



Collinson

Grant



Six Sigma

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## 1 Introduction

*Today's competitive environment leaves no room for error. We must delight our customers and relentlessly look for new ways to exceed their expectations. Six Sigma is a highly disciplined process that helps us focus on developing and delivering near-perfect products and services.*

General Electric website

How well do the processes in your business work? Do they delight your customers? Do you achieve this every time? Is 99% perfect good enough?

For many processes, 99% perfect is simply not good enough. For example, it would mean

- 20,000 lost articles of mail every hour
- 2 unsafe landings at Heathrow each day
- Unsafe drinking water for up to 2 hours each week
- No electricity for almost 7 hours each month

Six Sigma means reaching a quality of just 3.4 defects per million opportunities or 99.9997% defect free! What value would such a performance bring to your business?

Six Sigma was developed by Motorola in the 1980s, but its genesis goes back to the 1920s. It gained widespread recognition from the success of Jack Welch in the 1990s, when it was used as a vehicle to transform the performance of General Electric (GE).

An organisation comprises a system of interconnected processes. Variation exists in all processes – whether in the provision of front-line services, in back-office transactions, in manufacturing or supply, or in design. Efforts to understand, eliminate and control variation have enabled organisations to become market-leaders in satisfying customers and in reducing lead times and operating costs.



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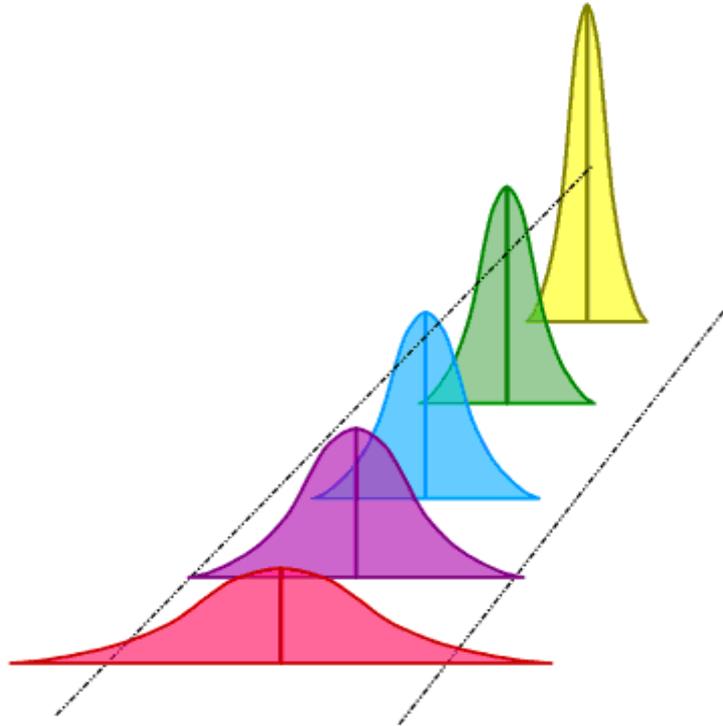
## 2 What is Six Sigma?

Six Sigma can be described both as a 'quality philosophy' and as a rigorous, quantitative approach to improving the performance of processes. It aims to reduce variation to provide a better product or service than competitors do, and to make the business capable of operating faster and at lower cost.

When applied effectively, it achieves dramatic improvements in performance by relentlessly reducing variation in the main business processes. Six Sigma as a methodology applies the fundamental truth that the output of a process depends on the quality of the inputs. It aims to

