



CHOOSING THE RIGHT CONTINUOUS IMPROVEMENT METHODOLOGY- LEAN OR SIX SIGMA

Continuous Improvement Strategy



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Introduction

As the title of this paper suggests, we decided to focus on Lean and Six Sigma since these are the two most adopted continuous improvement methodologies. However, we think it might also help leaders planning to deploy other continuous improvement methodologies to follow a similar approach.

Many companies ask themselves the question – are we ready to embrace Lean or Six Sigma methodology and struggle with the answer. Unfortunately there is no easy answer. In *The Six Sigma Way*, Pande et al suggest that companies thinking of embarking down this path should first look at three key areas to assess their readiness: assess outlook and future path, evaluate current performance, and review systems and capacity for change and improvement. The findings to these key areas will hopefully give companies a better sense for their readiness to deploy. Having said that, one thing that the book does say is that if there is already a successful performance and process improvement methodology in place, implementing a formal Lean or Six Sigma program might actually confuse the people. Additionally Six Sigma does call for substantial investments and if there is no significant business outcome that can be estimated, it will be difficult to support the program. Lean, however, can be implemented with relatively

fewer resources and time commitment and can become a good continuous improvement methodology to deploy to get some quick wins that can help build the business justification for deploying a full-fledged Lean Six Sigma program in future.

Many continuous improvement efforts have failed because of a one-size fits all approach. The continuous improvement methodology needs to fit in with the overall goals of the business as well as the specific project goals. Two important factors need to be kept in mind while identifying the proper methodology.

1. Does the selected methodology fit in with the overall business vision and strategy (Strategic Approach)?
2. Does the selected methodology make sense based on the type of business problem we are trying to solve (Framework Approach)?

Strategic Approach

Unless the selected continuous improvement methodology fits within an organization’s strategic and business goals there is little chance of generating breakthrough results. It also should fit in with senior leadership’s experience and understanding of the particular methodology. In the bestseller *Straight From the Gut*, Jack Welch talks about how GE considered a Deming program and ruled it out as a companywide initiative because Jack Welch felt it was too theoretical. However, when GE decided to go for Six Sigma because an internal survey said that “quality was a problem at GE,” Jack, in his own words, “went nuts about Six Sigma and launched it.” He also went on to say that, “when we decided to go forward (with Six Sigma), we did so with a vengeance.”

Like all successful business transformation initiatives, depending on the selected methodology, a program needs to be put in place as well as ensuring that the program is staffed with the proper resources. The lack of proper support structure with a PMO to select and manage projects can lead to a quick demise of any continuous improvement initiative. Likewise a company that chooses Lean/Kaizen methodology as the continuous improvement tool needs to ensure there are a few trained Lean/Kaizen leaders on board before rolling out any improvement methodology. The authors have experienced firsthand the pit falls of not having the right mentoring/coaching infrastructure in place and the sole dependence on external consultants to train black belts and expect successful results.

When to Use Lean and When to Use Six Sigma

Generally speaking from a strategic perspective, a company that is growing will be more successful using Six Sigma whereas a company more focused on eliminating wastes and cutting costs would benefit more quickly from a Lean program and specifically targeted Kaizen events. Refer to the table that identifies the preferred methodology based on the Organization’s Key Objective. Since Lean is less data analysis intensive and based more on team based subject matter expert anecdotal process improvement, it usually allows only a fraction of the total improvement potential to be achieved. Six Sigma takes it to the next level, though it takes longer to achieve those benefits. DFSS is usually introduced when the company has

matured enough with the Lean and DMAIC Six Sigma approach.

Organization’s Key Objective or Situation	Lean / Kaizen or Six Sigma
Focus on quick results	Lean (Six Sigma projects usually take between three to six months on average)
Focus on cutting costs	Lean or Kaizen projects usually result in a reduction in process steps as well as overall costs associated with a process
Delivering very low defect rate of product or service	Six Sigma – by its very definition a Six Sigma process will have only 3.4 defects per million products
Reduce variation from key process and output	Six Sigma focuses on reducing variation from a process
Limited data analysts or trained experts capable of carrying out data analysis	Lean – Lean/Kaizen projects usually require far less data and very little statistical analysis
Targeting an IPO in the near future	Lean – a Six Sigma program is usually costlier to sustain and takes longer on average to deliver

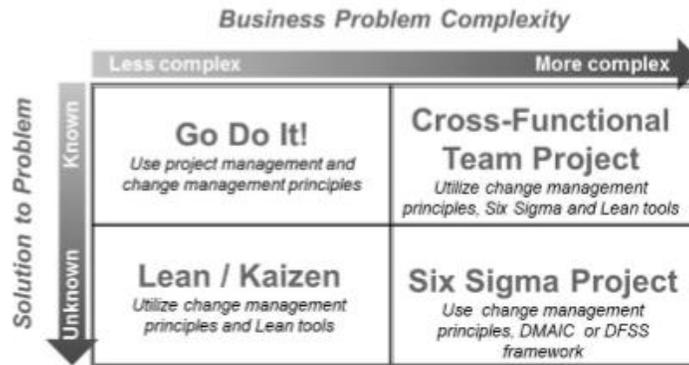
It is also important to point out here that some companies consciously decide to avoid the Six Sigma approach and instead focus on utilizing a Lean methodology, and more specifically Kaizen events, for driving continuous improvement. On the other hand there are others who are firm believers in the combined power of Lean and Six Sigma. And then there are still others who take a step approach and would, for example,

implement a Lean program before moving on to Six Sigma implementation as the company matures. There is nothing wrong with any of these approaches as long as it supports the overall business strategy. The important thing to remember is that there will always be some projects in every company that can be more successfully driven using a Six Sigma framework instead of Lean and vice versa.

