

Six Sigma: Uncovering Hidden BI Assets

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In this series of columns, we have been discussing the TBIA Business Intelligence Capability Maturity (BI-CMM) Model, which provides a foundation for evaluating and improving BI quality. Six Sigma BI combines the strengths of the Six Sigma approach with the audit and improvement blueprint in the TBIA BI-CMM to create the highest quality, lowest cost BI assets. Six Sigma BI is a customer-focused, metrics-based approach that refers to a better and smarter way of creating and managing BI assets. Six Sigma means putting the customer first and striving for a product that is near perfection. Six Sigma principles have produced significant results in the business world for years. Using a Six Sigma approach to improving the quality of BI assets can provide more value to an organization than any number of new BI applications.

What is Six Sigma?

Six Sigma describes a measure of quality that reflects a goal of near perfection. The Six Sigma Way is a disciplined, data-driven approach and methodology for eliminating defects and improving quality. Six Sigma is a statistical term that, in effect, translates as "near perfection." A Six Sigma goal means the product is 99.9997 percent defect free (68 percent = 2 Sigma; 93 percent = 3 Sigma, 99.4 percent = 4 Sigma; 99.5 percent = 5 Sigma). Sigma means standard deviation which is a statistical term that describes how much variation exists in a set of data. Thus, we may set a goal of 3-second response time for a certain category of query. Striving for Six Sigma quality would mean that if we measure response time for 10,000 queries, we want to find that 9,997 of those queries would meet the goal of a response time of 3 seconds or less. (Actually, we usually speak in terms of a million opportunities (i.e., queries). So, the definition is not quite accurate. There are also other aspects to the measurement process – i.e., short-term versus long-term variations in the data, etc. However, the basic principle is to strive for a near perfect product.)

The Three Aspects of Six Sigma BI



Figure 1

Applying Six Sigma to BI requires a new approach to the creation and management of BI assets. Understanding the BI customer, defining the goals for BI success, and the integrating the Six Sigma principles are all keys to success. Customer needs are crucial. Near perfection is the goal. The blueprint for achieving a Six Sigma level BI includes an iterative improvement process, which is based on metrics, monitoring, analysis and control. Three primary aspects of a Six Sigma BI initiative are:

1. **Focus on the customer.** Who is the customer? What are their perceptions and expectations for a quality BI product? We will need to define and monitor the product factors that are critical to quality for the customer.
2. **Push for perfection.** Develop and use a rigorous, iterative, metrics based program for creating, monitoring, managing and improving the BI product and assets.
3. **Understand the BI assets.** Define, understand, audit and assess the BI assets. Identify and relate the underlying factors within the BI asset base to those factors which have been identified as critical to quality for the customer in the product.

In this first column on Six Sigma BI, I will concentrate on the first aspect: focus on the customer. Who is the customer? How exactly do we focus on the customer and where does this fit into the program for improving the BI product and the creation and management process.

Focus on the Customer

Who are the customers of BI? We need to identify them and clarify their roles and responsibilities. From the perspective of the Six Sigma process,

there are two classes of customer who are crucial to the quality improvement process:

1. **The end user of the BI product.** The end users of the BI product are most often people within the organization who rely on the information to do their jobs. This class of customer may also include people outside the organization who use the BI in ways that have been designated by the organization. For example, they may check their account information, pay bills, etc. The customer could also be an automated system which uses the information to manage and/or control some set of functions for the organization. Each of these customers will have specific requirements for their BI product.
2. **The organization.** The organization is an important customer, with very specific and crucial requirements. In order to clarify, understand and meet these requirements, we must translate this customer into a tangible entity which can speak for the organization. The most helpful way will be a team of management and specialists who can define and clarify the organization requirements.

Identify the critical to quality factors. Focusing on the customer requires that we describe the BI product and identify those factors which are critical to quality for each customer. What are the most important factors of the BI product to the customer? Improvement of the product can best be accomplished when we can identify what the customer perceives as critical to product quality. If we believe that five characteristics of the BI product need improvement and the customer believes that only one of these characteristics is important, then we will know where to concentrate our efforts to the best results for the customer. We also will need to monitor these critical to quality factors in a program which seeks to both improve the product quality and to ensure that the product continues to meet the defined level of quality.

Translate the CTQ factors into metrics. In order to use the critical to quality factors in any monitoring and improvement process, they must be stated in tangible and measurable terms. The CTQ factors must be metrics which are relevant and reflect the requirements which have been identified by the customers. In other words, we need to translate the customer requirements for quality within the product into measurements that can be used to monitor product quality. A simple example of such a measurement for the end-user customer might be time required for a query response. For the organization customer, the quality factors will more likely include factors like alignment to business goals. (Review more CTQ factors in the next section of this column.)

Create service level agreements and monitor the CTQ quality factors.

The factors that are identified as critical to quality should be described as tangible metrics and incorporated into agreements with the customer. This will help to ensure that there is a real understanding of the quality factors and that there is a common agreement related to levels which can be monitored.

Critical to Quality Factors

Within the Six Sigma BI process for quality improvement, those factors that are identified as critical to quality for the customer are most often designated as the "X Factors." (The "Y Factors" refer to the related causal factors which can usually be identified during an audit of the BI assets.) Some of these X factors are:

For the category 1 customer (i.e., the end user):

- **Performance.** Response time is the probably the most relevant performance factor for the customer (i.e., time from request/query for information to receipt of the information).
- **Quality of information.** Is the information accurate, timely, clear, and usable?
- **Meets business requirements.** Does it satisfy the requirements that were defined initially? Is there enough flexibility to meet future expanded requirements?
- **Format.** Is it intuitive and easy to use, from simple reports to power user analytics?
- **Velocity.** How soon is the data available (i.e., from time of data entry into the system to time that quality information is accessible)?
- **Availability and comprehension.** Is the desired information in our information library? Do we have all of it?
- **Support and training.** Do the users get help when they need it?

For the Category 2 Customer (i.e., the organization):

- **Satisfaction of business objectives.** Do the available information and analytics satisfy the organization business goals (i.e., alignment with business goals)?
- **Quality of information.** What are the expectations of management? Is the information accurate, timely, integrated and up to date?
- **Velocity.** How soon is the data available (i.e., from time of data entry into the system to time that quality information is accessible)?
- **Availability and comprehension.** Is the desired information available when it is needed? Do we have all of it (i.e., comprehension and accessibility of "integrated, harmonized information")?
- **User understanding and satisfaction.** Are the service level agreements for end users accomplishing the goals? Are users being trained? What is the category 1 customer satisfaction level?

- **Cost to benefits received.** Can we afford it? Is it worth it?

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