



# Meaningful Metrics

Deciding which quality metrics to monitor and how to report them by **Forrest W. Breyfogle III**

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ictionary.com defines quality as an essential or distinctive characteristic, property or attribute.<sup>1</sup> Organizations need quality metrics. But what exact quality metrics should an organization monitor? How should these metrics be tracked and reported?

This column provides a method to answer these questions.

## Characteristics of a good metric and its reporting

Quality metrics should have the features of a good metric. We have all heard these clichés:

- You get what you measure.
- What you measure is what you get.
- If you don't measure it, you can't manage it.
- Let me know how I will be measured, and I'll tell you how I will perform.
- You cannot improve what you can't measure.
- Garbage in, garbage out.
- If you don't measure it, it's just a hobby.

These clichés are true. Measurements must be the processes' eyes that stimulate the most appropriate behavior. Measurements must provide an unbiased process performance assessment. There is little hope for improvement when process output performance is not seen accurately and reported relative to the desired result.

Generic measurements for any process are quality, cost and delivery. Most operations need a balanced measurement set to prevent optimizing one metric at the expense of overall process health. Metrics also can drive the wrong behavior if conducted outside the general enterprise needs. Adding a people measurement ensures a balance between task and people management when appropriate.

For example, consider the most recent customer satisfaction survey form you received. Do you think a summary of survey responses accurately assesses what you experienced in your purchase process? I guess that your answer is no. The wording of surveys is often so that the responses will be satisfactory but don't provide insight into what happens in a process.

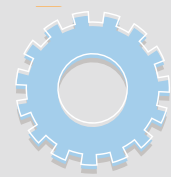
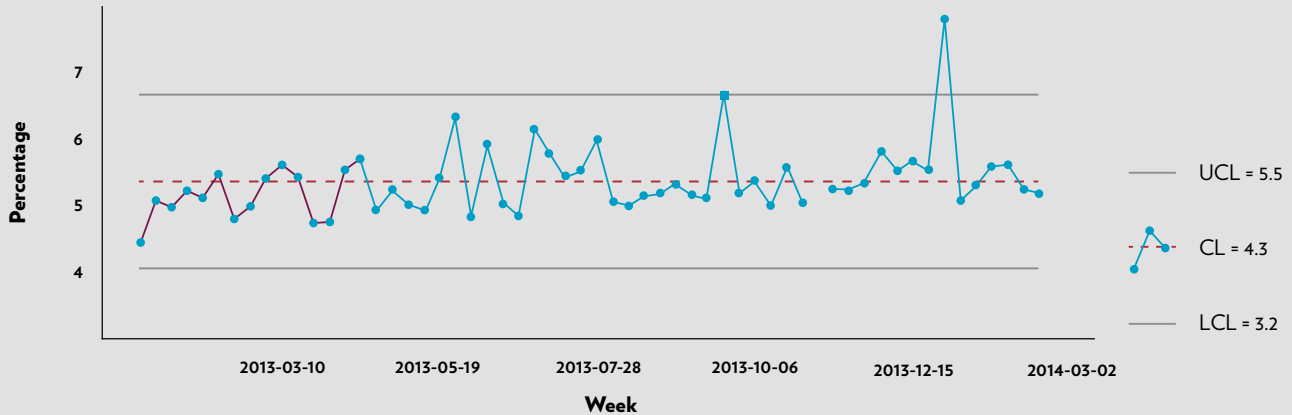


FIGURE 1

# Overall wastage

I-chart of data



The current process response is predictable.  
The estimated performance is 4.343%.

CL = center line

LCL = lower control limit

UCL = upper control limit

**Note:** This report-out was created using a free 30,000-foot-level reporting app at [smartersolutions.com/free-business-process-management-software](http://smartersolutions.com/free-business-process-management-software).

It's not easy to write effective surveys and evaluate the responses. What we would like to receive from a survey is an honest picture of what is happening in the process, along with providing improvement direction. A comment section in a hotel guest survey, for example, might offer insight into a specific actionable issue or improvement possibility.

Good metrics provide decision-making insight that leads to the most appropriate conclusion and action or nonaction. The objective is to create a measurable, auditable, sustainable and consistent entity. Effective and reliable metrics should have and provide:<sup>2</sup>

- Business alignment.
- Honest assessment.
- Consistency.
- Repeatability and reproducibility.
- Actionability.
- Time-series tracking.
- Predictability.
- Peer comparability.

Metric use requires commitment and resource allotments. Hence, it is essential to do it right. Organizations must avoid

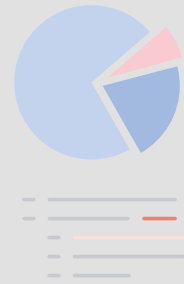
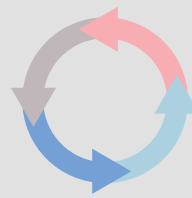
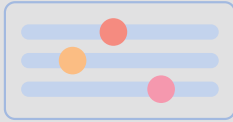
measurement design and use errors when striving to become more metric driven. Common mistakes include:

- Creating metrics for the sake of metrics. Lloyd S. Nelson, director of statistical methods for the Nashua Corp., stated: "The most important figures needed for management of any organization are unknown or unknowable."<sup>3</sup>
- Formulating too many metrics results in no actions.
- Lacking metric follow-up.
- Describing metrics that do not result in the intended action.
- Creating metrics that can have emotional manipulation.