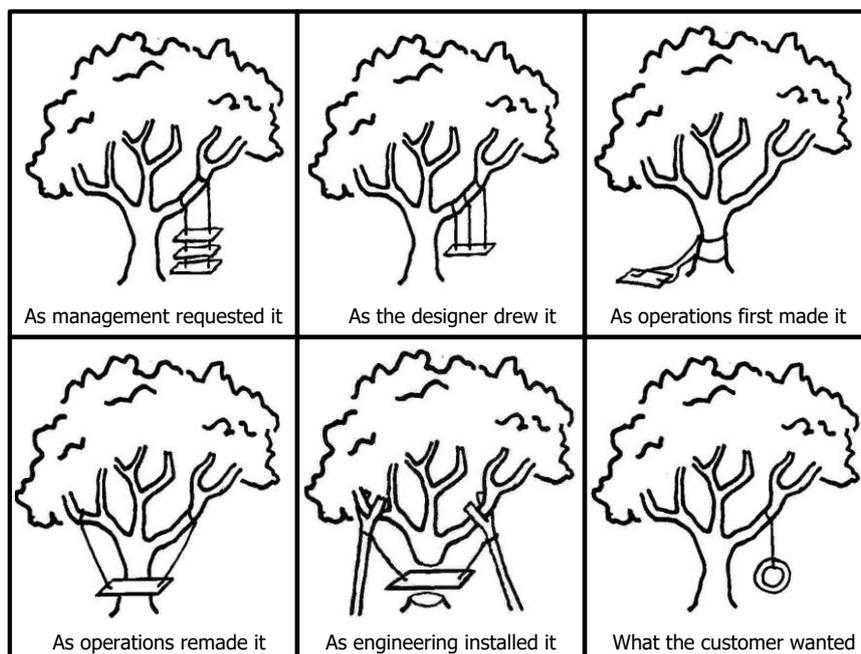
understand that relationship between cause and effect: to improve the process by reducing variation in the inputs; and to control ongoing performance to achieve consistently acceptable outputs at least 99.9997% of the time.

So, from the customers' perspective, that means you get it right virtually every time, limiting defects to a maximum of 3.4 in every million opportunities.



### 3 When and where to use Six Sigma

We have all experienced processes that have misinterpreted our requirements or failed to meet our expectations. And, no doubt, we see evidence of this today in the outputs from some processes in our own organisations:



Of all the methodologies for approaching problems, why choose Six Sigma?

Six Sigma best fits the bill when a problem proves

- Important – to the customer and to the leaders of the business
- Persistent – unsuccessful attempts to solve it have already been made
- Complex – despite analysis, the root causes remain hidden
- Significant – enough to justify assigning a team to tackle it.

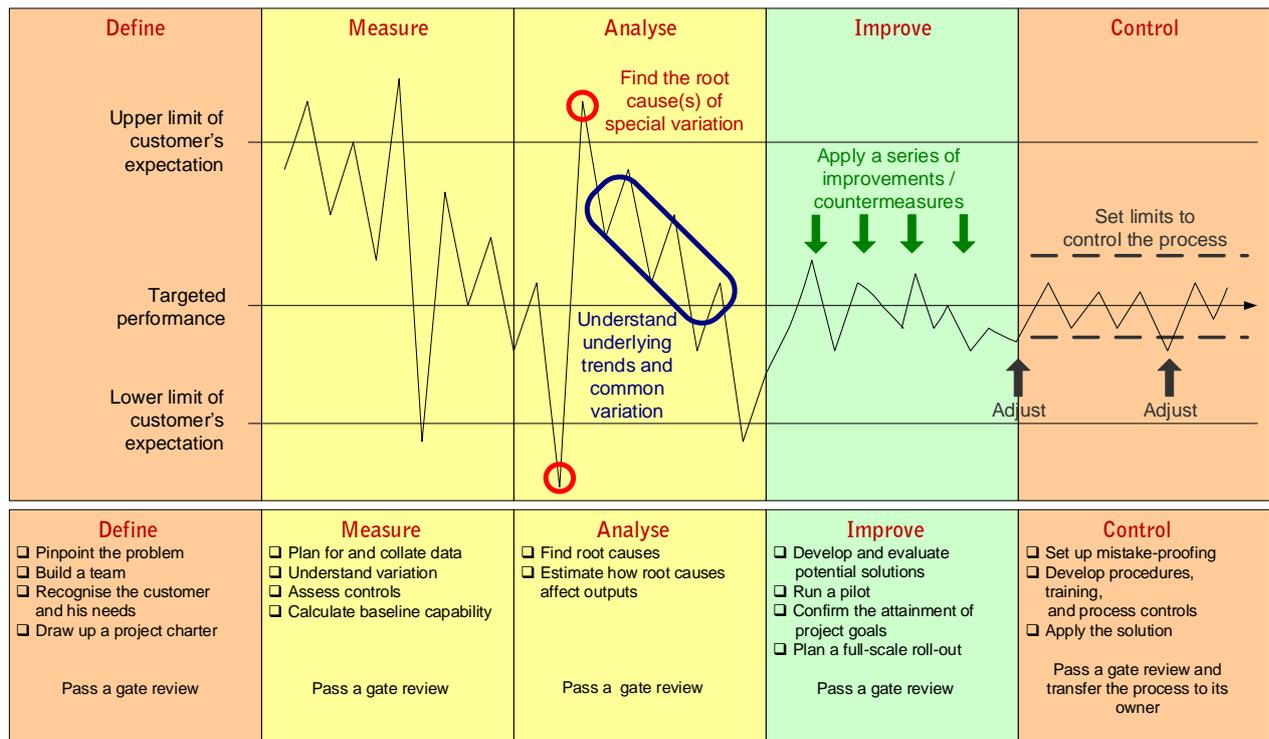
To know whether Six Sigma suits your organisation, gauge how your current performance compares with the best in your sector. What would be gained by improving it? What is contributing to your competitor's superior performance?

