

BREAKTHROUGH

Lean Implementation & Training Resource Publication
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6σ IMPROVE PHASE

By Harold Chapman

VERIFY THEN IMPROVE

Last month, we focused on the "A" in the DMAIC cycle for Six Sigma. We discussed the processes and tools used to ANALYZE the output performance of the process. This month, we will focus on the "I" in the DMAIC cycle, which is the IMPROVE phase. In this phase, we should now be ready to develop, implement, and evaluate solutions targeted at our VERIFIED cause. The goal is to demonstrate, with data, that our solutions solve the problem and lead to an improvement. We must VERIFY the effectiveness of the solution. Failing to VERIFY the effectiveness will lead to false hope and busy work trying to maintain the improvement.

The first step in the IMPROVE phase is to test our solutions in the real world. This must be done on a small level to ensure the solution is correct. We are often pushed to implement the solution across the entire product or product line. This is not the best method of implementation. Be sure to follow the Plan, Try, Reflect and Standardize (PTRS) cycle during the implementation.

RADICAL CHANGE PROCESS

PTRS is a powerful tool when implementing changes to our process, see illustration 1.0 below. It ensures that all aspects have been considered. We first PLAN our change to the process. We TRY it on a small scale to see if we were correct in our assumptions. Many western companies do a very good job at planning (sometimes to the point of detriment, planning too long) and then implement and walk away. This leads to frustration and not realizing the full potential of the change.

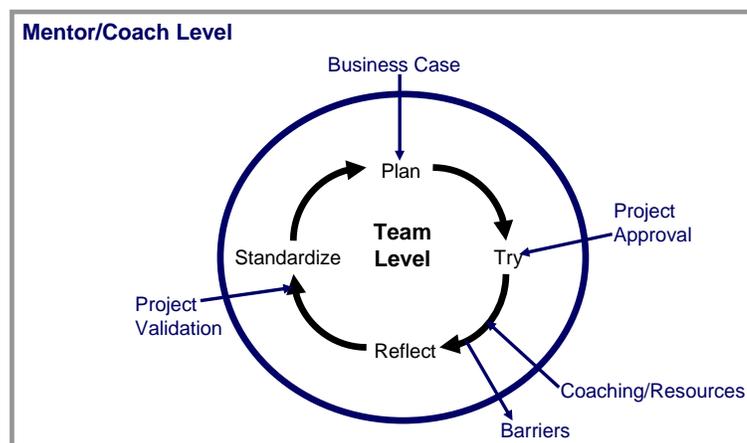


Illustration 1.0

It is extremely important to REFLECT after the TRY phase. This gives us an opportunity to see if our change is achieving the desired results. If not, we ADJUST and repeat the cycle. This cycle is repeated until the full desired result is achieved. Once the result is achieved, we can standardize across multiple products, product lines and even plants in some cases.

A quick method to VERIFY the results is called New vs. Old Six Pack Test. We randomly run parts with the new process or dimension to verify the change.

We have 3 groups of New and 3 groups of Old. If we randomize our run between the groups and have clear separation, we can conclude with 95% confidence that we have improved the process. See illustration 1.1 on page 2 of this article.

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VERIFY RESULTS

New Group: Process Change Implemented
Old Group: Process Change Not Implemented

Note: The size of the sample group should be determined based on the frequency of the defect.

Response: % Defects seen within the group.

Run Order: Old, New, New, Old, New, Old, Old

Results shown sorted by 'Group' to check for separation:

Group	Results
New	0.23%
New	0.10%
New	0.40%
Old	4.50%
Old	4.21%
Old	5.10%

Illustration 1.1

The above example shows 100% separation, so we can conclude that our change is effective. Had there not been separation, we would have to conclude that we did not find the true root cause.

The IMPROVE phase of Six Sigma is not a glorious phase, but it is a vital phase to ensure long lasting results that have read-across potential for the entire organization. We must put the same focus and importance on this phase as we do in all the other phases. Now that we have a solution implemented using the PTRS cycle and have VERIFIED its effectiveness, we need to sustain the improvement. We will cover sustainment in next month's article on CONTROL. CONTROL is the final stage of the DMAIC process used in Six Sigma.

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LMSPI, Engineers of Win/Win Agreements

Based on The 7 Habits of Highly Effective People – Stephen R. Covey

1. *Desired Results – Have the end (outcomes) in mind*
2. *Guidelines – Rules to follow, boundaries to accomplish results*
3. *Accountability – Consistently measure levels of progress*
4. *Consequences – Rewards for achievement, consequences for lack of achievement*

We are seeking to create win/win partnerships with local manufacturers in Upstate, SC and East Tennessee for the 1Q and 2Q of 2009. Our mission is to save manufacturing in North America and we achieve this by driving solutions together with your team and guaranteeing a 200% Return on Investment. To schedule a value-added introduction at no-cost and benefit from an operational assessment, [Click here to contact LMSPI](#), Call us Direct: 865-776-9159 or Email our Business Development Director: Jason@LMSPI.com today.

Stay tuned!

This series will wrap up as we unpack the final phase in the DMAIC process. To review the entire FREE Insider Archive now [just click here](#) or visit www.Lean-Results.com today!