If not exercised effectively, metrics can become a dark force in which bad stuff absorbs good energy—that is, a black hole where good resources are lost.

## Selection of quality metrics to report

The reporting of quality metrics should be more than just a number reported periodically (for example, monthly), but instead a series of measurements over time that are important to the customer and the organization. Reporting these metrics must be transparent and honest, where there



is no fear of any negative consequences if someone provides “bad news,” and there is an owner for each metric. Organizations can achieve this objective if:

- The organization automatically updates the numbers (for example, daily).
- The performance reporting is from a process output point of view—that is, instead of focusing on reporting how well individuals or departments met numerical goals for each month.

Predictive performance metric reporting is what a 30,000-foot-level free reporting app<sup>4,5</sup> provides to quality metrics and other business measurements. With this form of reporting, you might notice that organizational reaction to not meeting a monthly target has led to firefighting common-cause variability as though it were special causes.

With a traditional management by objective approach of monthly metric goal setting, you might notice for a specific 30,000-foot-level of measurement that nothing has changed for the past 16 months. During this time, there has been about a 12% noncompliance rate for achieving a monthly targeted goal. You could also expect this rate to continue unless there was an improvement in the process or processes affecting this metric.

One way to determine what quality metrics to report in an organization with a 30,000-foot-level report-out format is to ask the following question in a team environment: “What is essential to you as a customer of a product or service you purchased?” The list of answers should provide insight into what high-level metrics you should not only track, but also where to focus process quality-measurement improvement efforts.

A list of items to consider to initiate this discussion is:

- Return rate of products from the customer.
- On-time customer delivery.
- Product shipment errors.
- Product lead time to customer.
- Internal rework rate before shipment.
- Customer satisfaction.
- Warranty claims.
- Product dimensions or performance relative to specifications.

- Quality nonconformance costs.

After creating this list, you should determine how to report (for example, monthly over many years) the metric from a 30,000-foot-level perspective. For example:

- **The return rate of products from the customer:** Report the proportion of returns divided by the number of products shipped. A Pareto chart of the reason for returns would be helpful to gain insight into what to do to improve the process so that this return rate decreases in the future.
- **On-time customer delivery:** It is preferable to track this metric at a 30,000-foot level using a continuous response when assessing process stability and noting the performance from the latest stability region as the proportion of deliveries that were not on time. You would expect the future performance of this non-on-time arrival rate to be similar unless there was a different execution of the process.
- **Internal rework rate before shipment:** This hidden factory metric could be reported weekly as the frequency of occurrence.
- **Customer satisfaction:** In addition to a Likert scale of one to five relative to customer satisfaction, you could ask the customer whether he or she would recommend the purchased product to someone else. An organization could use a scale of one to 10 for this assessment in which 10 is “definitely would recommend” the product or service.

An organization could track the frequency of unsatisfactory and satisfactory responses to these questions monthly. Evaluating survey complaints can provide insight into improvement opportunities.

- **Quality costs:** A traditional cost of quality metric quantifies costs in prevention, appraisal, and internal and external failure. This conventional assessment, however, can be labor intensive. Because of this, an organization may conduct this assessment only once. As an alternative, you could consider these areas but do a monthly sampling to estimate and document in a spreadsheet the implication of all metrics that are chosen relative to quality, including other metrics that might not have a traditional

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quality cost consideration, such as on-time delivery. This total reported quality cost metric could combine various quality costs to provide one 30,000-foot-level report-out metric. Understanding how to improve a process is often achieved by drilling down to more specific area costs.

### Quality metric with demonstrated improvement

A 30,000-foot-level quality report-out is not simply a traditional control chart. This high-level performance scorecard reporting will take different formats depending on the data type. Still, in every case, there will be a statement at the bottom of the chart about whether the process output is predictable.

A prediction statement is included at the bottom of the 30,000-foot-level chart for predictable processes. As Figure 1 (p. 49) illustrates, the process is staged when a demonstrated improvement occurs. For this charted attribute response, the three latest plotted points indicate an improvement in process performance—that is, lower response magnitude.

### Summary

Highlights from the described method for quality metric reporting are:

- Select measurements that are important to your customer and the business.
- Report quality metrics from a 30,000-foot-level process point of view to undertake process improvement efforts when an undesirable common-cause response exists.

- Provide a reporting system so there is transparency and updated, accurate information available through a click of the mouse by all authorized throughout the business.
- Have a reporting system that encourages open data entry and discourages “fudging the numbers” to make things look better than they are.
- Link quality metric reporting to the functional processes that created the responses.
- Assign ownership to each 30,000-foot-level reported quality metric—that is, the quality department does not own all quality metrics. **QP**

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### REFERENCES

References included in this column can be found on this column’s webpage at [qualityprogress.com](http://qualityprogress.com).



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