Framework Approach

Even with the right strategic approach in place some continuous improvement initiatives have failed because of the focus on just one methodology (e.g. all projects are mandated to follow the Six Sigma framework). The reason this does not work is because not all projects require the rigor of Six Sigma or for that matter even a Lean approach. In these companies the continuous improvement initiatives get launched with a lot of fanfare and support, but what eventually happens is that senior leaders soon lose their appetite as they see projects taking longer to complete than initially anticipated or when the projects generate sub-optimal results. There are numerous instances of companies whose leaders have been left with a bad taste for Six Sigma just because these kinds of projects take around six months on average to complete. So, if a project that does not require the rigor of Six Sigma is made to go through the Six Sigma approach, inevitably the leaders or sponsors of the project will start getting frustrated as they wait for the results. Likewise, the results will not be as per the expectations of the sponsors if the Six Sigma methodology is not applied to a project that is

complex and could have benefited from the systematic data-based root cause identification and solutions. In order to avoid these kinds of situations there is a simple framework that can be easily applied right at the initiation phase of any major impact project within an organization. Note that the continuous improvement group or department is usually the best positioned to assist other departments in identifying the correct methodology—this is because the MBBs and Lean experts usually reside within this group. We will take the example of a hypothetical medical equipment repair services company which observes high dead-on-arrival (DOA) rates within its spare parts operations to demonstrate how the right improvement methodology can be selected, depending on the issue. It is also important to mention here that it is not mandatory to apply a Six Sigma approach, or any other continuous improvement methodology for that matter, to business problems that would fall in the lower right quadrant. It is just that a Six Sigma approach would, in most cases, generate a much better outcome compared to a non-structured approach to addressing the business problem.



Go-Do-It

For a newly launched replacement part which is coming back as DOA pretty frequently there is enough information in the return form that helps the employees identify that the problem the part is getting returned for is not because it is defective, but rather because the customers who depend on installation instructions on the company’s web site cannot find anything specific for the new spare part. The employees know the return rate can be reduced by providing end users with better installation instructions on the company web site. This problem has a known fix and requires implementation of the corrective action. If the solution is already known and the project is not complex, it is better to run the project as a GDI initiative. There is no point trying to Lean the process or, even worse, apply the full Six Sigma DMAIC rigor to such projects. Applying DMAIC or Lean will unnecessarily tie up valuable resources and increase customer dissatisfaction with the spare part (and reverse logistics costs).

Cross Functional Team Workshops

For the newly launched spare part, the employees know that the DOA return rate can be reduced by providing some end users with better installation instructions. However, the team needs to first analyze the data and understand which type of customers are returning the parts more because of lack of appropriate instructions. Approval from legal and assurance that the instructions meet sustainability requirements will also be required before sharing the instructions with the customers. Plus input of field service engineers is needed to decide the most effective way to share the revised instructions with the customers. In this instance a cross functional team is required that will get together to define the solution and possibly use appropriate Six Sigma tools to stratify the data to come up with the most impactful solutions (e.g. in this particular case the team might make use of Pareto charts to segment the returns by type of customers which in turn will help draft a more customer appropriate part replacement / installation instructions).

Lean / Kaizen Project

The company observes a high DOA rate for a particular spare part when compared to DOA rates for the rest of the spare parts. In this case the company does not know what the root cause is behind the high DOA return rate. At the same time the problem is not very complex, since the issue is limited to one spare part. This project of reducing the DOA rates for the particular spare part would benefit most from a Kaizen event, which is nothing but a focused Lean session. In this case a group of subject matter experts from different areas will be pulled together (e.g. engineering, field services, supply chain/logistics, customer etc.) to better understand the process flow, what the potential failure modes are, waste in the process, and what is causing the defect. Once the root cause is identified, the team will develop the proposed corrective action and get senior leadership buy in for implementation of the solution at the end of the Kaizen event.

Six Sigma DMAIC Project

The company observes a high DOA rate for all spares compared to their industry peers and there is a high level of customer dissatisfaction with the maintenance service because of the high level of DOA rate as experienced by the customer. This is a perfect situation where a Six Sigma DMAIC approach can and should be applied. This is a complex business problem and the solution is not known yet. Extensive analysis will be required to map the process and collect data for in depth study to identify the root causes. A GDI or even Lean Kaizen event will not be appropriate in this case and chances are that without applying the DMAIC framework the outcome from any such workshop will be sub-optimal and the company will find itself in the same position, even after putting in a lot of effort without the right framework.