

# 6 $\sigma$ Myths Demystified

Course: CEM 515, Project Quality Management  
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# Introduction

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*Six Sigma is total quality management turbocharged. If implemented properly,*

*Six Sigma is a proven approach to achieving major cost reductions, huge increases in quality, radically reduced cycle times, and big increases in customer satisfaction and revenue.*

*Debates on its emergence as a strategic initiative have created critics.*

*Is Six Sigma a management fad? Some common myths and realities of Six Sigma business strategy are presented to know whether Six Sigma is just a management fad or fact.*

## Overview of various process improvement methodologies

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### ***Six Sigma and process steps (DMAICR)***

1. Define (D). The Supplier-Input-Process-Output-Customer (SIPOC) mapping exercise can be used effectively to describe the process.
2. Measure (M). Measurement of process variables through data quality checks, repeatability and reproducibility (R&R) studies, and addressing process stability.
3. Analyze (A). Usage of graphical techniques to analyze the process behavior.
4. Improve (I). Improvement of the existing process through experimentation and simulation techniques.
5. Control (C). Development of the control plan for process improvement.
6. Reporting (R). Reporting of the benefits of the re-engineered process.

## Overview of various process improvement methodologies

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### *Deming cycle and process steps*

Different steps of the Deming cycle are outlined as below:

- (1) Plan. Plan the process (equivalent to D of Six Sigma).
- (2) Do. Act on the process (equivalent to M-A-I of Six Sigma).
- (3) Check. Measure the results by finding out the deficiencies (equivalent to C of Six Sigma).
- (4) Act. Act on the gap between the intended goals and achieved results (equivalent to R of Six Sigma).

## Overview of various process improvement methodologies

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### ***TQM and its implementation steps***

Ten points that guide implementation of TQM are:

- (1) The organization needs long-term commitment to constant improvement
- (2) Adopt the philosophy of “zero defects/errors” to change the culture to the “right first time”.
- (3) Train to people to understand the customer-supplier relationships.
- (4) Do not buy products or services on price alone-look at total cost.
- (5) Recognize that improvement of the systems needs to be managed.
- (6) Adopt modern methods of supervision and training – eliminate fear.

## Overview of various process improvement methodologies

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- (7) Eliminate barriers between departments by managing the process-improve communications and teamwork.
- (8) Eliminate the following:
  - arbitrary goals without methods;
  - all standards based only on numbers;
  - barriers to pride of workmanship; and
  - fiction – get facts by using the correct tools.
- (9) Constantly educate and retrain-develop the experts in the business.
- (10) Develop a systematic approach to manage the implementation of TQM.

## Overview of various process improvement methodologies

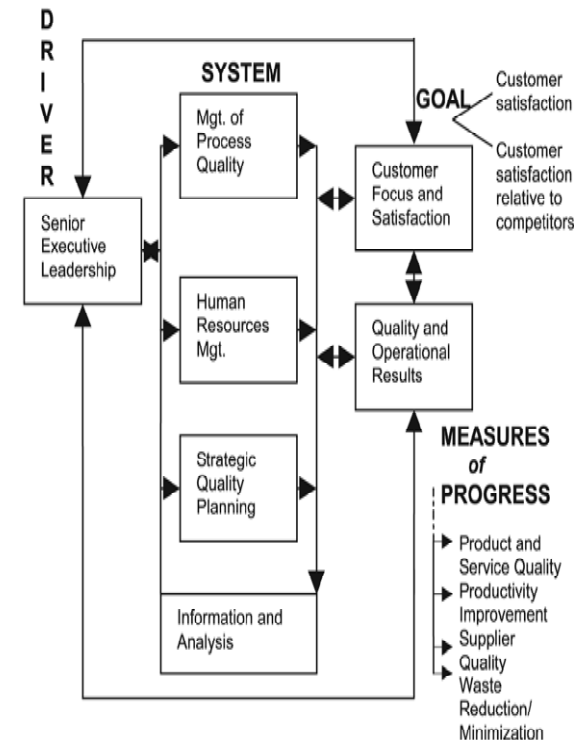
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### *Baldrige framework and TQM assessment*

