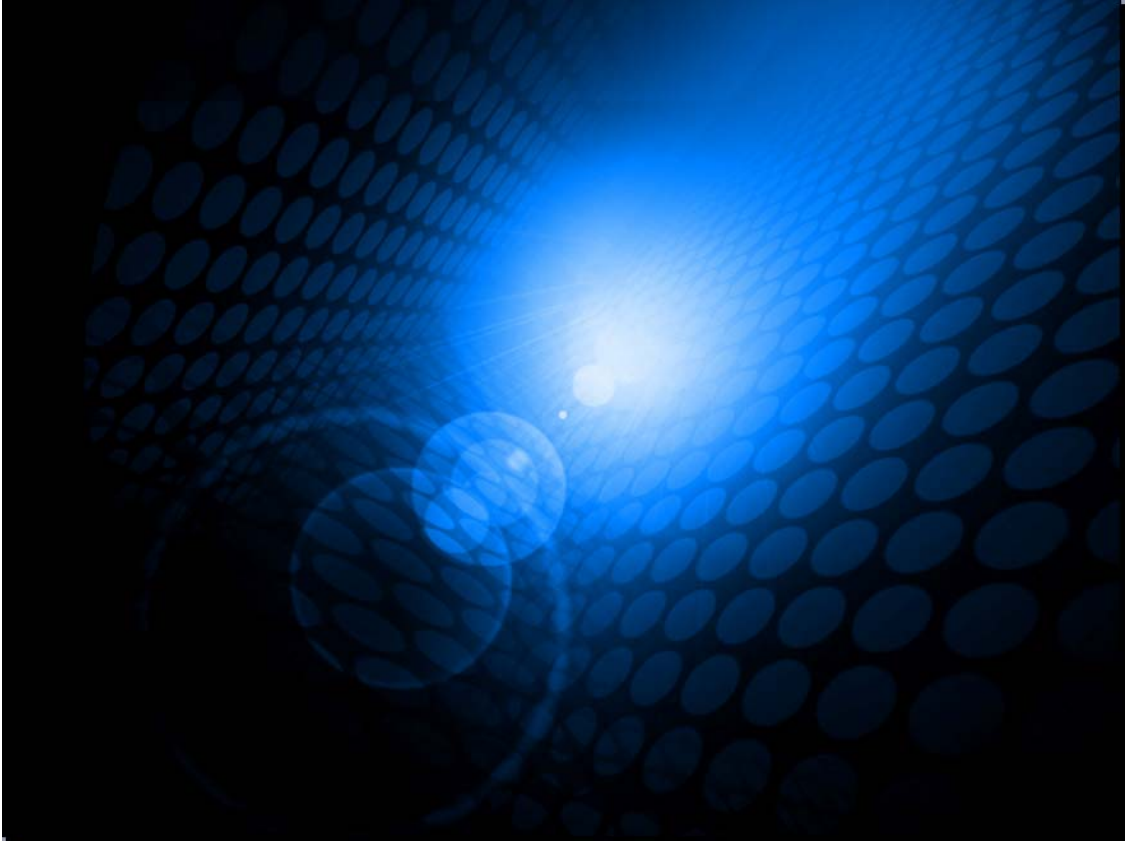

SIX SIGMA

A rigorous and disciplined system that utilizes data and statistical analysis to measure and make breakthrough improvement in an organisations' operational performance

SigmaPro

FINDING OUT **MORE**

If you would like to find out more about six sigma and the potential benefits for your own organisation, or development opportunities offered by personal six sigma training, please contact us at the address below, or visit our web site

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PROCESS **MANAGEMENT**

The focus on processes and the need to manage them effectively within Six Sigma demonstrates links to process based standards such as ISO 9001

ISO 9001 requires organisations to identify, control, measure, analyse and improve processes.

This means that organisations that have effectively implemented ISO 9001 will often already have a framework within which Six Sigma can be employed as an improvement system. The control aspects of ISO standards help to ensure that changes made during Six Sigma projects are effectively embedded into the day-to-day activities of the organisation. The existing management system in these companies can be enhanced by the adoption of the structured improvement and systematic tools of Six Sigma.

WHAT IS **SIX SIGMA?**

SIX SIGMA is both a statistical

measure of performance and a

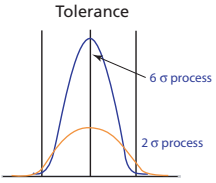
business improvement philosophy.

