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Six Sigma: Do You Need It?

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Is Six Sigma for a small company or for a large company? Do I need a lot of money to implement Six Sigma? Am I ready to implement Six Sigma in my department? Where do I start? What do I need? What help is available? Even more important, why should I implement Six Sigma? All of these questions must be answered when considering the Six Sigma initiative for your company.

In such economic times, these questions make sense from both an investment perspective and a business needs perspective. In tough economic times, the focus must be on improving processes and profitability. Six Sigma is a wonderful tool for realizing dramatic improvement. However, in good economic conditions, Six Sigma is also very important because it helps to improve processes through employee participation and is an excellent tool for improving employee morale.

Why would a company pursue Six Sigma? Studies have shown that, when companies have implemented Six Sigma methodology, they have improved their processes by as much as 100 percent. Traditionally, people seem satisfied with 99 percent performance. However, 99 percent performance could mean 20,000 lost articles of mail per hour; two short or long landings at major airports each day; or 200,000 wrong drug prescriptions each year.

Six Sigma implies 3.4 defects per million opportunities, which is almost perfect work. Jack Welch, CEO of General Electric, has said that such a quality drive requires the passionate commitment of all employees to achieve dramatic results. Improvement in quality increases employee and customer satisfaction, improves profitability and enhances reputation. Welch has shown the highest level of passion in implementing Six Sigma successfully at GE.

A profitability equation has two elements: cost of goods sold and price of goods sold. The price of goods is determined by capacity, quality, demand and reputation. The cost of goods includes cost of material, processes, equipment and people. To improve profitability, one needs to increase sales and reduce cost. Typically, excessive cost includes factors such as inefficiencies, rejects, rework, scrap, process inefficiencies, maintenance and other support operations. The reduction in cost of goods to be sold improves the price of sales. So one needs to look for opportunities in the area of cost of goods. Opportunities are manifested in the form of wasted resources such as time, equipment, material, facility and maintenance.

The first step in implementing Six Sigma in a company is to identify opportunities for improvement by estimating waste of resources such as material, people, machine or space. To identify opportunities, one needs to have some measurements to assess realization of expected process or business objectives. Table 1 summarizes typical steps to implement Six Sigma.

Steps	Actions	Results
Measure	Establish critical characteristics, targets and improvement goals	Identify areas needing most improvement, helpful in identifying projects for Black Belts.
Analyze	Collect data and establish level of inconsistencies or variation	Quantify excessive variation for Six Sigma implementation
Improve	Identify potential causes, prioritize and remove trivial ones	Determine effects of key variables, reduced undesired effects (waste) and optimized process recipes
Maintain (Control)	Implement control chart methodologies to contain process variation	Realize benefits of improved process and reduced cost of operation
Monitor	Identify new opportunities	Take ownership of the process

TABLE 1: Typical steps in implementing a Six Sigma initiative.

Once the opportunities have been identified, their impact can be assessed (Table 2).

Project Description	Performance Impact: Low (1), Medium (3), High (9)	Potential Savings (annualized)	Ranking
Increase molding process yield	High reject rate, low throughput (9)	$300,000	2
Streamline sales process	Delays in getting order to factory (9)	$100,000	4
Streamline assembly process	Low throughput (9)	$150,000	3
Streamline warehouse operations	High inventory levels (9)	$500,000	1

TABLE 2: Analyzing opportunities for improvement and their impact on potential savings.

Based on the scope of savings, one can decide how much can be invested economically to realize these savings. Even specific criteria may be set up to evaluate opportunities and for resource planning. Based on the complexity of the problem or opportunity, qualified Six Sigma Green Belt or Black Belt resources may be assigned to the project.

One can develop a process flow diagram and establish defect level, cycle time and opportunities. Sometimes, one needs to review fundamentals of the product design, as many problems are design related. Designing for Six Sigma-utilized methodologies such as quality function deployment, failure mode and effects analysis (FMEA), risk mitigation, design for assembly and design for manufacturability is advisable. The purpose of this design is so the process can produce without any defect.

Understand that opportunities do exist for dramatic improvement in any business. Management must recognize low-hanging fruits and reap benefits. Chronic problems that have a major impact on the process must not be ignored, as they represent great opportunities for great results. The Six Sigma initiative must be viewed as a serious commitment of resources to achieve serious results. Six Sigma training alone will not provide the best results; rather, a commitment to improve using Six Sigma training will produce desired profitability.