

**A 21st Century Framework for Malcolm Baldrige Award Achievement:
Integrated Enterprise Excellence
Going Beyond Lean Six Sigma and the Balanced Scorecard**

PART TWO



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Are Measurements Leading to the Right Activity?

One common type of scorecard uses red, yellow, and green to show whether immediate actions are needed relative to meeting established objectives:

- Green: Meets all of the standards for success.
- Yellow: Achieved some, but not all, of the criteria.
- Red: Has any one of a number of serious flaws.

Goals are important but arbitrary goal setting and management to obtain these goals can lead to the wrong behavior!

Let's discuss the presentation of red–yellow–green scorecards in the format shown in Figure 3. There are many metrics, grouped by business area. Also, many are colored red and metrics even transition from red to green and back. Finally, there are a great many metrics for one scorecard. These are all serious shortcomings.

Effective, long-lasting process improvements are not made by firefighting. They come from examining all common-cause output data collectively to determine what should be done differently in the overall process, as opposed to assessing the points that are beyond the criteria as individual occurrences. This analysis for determining what can be done to improve can be accomplished through execution of a P-DMAIC project.

IEE scorecard/dashboard tracking, which first assesses whether there is common-cause or special-cause variability, is accomplished through the following process:

- Assess process predictability; i.e., is the process stable or in statistical control?
- When the process is considered predictable, formulate a prediction statement for the latest region of stability. The usual reporting format is:
 - When there is a specification requirement: nonconformance percentage or defects per

- million opportunities (DPMO).
- When there is no specification requirement: median response and 80 percent frequency of occurrence rate.

Applying the IEE scorecard/dashboard metric reporting process to the Figure 3 data set yields the following:

- As previously stated, the purpose of charting is to stimulate improvements when appropriate. Figure 4 provides an IEE assessment of how well this is accomplished. When there are no data points beyond the upper and lower control limits, no patterns or data shifts, the process is said to be in control. When this occurs, we have reason to believe that the up-and-down variability is from common-cause variability; that is, the process is predictable. Since this process is predictable, we can consider past data from the region of stability to be a random sample of the future!
- The histogram shown in Figure 4 is a traditional tool that describes the distribution of random data from a population that has a continuous response. However, it is difficult to determine from a histogram the expected percentage beyond a criterion. A probability plot is a better tool to determine the nonconformance percentage. In a probability plot, actual data values are plotted on a coordinate system where percentage *less than* is on the y-axis. The probability plot in Figure 3 provides an estimate that approximately 32.6 percent of future monthly reporting will be less than the lower-bound criterion, unless a fundamental process improvement is made or something else external to the process occurs. We also observe that this percentage value is consistent with an estimated proportion below the 2.2 reference line in the histogram, and is also similar to the percentage of red occurrences; that is, 5 out of 13. If this nonconformance percentage of 32.6 percent is undesirable, this metric would pull for project creation.

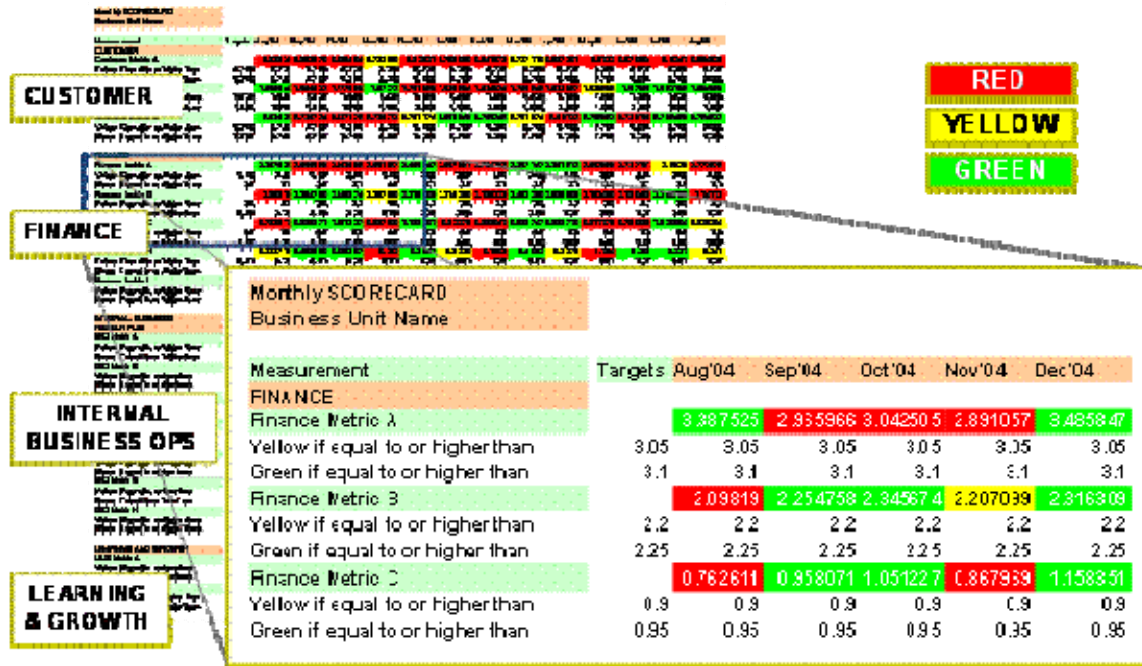
IEE Benefits as a Framework for Malcolm Baldrige Award Achievement

IEE is more than an enterprise governance system. It also provides the tools to solve tough problems. IEE techniques helped one company use design of experiments (DOE) to fix a 12-year-old biscuit crumbliness problem in a fast food chain. Another DOE resolved a major die breakage problem in an aluminum extrusion process, resulting in increased throughput for the entire plant. Another company was able to eliminate several warehouses because of improved process flows.