As a business improvement philosophy Six Sigma has become a systematic approach to identifying, managing and improving important business processes so that they operate consistently and effectively to achieve customer satisfaction and the organisation's business goals.

Six Sigma tackles improvements on a project-by-project basis, using the organisations own people working together using defined methods and tools to achieve success.

The Six Sigma approach has enabled companies both large and small to improve performance and profits dramatically by streamlining operations, improving sales, and eliminating and preventing defects in everything the company does.

The statistical measure means 3 defects per million items, or 3 missed opportunities for every million potential opportunities. A process operating at Six Sigma performance will produce very consistent ouput.



WHY **SIX SIGMA?**

Most organisations are pretty clear on the challenges they face; far fewer are able to tackle those challenges effectively. There are many improvement approaches available, but not all of them provide the required focus on the real issues faced by organisations.

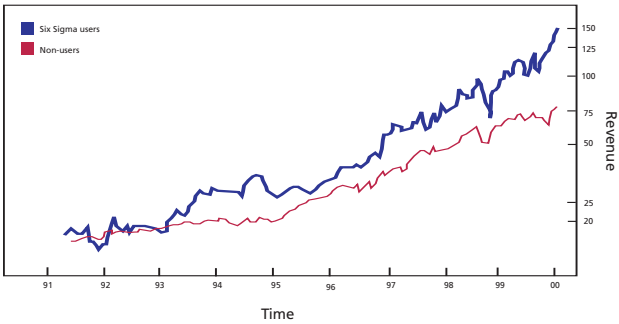
Six Sigma provides infrastructure, tools and methods to allow an organisations best people to tackle its biggest problems in a methodical way, and drive breakthrough performance improvement that ensures continuing results.

POTENTIAL RESULTS

Since the 1980's Six Sigma has been used by many organisations, the most well known being Motorola and GE. Both these organisations have generated billions of dollars in cost savings, additional revenue and enhanced shareholder value by whole heartedly following the Six Sigma principles.

Companies that employ Six Sigma successfully are likely to see improved results across many areas of operation, including:

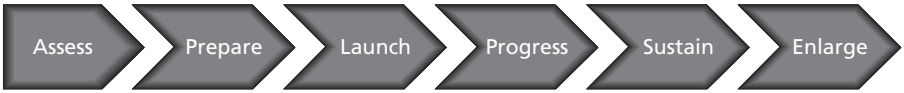
- Increased revenues and profitability
- Improved customer satisfaction
- More productive workforce
- Reduced capital spending
- Reduced lead times



Six Sigma can be used in all types of organisations, it has been successfully used in both manufacturing and service applications. There are clear examples of organisations using Six Sigma showing improving stock market performance over time.

IMPLEMENTING **SIX SIGMA**

The approach to implementing a Six Sigma programme will depend on the organisation, but the following six step approach provides a useful overview of the activities that need to be considered.



Assess

Assess the organisation's status against a Six Sigma framework, and determine strengths, weaknesses and improvement opportunities. Benchmark your current performance against other players in the industry, talk with customers and suppliers about their experience with Six Sigma. Consider introductory seminars or training courses to find out more details about how Six Sigma could be applied in the organisation.

Prepare

At executive level, examine the costs and benefits of starting a Six Sigma programme, ensure that everyone at executive level has a good understanding of the approach, costs, benefits and commitment required. Appoint a Champion for the Six Sigma programme, decide the infrastructure required to support the programme (BlackBelts, GreenBelts and so on). Create a high-level implementation plan, ensure that programme objectives are agreed and communicated within the organisation.

Launch

Select and recruit improvement leaders (BlackBelts). Choose improvement projects and create detailed implementation plans for each project. Train the BlackBelts in the Six Sigma process and improvement tools, and commence work on the improvement projects.

Progress

Identify additional personnel required for improvement projects, GreenBelts and experts. Train these people in the tools and principles of Six Sigma. Start tackling the improvement projects, review progress with BlackBelts as projects progress

Sustain

Re-enforcement of the system and personal changes required within the business to optimise the Six Sigma initiative. Continue progress reviews at Champion and Executive level. Reward successes and learn from any failures along the way.

