Smart Problem Definition and Measurement Prevents Stupid 'AIC's and Pains

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Summary

The Six Sigma Black Belt approaches problems using disciplined problem solving methodologies. One such approach called DMAIC (Define, Measure, Analyze, Improve and Control) focuses on reducing process variation and defects. Regardless of what approach is used, the problem Definition and Measurement phases are most critical to avoid foolish effort in Analysis, Improvement and Control resulting in much pain by fixing the wrong problem.

DMAIC Refresher

For those who are not familiar or need a refresher, here is a summary of the DMAIC process steps.

1. **Define the Problem** – The objective of the define step is to establish what is important to the organization and why things need to be changed.
2. **Measure the Situation** – The objective of the measurement step is to determine the status quo; base-line the current performance. An essential part of this is to establish consensus for the critical metrics of focus.
3. **Analyze the Data** – The objective of analysis is to look for root causes to the problem defined in the first step
4. **Improve the Process** - The objective in this step is to identify, evaluate, select and deploy a solution to fix the root cause(s) identified in the Analysis step.
5. **Control for Improvement** – The objective in the control step is to assure the improvement 'stick' and the organization does not revert to previous bad processes.

If the problem is not clearly defined and we are not looking at the right metrics, the project will surely go down the path of fixing the wrong things causing much pain to the organization.

Avoid Stupid

"Ever since Bob came in as Vice President of Sales the company has been going down-hill". Now that's what I would call a stupid problem definition; not likely to build consensus and chart a course for solving real problems.

At a recent party I got pulled into a discussion on the economy, and of course that always leads to politics. I "stupidly" asserted that unemployment has gone up significantly under the current administration. The immediate response from my opponent was (paraphrasing here) "That's not true"; followed by "Besides, he inherited all these problems from his predecessor".

So, let's look at what just happened: I asserted a problem statement that was narrowly focused and extremely biased; there was no consensus on the measures; and the discussion immediately transitioned into root cause analysis.

A smarter approach (aside from not discussing politics at a social gathering) would have been to define a problem in terms of what is important and why it needs to be changed. For example, if I had asserted "According to the Bureau of Labor Statistics the seasonal average annual unemployment rate [1] in the

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US has varied significantly across administrations, which has contributed to economic uncertainty", there might have been a more productive discussion (on the other hand it might have caused my host to ask me to leave the party because I was boring everyone to death!).

Of course both of these examples are tongue-in-cheek and intended to make a point about the importance of developing a solid definition of the problem and identifying unequivocal measures to support the problem statement.

Playing it SMART

SMART is an acronym outlining guidelines for developing goals for organizations and individuals. But I also find these to be extremely useful during each of the DMAIC steps, especially problem definition.

- **Specific** – A precise statement of the goal (problem)
  - Vague – Under the new VP of Sales the company is going down-hill
  - SMARTer – Market share has declined 20% over the past six months
- **Measureable** – Ability to measure progress towards the goal (fixing the problem)
  - Vague – We need to be more successful
  - SMARTer – We need to regain lost market share by 10% each quarter
- **Attainable** – The goal can be achieved (the problem is fixable)
  - Vague – Let's be the best company in the world
  - SMARTer – Let's make measureable improvements in customer satisfaction
- **Relevant** – It is important to the individual or organization that the goal is achieved (the problem is fixed)
  - Vague – The education system in this country is broken
  - SMARTer – We need an initiative to work with the local High School to help produce more qualified workers for our company
- **Timely** - There is a time frame defined for achieving the goal (fixing the problem)
  - Vague – Let's get 'er done
  - SMARTer – Permanent corrective actions must be fully implemented by the start of the first quarter.

Note that many of these guidelines are overlapping and reinforcing. For example, a non-specific problem statement is almost certain to be un-measurable, un-attainable, irrelevant, and un-bounded in a time. The point is that all goals or problem statements should have all of the SMART characteristics.

The Objective is Focusing on the Right Problem

Whether you are a Six Sigma Black Belt, Project Leader, Manager, Business owner, or just trying to solve a personal problem, the important thing to remember is to define the problem specifically and quantitatively before you go blindly down a path of fixing the wrong problem, or not fixing anything at all. Using structured methods like DMAIC and simple guidelines like SMART will help you achieve success and avoid painful results.

- Performance Management [2]
- Product Realization [3]
- Quality Excellence [4]

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