cause and to prioritize them based on the feasibility and impact of each option. Following the assessment of the various improvement outcomes, the participants select the best improvement candidate options that are forecast to have the most positive impact on solving the root cause of the problem and also the highest feasibility and likelihood of success.

Summary

By using a highly participative and collaborative approach to solution countermeasure identification, the buy in of the participants about the final improvements selected by the *kaizen* event team will be very high and have an improved likelihood of success. However, it is important to remember that the final stage of the DMAIC model is to establish sustaining controls such as the ownership, measurement, monitoring, documentation, and knowledge transfer that will be critical to ensure the improvements accomplished during the improve phase are maintained and stabilized.

Want to Learn More About Lean *Kaizen*?

- Gain practical knowledge about how your IT department can become more business-value oriented by attending the Lean IT Foundation: Understanding Lean IT Principles & Objectives certification course.
- Achieve continual improvement within your organization by attending the Lean IT Kaizen: Implementing Lean IT Practices certification course.
- Lead Lean practices and ensure continual improvement within your organization by registering for the Lean IT Leadership certification course.
- Attend Pink19 – the world's largest gathering of ITSM professionals – which covers today's most relevant and meaningful subjects, and includes an entire track devoted to embracing Lean and Agile principles.

About the Author

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Troy is considered by many to be one of the world's foremost ITIL and ITSM experts. A passionate and experienced Executive Consultant, Troy is always willing to use his rich and extensive background to share what he knows and is always on the hunt for more knowledge. Troy always has his finger on the industry's pulse – if there's a question about what the latest trends in ITSM, Lean, Business Relationship Management or Organizational Change Management are, he has the answer! Troy is a frequent speaker at ITSM events, a contributing author for several books focused on ITSM and Lean IT concepts, and his blog is one of the industry's most popular and informative.

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