

Improving Business Intelligence: The Six Sigma Way

A New Perspective: Focus on the Customer, Strive for near Perfection and Evolve toward Six Sigma Business Intelligence.

by **Dorothy Miller**

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This article describes a rigorous, audit based approach to achieving Business Intelligence excellence. Six Sigma principles and the Business Intelligence Capability Maturity Model are used to extract the hidden value from current assets and to reach new levels of success.

Six Sigma Business Intelligence

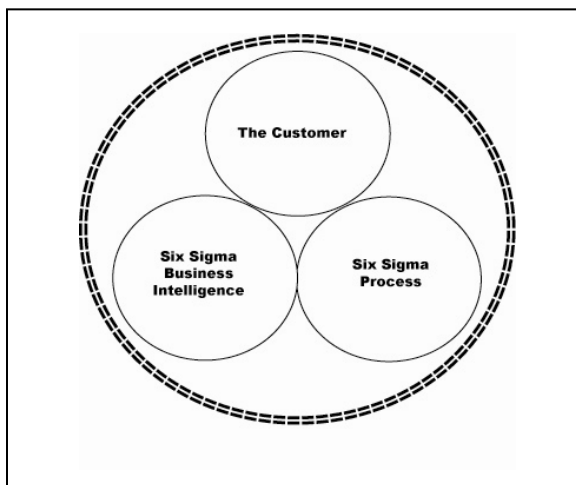
Six Sigma Business Intelligence is customer focused and is a measurement based approach to improving Business Intelligence. This Six Sigma Business Intelligence approach to auditing and improving current BI assets can provide more value to an organization than any number of new Business Intelligence applications. Six Sigma refers to a way of managing business which is better and smarter. Six Sigma means striving to produce a product which is near perfection. Six Sigma means putting the customer first. Six Sigma also is a process which uses numbers and measurements in a focused effort to reach clearly stated goals. Six Sigma has been used in the business world for years and has produced significant and frequently amazing results. In the late 1990's, Jack Welch at GE demonstrated just how successful Six Sigma can be. From 1996 to 1998, GE went from costs of \$200 million and returns of \$150 million to costs of \$400 million and returns of more than \$1 billion. Jack Welch was a Six Sigma convert who led his company in changing the way they did business. From his unique position, he transformed his company by focusing on customer needs and working smarter using Six Sigma principles and processes.

Despite the immense success in the business arena, Six Sigma principles and methods have not been freely translated over into Information Technology. Business Intelligence is an excellent place to begin and the time is now. A rigorous program which focuses on the customer, measures and uncovers hidden costs and problems, and uses Six Sigma principles can bring more value to the organization than any number of new Business Intelligence applications.

The Three Aspects to Six Sigma Business Intelligence

Applying Six Sigma to the Business Intelligence world requires a new approach to the creation and management Business Intelligence Assets. Understanding the Business Intelligence Customer, the Goals for Business Intelligence, and the Six Sigma principles are key to success. Customer needs are top of the list. Near perfection is the goal. Data, measurement, analysis, and control is the process blueprint for achieving Six Sigma level Business Intelligence.

The three aspects to a Six Sigma Business Intelligence Initiative are:



1. Strive for a Six Sigma Business Intelligence product. i.e. the goal is near perfection.
2. Identify the customers for Business Intelligence and define their critical to quality (CTQ) needs.
3. Define and follow a Six Sigma improvement process which
 - a. has strong management support
 - b. focuses on the customer's needs,
 - b. is based on six sigma principles, including – data, measurement, analysis and control
 - c. is iterative and evolutionary
 - d. is pervasive across the Business Intelligence arena.

The Business Intelligence Customer

There are two categories of Business Intelligence Customer – the end user and the organization. Both are important and the critical needs of each must be addressed as a top priority. Everyone can understand the designation of the end user as a customer. However, if we focus only on the end user, the organization does not get the full value of Business Intelligence. Special umbrella requirements, such as the alignment of Business Intelligence to business goals may be neglected. The two categories of customer are described further below:

1. The end user of the Business Intelligence.

These are the people and systems who use the Business Intelligence. These customers may be internal to the organization. They use the Business Intelligence in the operations and management of the business. There may also be direct users of the Business Intelligence who are external to the organization. These customers use the Business Intelligence in ways which have been designated by the organization. For example, they may check their account information, pay bills, etc.

2. The organization.

There are many factors which are Critical to Quality for the organization, but which will not be addressed at the parochial level of the individual Business Intelligence end user. The organization must be recognized and treated as a customer for Business Intelligence. Only at the organization level will we begin to impact of the overall goals for profitability and competitiveness in an external, global marketplace.