In 85% of projects to apply Six Sigma, success is measured by the cost saved. The effect on customers seldom constitutes the main criterion. Yet the original success of Six Sigma came from focusing on improving service. Your business may choose to use Six Sigma

- to reduce rates of defects in front-line services
- to correct failures in process that may be leading customers to defect
- to prevent problems with products
- to tackle the root causes of warranty claims
- to create more capacity for products or services with major backlogs
- to eliminate rework and the scrapping of products
- to achieve annual operating budgets
- to focus effort on problems with major financial consequences
- to control expenditure on items with large operating budgets
- to provide higher-volume products or services more effectively
- to visualise the cost of complexity in products and services
- to understand the drivers of cost
- to minimise the costs of overtime
- to solve any important, persistent or complex problem – in the quality, cost or delivery of products and services.

#### 4 Is it all about statistics?

Six Sigma can involve the use of complex statistical tools. But it does not always have to. A well defined structure to projects for improvement forms the backbone of Six Sigma. In our experience, it is the rigorous DMAIC (Define-Measure-Analyse-Improve-Control) approach to problem-solving that provides the real power in Six Sigma.



But for Six Sigma to be applied successfully, there is a need for:

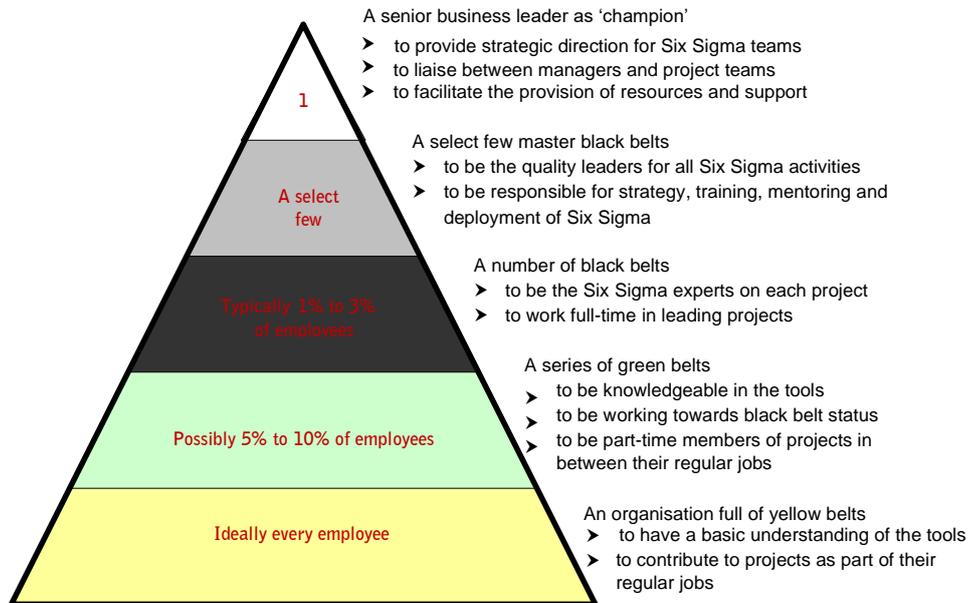
- 1 Data – which may need collecting
- 2 A cross-functional project team – made up of employees who understand the process
- 3 Time for analysis, knowledge and creativity – requiring team members to be removed temporarily from their day-to-day activities
- 4 Adequate training and mentoring – needing (external) expertise and (internal) time
- 5 Committed management and leadership – to provide the people, money and time to support the project.

