30,000-foot-level Reports with Predictive Measurements

By Forrest W. Breyfogle III

30,000-foot-level charting provides a means to create a predictive measurement statement, which quantifies what internal or external customers of a process are experiencing over time; i.e., Voice of the Customer (VOC). The 30,000-foot-level control chart tracks the output of a process at a high level and is not intended to be used to determine if and when timely process input adjustments should be made.

The 30,000-foot-level metric reporting technique can provide predictive scorecards within an overall Integrated Enterprise Excellence (IEE) business management system. 30,000-foot-level metric[1] reporting addresses issues with many traditional forms of performance reporting, as described in Performance Metric Reporting Issues: 30,000-foot-level Charting Resolution.

A video description of this high-level metric reporting methodology is summarized by Forrest Breyfogle in "Introduction to 30,000-foot-level Reporting Concepts".

A 30,000-foot-level metric might, for example, address the overall customer experience of time spent during checkout at a grocery store. A store would use a more frequent tracking and adjustment mechanism for adjusting associate checker coverage for natural peak-and-valley demand periods. How well this input adjustment is managed could dramatically impact both the customer experience and the companyôs profitability. A 30,000-foot-level chart tracks the impact that this and other process inputs have on the response output.

For a 30,000-foot-level measurement reporting, it is not desirable to simply monitor data over some predetermined recent period of time; e.g., 3 months, 6 months, or 12 months. What is desired is to present time-series data in the report-out at least since the processôlast shift, which can extend for several years.

This assessment is made using an individuals control chart that has infrequent subgrouping and sampling as described in the article Control Charting Issues: Resolution using 30,000-foot-level Charts. With an infrequent subgrouping/sampling plan, the selection of a subgrouping interval for high-level control charts (e.g., 30,000-foot-level) is such that the typical variability from input variables that could affect the response will occur between these subgroupings.

For example, any differences between working shifts, raw material lots, departments, and/or machines that affect our output variable level would be considered originating from common-cause variability. This list of variables could lead us to a daily subgrouping interval, where the data within each subgroup interval would be a randomly-selected datum point or a compilation of data. A control chart strategy would then be created so that the magnitude of the between-subgroup variability affects the lower control limit (LCL) and upper control limit (UCL) calculations.

When 30,000-foot-level control chart has a recent region of stability, one can state that the process is predictable.
A prediction statement could be for the complete time period of the control chart or the last six weeks, if that is when a process shift was demonstrated.

If the process is predictable, we can then make a process prediction statement. This statement will be made on the assumption that nothing changes either positively or negatively in the system. With 30,000-foot-level

reporting, this prediction statement will be in a format that everyone can easily understand; i.e., proportion non-conformance or median response with 80% frequency of occurrence. We should note that if the prediction statement is not what we desire, we need to work at shifting the process to the better; e.g., by creating a Lean Six Sigma project. This strategy is referred to as a 30,000-foot-level metric pulling (using a Lean term) for process improvement or design project creation.

For more information about 30,000-foot-level reporting see:

- 30,000-foot-level Chart Quantifies Process Improvement
- 30,000-foot-level Performance Reporting Applications
- 30,000-foot-level Charting: One Sample per Subgroup
- 30,000-foot-level Charting: Multiple Samples in Subgroups
- 30,000-foot-level Charting: Attribute Pass/Fail Data
- 30,000-foot-level Charting: Infrequent Failures
- 30,000-foot-level Charting: Non-normal Data

References

1. Forrest W. Breyfogle III, *Integrated Enterprise Excellence Volume III - Improvement Project Execution: A Management and Black Belt Guide for Going Beyond Lean Six Sigma and the Balanced Scorecard*, Bridgeway Books/Citius Publishing, 2008

About the Author
Forrest Breyfogle, III
Integrated Enterprise Excellence

In a professional career spanning over a quarter century, Forrest Breyfogle has established himself as a leading edge thinker, a prolific author, an innovative consultant, a world-class educator, and a successful business executive. His work is documented in eleven books and over ninety articles on the topic of quality improvement.

A professional engineer, Forrest is also a member of the board of advisors for the University of Texas Center for Performance Excellence. He is the founder and CEO of Smarter Solutions, Inc., an Austin, Texas based consulting firm offering business measurement and improvement consultation and education to a distinguished list of clients worldwide, including BAMA, CIGNA, Dell, HP, IBM, Oracle Packaging, Sherwin Williams, Cameron, TIMET, and TATA. He served his country on active duty in the US Army for 2 years, and has played an active leadership role in professional and educational organizations. Forrest received the prestigious Crosby Medal from the American Society for Quality (ASQ) in 2004 for his book, *Implementing Six Sigma* (second edition). This award is presented annually by the American Society for Quality to the individual who has authored a distinguished book contributing significantly to the extension of the philosophy and application of the principles, methods, or techniques of quality management. Mr. Breyfogle was named Quality Professional of the Year for 2011 by Quality Magazine and in 2012 was awarded alumni of the year by Missouri University of Science and Technology.

He is a widely recognized authority in the field of management improvement and is a frequent speaker before professional associations and businesses. His earlier work in the field of management science has been widely acclaimed. A previous book, *Implementing Six Sigma*, sold over 40,000 copies and still ranks among the top Amazon books in Applied Mathematics/Engineering Statistics and Industrial Engineering /Quality Control.

He founded Smarter Solutions in 1992 after a 24-year career at IBM. The associates of Smarter Solutions specialize in helping companies throughout the world improve their bottom line and customer satisfaction through the implementation of techniques that are beyond traditional Lean Six Sigma and the balanced scorecard methodologies. His latest and most extensive work has been in the documentation of a new system of enterprise management, the Integrated Enterprise Excellence (IEE) system, in a series of four books. IEE provides a detailed roadmap that builds on and integrates the best practices of earlier disciplines like Six Sigma, Lean, TQM , PDCA, DOE, and TPS combined with innovative analytical tools to produce improvements at the highest level of an enterprise.

In addition to assisting hundreds of major clients in the wise implementation of improvement systems worldwide, Forrest has also developed over 300 hours of classroom instruction used to train executives, managers, and Black Belt practitioners to plan for, implement, and manage IEE systems. He also leads formal seminars and workshops worldwide.

Forrest Breyfogle
forrest@smartersolutions.com
512-918-0280 x401
www.smartersolutions.com