For each category of customer, we need to identify and describe the Business Intelligence goals and objectives. We need to define those factors which are Critical to Quality (CTQ) to that customer. These CTQ factors should be documented and there should be a signed agreement between Information Technology and the Business Intelligence Customer. In most cases, there are already some clear best practices and industry standards which support a Service Level Agreement for individual Business Intelligence applications between IT and customers. Aiming for Six Sigma Business Intelligence means expanding these Service Level Agreements to the organization customer. That organization level customer will have to be transformed into a tangible entity by creating a management team with Six Sigma Business Intelligence responsibilities. The *business* requirements for individual end users are most often defined during the Business Intelligence Application Development Process. The Critical to Quality (CTQ) factors should include not only a continuing satisfaction of the stated and implied business requirements, but also such measurable topics as:

- Performance (response time),
- Quality of the Information, i.e. accuracy, timeliness, clarity
- Availability and comprehension of the data
- Satisfaction of Business Requirements

These and other relevant CTQ factors should be identified with the help and agreement of the Customers. Service Level Agreements should be written. There are two major criteria for the CTQ factors:

1. They must, in fact, be critical to a quality product, and
2. Each must be measurable and the measurement data to be used must be clearly described.

The Six Sigma Business Intelligence Product

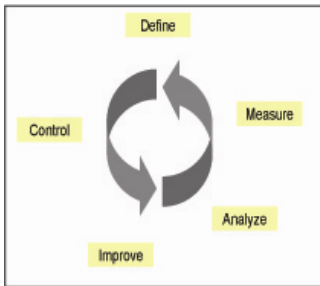
Six Sigma is a statistical term which in effect translates as 'near perfection'. A Six Sigma goal means the product is 99.9997 percent defect free. (68% = 2 Sigma; 93% = 3 Sigma, 99.4%= 4 Sigma; 99.5%= 5 %). Sigma (σ) means 'standard deviation'. Standard deviation is a statistical term which describes how much variation exists in a set of data. Thus, we may set a goal of 3 seconds 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 second or less. (There are some other aspects to the measurement process, i.e. short term versus long term variations in the data, etc. However, the principle is 'strive for near perfect'.)

There are a number of reasons to set a goal of near perfection for the Business Intelligence Product.

1. Setting the goal high means striving to achieve excellence.

2. The Business Intelligence end product is comprised of a spider web of parts. The Business Intelligence product is only the end result which is seen by the customer. There are infrastructures, processes, and a myriad of 'under the hood' systems which allow for the creation, management and presentation of that Business Intelligence product. Each of these underlying components may have defects which impact the final product. The quality of each of these parts and the resulting combination impact the quality of the Business Intelligence end product. Setting a goal of near perfection for each means that there can be a reasonable expectation for the highest quality of the end product.
3. Business Intelligence is of critical importance to the organization. The inherent quality of the Business Intelligence product can dramatically impact the success of the organization.

The Six Sigma Process

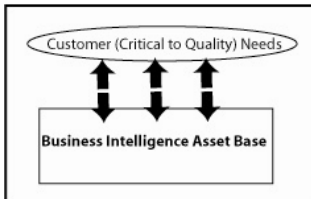


The Six Sigma process is based on the application of rigorous rules and measurement and monitoring of carefully identified data. One of the most relevant Six Sigma methods for Business Intelligence may be simply designated as the DMAIC process. The name is derived from the steps of the process.

The DMAIC Process

1. Define the goals. These must be based on the factors which have been identified as Critical to Quality (CTQ) for the Customer. These must be specific and measurable.
2. Measure the identified factors, Collect the data. For example, *performance* may be one of the Critical to Quality (CTQ) factors for Customer Satisfaction.

We can define the measurement for 'performance' as response time, i.e. the time from a request for information (query) to the time the information is returned to the requestor. Thus, we now have a measurement for 'performance' which is tangible and measurable. Now, we need to monitor and measure the CTQ factors to determine whether customer needs are being met.



In order to determine what is causing any fluctuation in these CTQ measurements, we need another set of measurements. This second set of measurements is defined and collected using an audit of Business Intelligence assets at a detailed level for all components and subunits. The Business Intelligence Capability Maturity Model, which is a blueprint for the Business Intelligence Audit, may be used to perform this detailed audit of the Business Intelligence Asset Base.

3. Analyze. Determine what the CTQ measurements tell us about how the customer needs are being met. What do those CTQ measurements tell us about the response times. How well are we performing and are the Customer quality needs being met? We then have to identify all the factors within the Business Intelligence Asset Base which can impact those response time numbers. Thus we review the results from the Business Intelligence Audit and correlate each to the Critical to Quality (CTQ) needs of the Customer. What has been identified during the Business Intelligence Audit which is relevant to and/or impacts the Customer CTQ needs? What exactly are the reasons for anything less than our Six Sigma goals? Identify specific 'pain points' and impacting factors. What can we do to 'make things better'? What should we do? How should we prioritize any actions?

4. Plan and Improve. Plan for improvement. Identify the actions required for improvement based on the Business Intelligence Audit. Prioritize the Improvement Action Plan based on the impact and relevancy of each identified issue to the Critical to Quality factors for the Customer. We will rate those CTQ factors. Then we can build a plan to improve Business Intelligence based on resolving the underlying issues in order of their importance to the Customer.

Dorothy Miller, MBA, is the President and Founder of TBIAS, a consulting group focusing on Six Sigma Business Intelligence and Business Intelligence auditing. Dorothy has been in Information Technology for over 25 years. She is the author of Measuring Business Intelligence Success, and numerous articles in the field. Her newest book, Six Sigma Business Intelligence will be available in April, 2008. She may be reached at DMiller@6SigmaBI.com.