Enlarge

Review the Six Sigma programme and identify strengths, weaknesses and improvement opportunities. Make any changes necessary. Consider how DFSS can be applied to the business to optimise business processes and product design. Form partnerships with suppliers to drive Six Sigma improvement throughout the supply chain.

KEY ROLES WITHIN **SIX SIGMA**

There are a number of defined roles within a Six Sigma programme; each of these roles has clearly defined responsibilities. Whilst the detail may change in different companies, typically these roles will be as follows:

Executives

Crucial to the success of Six Sigma is executive level understanding and support. Senior executives are expected to develop and communicate the Six Sigma strategy, provide competent leadership and resources and demonstrate personal commitment to excellence.

Champions

The Champion is normally selected from the senior executive team and is often a Plant or Site Manager who continues with his existing role, but actively promotes Six Sigma within the organisation.

The Champion is responsible for ensuring that competent BlackBelts are recruited trained and properly managed, the right projects are selected and implemented, and the results of Six Sigma are effectively communicated within the organisation.

BlackBelts

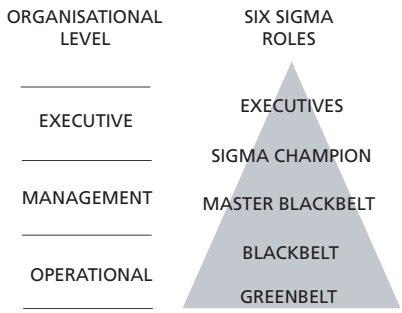
This is the key role within a Six Sigma programme. The BlackBelt role is normally a full time role, and organisations will often pick their best people to be BlackBelts for a 2-3 year period. Becoming a BlackBelt is considered as a career progression by most people selected. The roles and responsibilities of a BlackBelt include agreeing and leading improvement projects, teaching and mentoring others involved in projects and being an expert on the Six Sigma methods and tools.

Master BlackBelts

In larger organisations with many black belts, Master BlackBelts may be needed. The Master BlackBelt is responsible for coaching and training BlackBelts and GreenBelts, and selecting and scoping improvement projects. A Master BlackBelt is expected to be both an expert in Six Sigma strategy and tools and have effective project and man management skills.

GreenBelts

GreenBelts support BlackBelts on improvement projects; they may also lead smaller projects on their own. GreenBelts should be team players, who value good relationships with others in the business.



HOW DOES **SIX SIGMA** WORK?

Six Sigma projects use two different approaches, depending on the objective: **PROCESS IMPROVEMENT** (DMAIC) and **PROCESS DESIGN/RE-DESIGN**, often called Design for Six Sigma (DFSS)

process improvement (DMAIC) ›

The purpose of process improvement is to eliminate the causes of problems in processes that already exist in the organisation so that overall company performance is improved in key areas.

A five-step approach is used to address these opportunities:

1. Define
   The process to be improved is clearly defined together with the objective of the improvement activity, and how this will impact on the organisations goals.
2. Measure
   The current process is defined and measured, collecting data to confirm its current performance compared to what is required to achieve the objectives agreed in step 1.
3. Analyse
   The data is analysed to identify ways of closing the performance gap and the actions necessary to address the problems that are preventing optimum performance are defined.
4. Improve
   The actions necessary to improve the process to achieve the required performance goals are taken.
5. Control
   The controls needed to ensure the improved process can operate consistently over time are introduced.

process design/re-design (DMADV) ›

Sometimes it is not enough just to redesign an existing process. If breakthrough performance is required, or if the process does not exist, then designing a new process from scratch is necessary. Six Sigma again uses a five-step approach, called DMADV. The same approach can also be used for new product design.

1. Define
   Identify the critical business goals and relate how the process will impact on the goals. Define the level of performance required, the current gaps in performance and any risk areas
2. Measure
   Develop new concepts for how the process could work, assess the potential impact on performance measures for each of these concepts.
3. Analyse
   Identify the key process inputs and outputs, simulate the processes in operation, review risks and select the best process.
4. Design
   Carry out detailed design for the process, identify the controls needed to ensure input and output variables are controlled within required limits. Develop and agree action plans for implementation.
5. Validate
   Implement the new process and measure its performance in the real world. Validate that process input variables are within desired limits. Leverage the opportunities provided by the new process.