## 5 How Six Sigma was used to transform GE

Motorola, General Electric (GE) and various other companies have embraced Six Sigma outright to provide their customers with better, quicker and cheaper service. To that end, they have fundamentally changed the structure of the organisation and the management of its processes, aiming

- to define personal responsibilities ('owners') for entire processes that reflect customers' requirements
- to measure performance against customers' requirements and other key indicators then set tough objectives to transform it
- to analyse data on past and present performance to find 'defects' and pursue them as opportunities for improvement
- to improve processes and enhance the means for measuring and managing them continuously
- to control the performance of processes by monitoring their inputs, operation, and outputs and by responding quickly to any variation

- to train the entire staff to improve quality and performance for customers and create a hierarchy of qualifications known as 'belts' - black (expert), green (intermediate) and yellow (junior)



## 6 Finding out whether Six Sigma merits the effort and investment

Each organisation should use Six Sigma in its own way, shaped by its operating environment and priorities for change. While the DMAIC approach should be applied to every project, teams should be encouraged to pick and choose from Six Sigma's set of tools. In time, this will uncover the techniques that best suit the business processes and the capability of the people in the organisation.

Effort should be tailored to the circumstances and ambitions of each business, be it:

- A localised problem – a complexity, defect or bottleneck that is proving hard to solve
- An operating process – where a complete product or service is falling short
- Organisational transformation – tackling all primary and supporting processes to transform radically the organisation's overall performance
- Extended improvements – improving processes upstream into the supply chain, or downstream into the distribution network, to improve performance further and increase the customer's satisfaction.

We do not advocate standardised, off-the-shelf training packages. They can be expensive and require a lot of time from the staff. Nor do we suggest that an organisation should attempt to run with Six Sigma before it has learnt to apply a few core tools and techniques.

To ensure sufficient payback on the investment required to launch Six Sigma, the preferred route would be to build on a thorough investigation to reveal the opportunity for improvement - immediate and longer-term. Then use a series of pilot projects both as training opportunities and to galvanise managers and the staff to make real improvements in their everyday work.

Success will depend on finding practical solutions, based on rigorous analysis, and then implementing them quickly and effectively to enhance performance.

## 7 Summary

Six Sigma concerns reducing variation

- to improve the performance of processes – in service and/or cost
- to create opportunities by designing new processes or redesigning the current ones, or
- to allow processes to be managed better.

The methodology consists of a structured, team-based approach to improvement, with a comprehensive set of simple tools and complex statistical techniques. It lends itself best to solving important, persistent, complex and significant problems. But it can be extended to all processes and used to transform the wider organisation.

An organisation should consider how to adopt Six Sigma to suit its particular needs, then use a series of high-impact pilot projects to build momentum quickly.

Is your organisation ready for Six Sigma? Can you see the specific problems that need to be tackled? Are adequate data available on the performance of the main processes? Does the staff have an appetite for training and the ability to solve problems?

If the answer to these questions is 'Yes', then we should welcome an opportunity to discuss the potential of Six Sigma for your business and to help you set out the next steps.

## 8 Collinson Grant

Collinson Grant is a management consultancy with a history of profitable growth. We help large organisations all over Europe and in the United States to restructure, merge acquisitions, cut costs, increase performance and profit, and manage people. By building long-term relationships, we have kept some clients for thirty years.

Our emphasis is on implementation, results and value-for-money. We expect to give a substantial return on the investment in us. So we do not recommend action unless we are sure that the outcome will be worth it. We are not afraid to give bad news, or to champion ideas that may not be welcome.

Most of our work is on three themes – organisation, costs and people. We use this simple framework to manage complex assignments - often with an international dimension - and to support managers on smaller, more focused projects. We help them:

- to restructure and integrate - following acquisitions or to improve profits
- to refine business processes, use Six Sigma in solving complex problems and introduce lean manufacturing. We analyse and improve how work is done, and use new ways to create change and make it stick
- to improve the supply chain. We examine every process and interface to improve efficiency and service
- to set up financial and managerial controls. We create robust systems to improve decision-making and reduce risks
- to cut costs. We make systematic analyses of overheads, direct costs, and the profitability of customers and products. This helps managers to understand complexity, and to take firm steps to reduce it

- to manage people. We draw up pay schemes and put them into effect, guide managers on employee relations and employment law, get better performance from people, and manage redundancy.

To get results in different industries, Collinson Grant needs to apply practical experience and consistent methodologies. We work in most manufacturing, distribution and service sectors for large businesses throughout Europe and North America. But we also have a strong presence in the National Health Service and in central government in the UK. Our consultants have all been senior managers in large organisations. They understand the day-to-day pressures on managers, and how to achieve results despite them.

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