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conwaymanagement News

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Defining the Problem: In a recent newsletter we discussed the importance of gathering well-grounded knowledge about current situations and taking steps to avoid bias when involved in Improvement initiatives. This newsletter takes that discussion a bit deeper and focuses on what might be the most important step: defining the problem. The approaches to problem definition can vary significantly, and can impact both a project team's behavior and results in many ways. This newsletter identifies four key guidelines that will help you optimize your approach.

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What's The Problem

by: Sheila Julien, Senior Associate

Few decisions have a greater impact on the likelihood of success of an improvement project than the definition of the problem. Stephen Covey says that the way we see the problem is the problem. Albert Einstein warns that we cannot solve problems at the same level of thinking with which we created them. The way we define and communicate the problem the team is expected to solve will greatly influence the speed and efficiency with which a team will complete its work, the degree of satisfaction between the team and the project sponsor, and the efficacy with which an organization prioritizes and sequences the problems to devote resources to.

Consider these different approaches to defining the same problematic situation:

- Order fulfillment is too slow and is costing us a lot of business.
- Our lost sale rate has increased from an average of 125 per month over the previous six quarters to 190 per month this quarter.
- Our Order-to-Delivery timeline has increased to 60 days due to a bottleneck in packaging.
- Profits are down.
- Sales has missed their target for the past three months.
- Packaging is too slow due to old equipment.
- Order-to-Delivery time from the Mid-western plant in Q3 increased by 15 days over the same quarter prior year, and was cited as the cause of 42 lost sales in Q3 impacting revenue by $270,000 in the quarter.

Some of these are statements of fact, while others are judgments. Some are very broad and others are very specific. They may ALL be valid observations about the same situation, yet the problem-solving efforts they would guide would differ greatly in urgency, efficiency, and efficacy. Developing a good problem statement at the start will help you define and lead an improvement project that most efficiently arrives at better results.

Four Practices That Lead To Better Results

A good problem statement is not rocket-science, but simply requires some solid pre-work, thoughtful consideration & discussion, and the restraint to avoid speculating before the analysis. If you follow the four basic guidelines for problem definition, you will greatly improve the chances the right problem will get solved for good.

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1. **Write It Down.**
   If the problem is not written, shared, and discussed, all participants will feel comfortable that everyone is on the same page about the problem they are trying to solve. Such will not be the case, and the blissful ignorance about their different expectations will eventually give way to a combination of bewilderment, conflict, frustration, disappointment, and a great deal of inefficiency. Organizations can avoid the problem solving frustration and rework by surfacing right up front any different views of the problem they are trying to solve. The best way to surface and discuss any differences is to write it down and discuss it with all participants, to ensure it is well understood and agreed to.

   In addition to getting everyone on the same page, only a written problem-statement can be tested against the next three qualities necessary to effective problem-solving teams.

2. **Include a Quantification of the Waste the Problem is Causing.**
   Yes, this means you have done some pre-work, because no problem statement is as effective as it should be if it does not indicate why we care. Quantifying the waste makes certain that the organization does not invest scarce resources on something that will not have a significant impact. Every organization has more opportunities for improvement than capacity to execute on the improvements.

   Quantifying the waste also helps elicit the urgency and support that the project merits. A problem statement that is "…costing the organization $18,000 each week in excess charges" will receive more urgency than a problem "…costing the organization $800 a week." And problems for which no discernable and measureable impact can be found probably should not receive much urgency at all. Quantifying the waste in the problem statement helps an organization make sure that they are working on first things first.

   The statement of impact best fits at the end of the problem statement, but identifying and quantifying the waste should come at the start of the problem definition process. If we cannot reasonably measure the impact a problem is having on an organization, we cannot reasonably prioritize the effort.

3. **Be <u>specific</u> about the <u>metric</u> you are using to size the problem.**
   Malcom Forbes once observed that "It's so much easier to suggest solutions when you don't know too much about the problem." The rub is that you will have a hard time determining if your solutions are effective. To avoid this pitfall, your problem statement should incorporate the measurement you expect to move the needle on, the current baseline for that metric, and both the time and the place that your baseline measurement was taken.