The E-DMAIC system, which starts with the define and measure phases, provides a framework for implementing practices that are consistent with the Baldrige Award criteria. When building an IEE structure, use of the concepts described in the Baldrige Award application helps create a long-lasting business measurement and improvement system that is robust to future organizational changes.

Many articles in the “Online Resource Center” at www.SmarterSolutions.com provide elaboration on various aspects of IEE.

Figure 3: Reproduced with permission.



Red-yellow-green tabular scorecard example

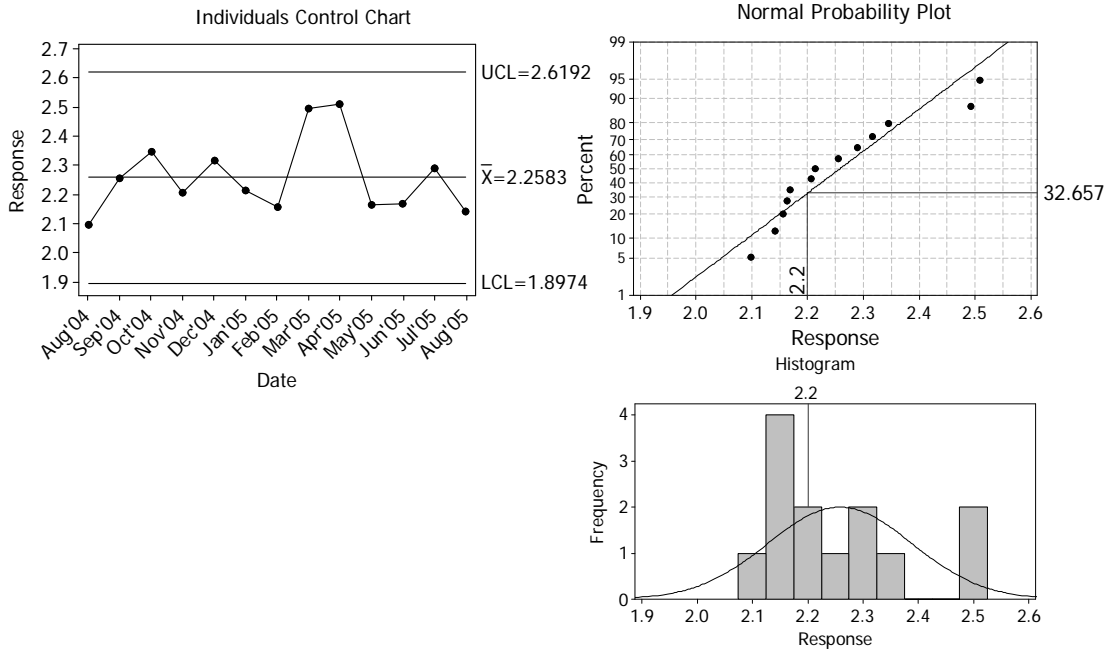
From *The Integrated Enterprise Excellence System: An Enhanced, Unified Approach to Balanced Scorecards, Strategic Planning, and Business Improvement*, Forrest W. Breyfogle III, Bridgeway Books, copyright 2008 (Table 2.5 in the book)

Figure 4: Reproduced with Permission

Traditional Performance Reporting Example – Red-Yellow-Green Scorecard

	Targets	Aug'04	Sep'04	Oct'04	Nov'04	Dec'04	Jan'05	Feb'05	Mar'05	Apr'05	May'05	Jun'05	Jul'05	Aug'05
Finance Metric B		2.10	2.25	2.35	2.21	2.32	2.21	2.16	2.49	2.51	2.16	2.17	2.29	2.14
Yellow if equal to or higher than	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
Green if equal to or higher than	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25

IEE Improved Reporting for Process Assessment and Improvement



Predictable process with an approximate 32.6% nonconformance rate
 (i.e., Using the current process, Finance Metric B will be below 2.2 about 1/3 of the time.)

**Illustration of IEE-improved finance metric B continuous response reporting:
 Red-yellow-green scorecard versus IEE reporting
 (Histogram included for illustrative purposes only).**

From *The Integrated Enterprise Excellence System: An Enhanced, Unified Approach to Balanced Scorecards, Strategic Planning, and Business Improvement*, Forrest W. Breyfogle III, Bridgeway Books, copyright 2008 (Figure 6.2 in the book)