

## Executive Summary:

Today's executives are highly aware of Six Sigma and how it has helped their organizations achieve a higher level of success. Many companies that have achieved this success are applying Six Sigma techniques and principles to the IT department. Given that, IT management is now faced with trying to understand Six Sigma and how it is applicable to their departments.

## What is Six Sigma?

Six Sigma is comprised of three major components.

The first major component of Six Sigma is that it is a **management philosophy**. Six Sigma is a data-driven quality management program designed to control variation. It is a customer-based approach focused on reducing defects. Fewer defects create high levels of quality resulting in lower costs and improved customer loyalty. The lowest cost, highest value producer, is the most competitive provider of goods and services. Six Sigma provides a set of tools and techniques to achieve your strategic business goals.

**Six Sigma** refers to six standard deviations in statistical measurement. This represents a defect rate of 3.4 failures per million units or opportunities. The processes followed by Six Sigma result in multiple projects that improve processes and measure the results of the improvement. Individual Six Sigma projects do not necessarily achieve 3.4 defects per million or less. However, they are designed to achieve an improvement in the current processes that can be measured against this goal.

The third major component of **Six Sigma** is that it is comprised of a **process** designed to achieve its statistical goal. The Six Sigma process is known as DMAIC, which stands for Define – Measure – Analyze – Improve – Control. However, before launching projects based on this process, Six Sigma requires leadership and organizational education. This is defined as Step 0 within the process.

**Step 0 – Six Sigma Leadership:** Business leaders that sponsor and initiate Six Sigma projects are called “Champions.” Champions are responsible for support and integration of Six Sigma into their company. Champions are trained in Six Sigma methodology. Their role is to select and coach Six Sigma project leaders. Project leaders are ranked using a system similar to that found in the martial arts. The leaders with the most significant expertise and experience are ranked as “Black Belts”. Project Champions are responsible for ensuring that the Belts have proper training and resources for Six Sigma projects.

**Step 1 – Define:** DMAIC is a method of either solving a problem that has not been solved before, or that is still not achieving the measurable success desired. Therefore the problem needs to be defined in concrete operational terms. During the Define step, the project team identifies the business objectives of the project, the customer audience that will be using the project, the customer needs and the requirements in this area of business. The team also identifies the CTQs in Six Sigma terminology. CTQs (Critical to Quality) are the key measurable characteristics of a process that must be met to satisfy the customer. These are the characteristics that have the most impact on quality. An example of a CTQ for a help desk may be the support person's responsiveness. The measurement in this case may be the time the customer is on hold. This would define the metric we want to track and see improvements on. Following this, the team maps out the process needing improvement.

**Step 2 – Measure:** The Belt, who leads the project, determines the initial project objectives as well as the ability to measure the improvements. When the project is clearly defined and has a measurable goal, the Key Process Steps and Key Inputs for each process are identified. The team then considers the impact (in terms of current defects) each Key Input has on the CTQs. Key Inputs are assigned priority levels, and the ones with higher priority are studied in depth. The Belt working with the project team determines the possible ways the process can generate a defect. Once causes for input failures are identified, the team can plan the corrective actions.

Establishing proper metrics from the beginning of the project is an important part of this step. Accurate and reliable metrics are determined and used to track the progress.

**Step 3 – Analyze:** Through analysis, the team determines the causes of the problem and how to eliminate the gap between existing performance and the desired level of performance. Identifying the key variables that most likely create process variation helps to surface and discover how defects are generated.

**Step 4 – Improve:** This phase is often the most enjoyable part of the project, but is also the most difficult. Once defects and problem causes are determined in the Analyze step, the team finds improvement solutions. Often simple process experiments and simulations bring the most gains during this step.

The team identifies what will happen if needed improvements are not made and what will happen if the improvements take too long. Additionally, an analysis of the potential improvement approaches and expected impact on the identified metrics by approach is conducted. At times, a single improvement is expected to achieve the desired results. At other times, multiple improvements are required and the expected metric improvements are calculated as a result of the improvement(s) efforts that are conducted.

**Step 5 – Control:** The key goal of this step is to put in place the tools required to ensure that process improvement gains can be sustained over time. The team develops a project transition approach, a plan of action for potential future issues,

and training materials to guarantee performance and long-term project savings. Finally, the team identifies what the next steps are for future Six Sigma process improvement opportunities.

Success of this step depends on how well the team did in the previous four steps. It is highly dependent on the ability to accurately forecast the metric-based improvements expected for each deployed improvement. The calculations, estimates, and tools used to support the improvement decisions must be highly accurate and well thought out to accurately reflect the expected results of the improvement(s).

Ultimately, Six Sigma is data driven approach to process improvement. Six Sigma improves processes by understanding and controlling variation, thus improving predictability of business processes.

## **Is Six Sigma applicable to IT?**

YES ... but there is a danger to applying Six Sigma out of context.

Before Six Sigma processes can be applied, the problem must be well defined. The challenge within IT departments is that many processes may not be well defined. All departments have processes, but they may be different depending on which individual is executing it. Additionally, we may not fully understand the processes we are using.

When processes are ill-defined or not followed, it makes it difficult, if not impossible to measure the processes. The key to Six Sigma is to measure the process. That requires an understanding of the process and also requires the ability to be a repeatable process.

IT departments that attempt to “use Six Sigma” may experience difficulty due to the lack of definition of the current processes. Six Sigma techniques are best applied when IT departments have identified both the metrics and associated processes within their organization. Six Sigma can then be effectively used to improve those processes. To achieve the increased performance Six Sigma promises, IT processes that support the business goals should be documented and deployed.

## **This is where Alcyone can help.**

The Alcyone Process Framework for IT Effectiveness is an end-to-end view of all the IT Processes needed in today’s dynamic IT Organizations. The processes are based on ITIL (IT Infrastructure Library) and CobiT (Control Objectives for IT.) [Read our white paper on *Getting in Control* for more information.] Our industry standard view of the IT Processes combines the best practices of ITIL and the Regulatory requirements of CobiT. Using this framework, the IT Organization can more effectively identify the IT Processes that support the objectives of the Board of Directors.

Many of the IT Processes defined in ITIL are well understood with detailed best practices and software solutions. Incident Management and Change Management are two examples of strongly supported processes within ITIL. Alcyone helps organizations understand and deploy those best practices rapidly and effectively. This becomes an effective technique to accelerate your Six Sigma journey in those areas.

While ITIL provides a solid set of processes, there are some processes that are not as well understood across the industry. Storage Allocation and Infrastructure Engineering are two of those processes that can be the most challenging to deploy within IT environments. To effectively deploy these processes, Alcyone's TQM Six Sigma experts can develop the processes within your organization while achieving your Six Sigma goals.

## **In conclusion**

Six Sigma is the structured application of tools and techniques applied on a project basis to achieve sustained strategic results. Alcyone can help you effectively apply these techniques to your IT department.