   - The metric: If order-to-delivery timeframe is our problem, the problem statement should be a factual statement of order-to-delivery times. Maybe order-to-delivery times have deteriorated or maybe they have always led to lost orders. Either way, **a recent measurement** of order-to-delivery times must be part of the problem statement if this is the problem you intend to solve. For example: "order-to-delivery times have grown to 6 weeks and was cited as the reason for 25 lost orders last month."

     A description such as "too long" is too general, but teams may be tempted to

substitute this judgment instead of a metric because a recent measurement is hard to get. Bear in mind that if the problem is too hard to measure up front, chances are it will be too hard to measure later on when the team needs to evaluate the efficacy of the solution. Even if the team can gather measurements later, they will have no baseline with which to compare the new results.

- Timeframe: When have you observed the problem? Is your metric from last week, last month, last quarter, or last year?

- Scope: Where are you seeing the problem? Does the metric describe what is happening at one plant or all plants? Is it one product, a product family, or all products?

By making the problem statement factual and specific about what observable phenomenon we saw when and where, we create for the team a clear and effective baseline against which to measure improvements.

4. Omit Judgments and Opinions about Underlying Causes.

Maslow observes that "If the only tool you have is a hammer, you tend to see every problem as a nail." We all have biases, and when we make assumptions about the underlying cause, we bias the process to overlook other possible causes. In theory, this could be a time-saver — if you hit upon the correct root cause. However, in our experience this rarely happens. Making assumptions about the causes almost always makes a problem more difficult to solve instead of easier to solve. This is because if one or more important underlying causes are overlooked by the bias introduced in the problem-statement, the problem will not be solved before the project goes through quite a lot of rework.

Most people have some sort of bias or hunch, slight or strong, about possible underlying causes of most problems and they will consider these first. For example, some people easily incline toward thinking that the technology is not what it could or should be and theorize that this is the cause of most of the problems they encounter. Others are quick to suspect that the incentives are misaligned. And still others may speculate first that processes are not sufficiently defined and adhered to. These hunches are developed based on experience and people with diverse experience and biases tend to serve a project well. However, no matter how confident in the theory about the root cause, inclusion of an assumption about the cause or the solution in the problem statement is more likely to impede results than accelerate them. A hunch makes an excellent servant (in the problem analysis phase of the project) but a poor master. Leave any comment about possible underlying causes out of the problem statement.

If you follow these four guidelines, your project will have a much better chance of arriving at, implementing, and validating an effective solution that produces lasting results. Here are some of the examples of problem statements that meet the criteria above:

- "Cell phone charges are up 25% in the last 6 months over the same period prior year, costing the organization an additional $22,000/year."

- "Our courier vendor doubled the cost for YYYY service last month, costing the organization an additional $750/year." (This is an example where quantifying the waste appropriately dropped the project well down the priority list)

- "Out-of-spec product weight on the XXX line in Toledo forced us to scrap an average of 2000 units a month, over the past six months, at an annual cost of $60,000."

- "Customer complaints about invoice errors averaged 5 a week over the past quarter, and each complaint requires an average of 45 minutes of rework to correct and increases the timeline between invoice and payment from an average of 45 days to an average of 75 days, costing the organization $250/week in rework and $200 week in cost of capital. Furthermore, customer turnover in the population who complained about invoice errors is 60% higher than in among customers who have not complained about invoice errors."

These aspects of framing a problem have a huge impact on how well a team can analyze and solve a problem. By creating a written, specific and measureable problem statement that incorporates a baseline against which solutions can be tested, avoids biases about root cases or solutions, and makes clear why and how much we should care about the problem, a team leader and sponsor are more likely to guide a team to efficiently achieve the results the organization desires.

It takes some careful thought, but a good problem statement is worth the effort because it helps you to ensure that:

- Team participants, leaders and sponsors, have a shared understanding of the problem that will be solved,
- The organization will give the project the appropriate priority and urgency,
- The team has a good baseline against which they can test the results of their solutions, and
- The team is open to surfacing and testing a range of possible root causes so as to increase the likelihood of finding an effective and lasting solution.