The Baldrige framework (Figure 1) has four basic elements namely:

1. Driver,
2. System,
3. Measures of progress
4. Goal.

Senior executive leadership is the Driver element that creates the values, goals and systems and guides the sustained pursuit of quality and performance objectives



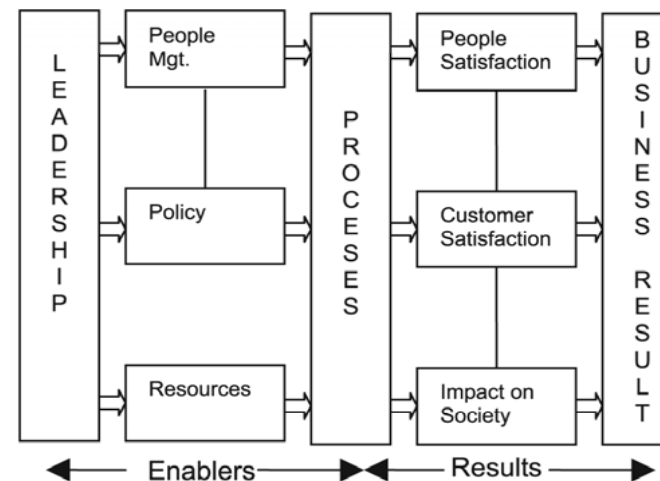
## Overview of various process improvement methodologies

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### *EFQM framework and TQM assessment*

The EFQM (recognizes that processes are the means by which a company organization harnesses and releases the talent of the people to produce the results.

Customer Satisfaction, employee satisfaction and impact on society are achieved through leadership driving policy and strategy, people management, resources and processes which lead ultimately to excellence in business results.





## Overview of various process improvement methodologies

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### ***SE and Six Sigma***

SE is a structured and systematic that uses a progressive search technique using families of variation, SE steps are:

- (1) Define the problem.
- (2) Quantify and measure the problem.
- (3) Determine problem history.
- (4) Generate clues.
- (5) Formal design of experiments (verify cause).
- (6) Turn the problem on and off.
- (7) Establish realistic specifications and tolerances.

## Overview of various process improvement methodologies

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### ***SE and Six Sigma***

(8) Freeze the process improvements (positrol).

(9) Certify the process (process certification).

(10) Hold the gains with statistical process control (SPC (precontrol)).

SE step 1 relate to D of Six Sigma framework. Steps 2, 3 and 4 correspond to the Measure phase of the DMAIC framework. Steps 5, 6 and 7 are analogous to the Analyze phase; 8, 9 relate to Improve; and 9 and 10 correspond to the Control and reporting phases of Six Sigma.

## Overview of various process improvement methodologies

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*SE differs from Six Sigma in the following ways:*

- smaller steps in methodology;
- smaller team size for problem solving;
- lesser application of DOE;
- proprietor usage (service marks); and
- Both SE and Six Sigma advocate application of more or less same tools.

## Six Sigma: some myths

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- *Six Sigma is the flavor of the month.*
- *Six Sigma is all about statistics.*
- *Six Sigma is only for manufacturing companies.*
- *Six Sigma works only in large organisations*
- *Six Sigma is same as total quality management (TQM).*
- *Six Sigma is not cost-effective.*
- *Six Sigma requires strong infrastructure and massive training.*

# Six Sigma: *Myths Demystified*

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## ***Six Sigma is the flavor of the month.***

- The concept of Six Sigma seems to have survived for nearly two decades
- Stories of success and dramatic improvement in business profitability of many organizations
- Six Sigma has been very successful-perhaps the most successful business improvement strategy of the last 50 years
- Companies embracing Six Sigma have witnessed a cultural transformation that affects every aspect and level of organisations

# Six Sigma: *Myths Demystified*

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## ***Six Sigma is all about statistics.***

- Six Sigma utilizes statistics as one of its tools to analyse, interpret and present data.
- Organisations require not just statistics to achieve Six Sigma quality level but more importantly requires changes in organizational culture and commitment
- Six Sigma is more about changing the mindset of people, making a shift from a traditional approach of problem solving
- The Six Sigma drive for defect reduction, process improvement and customer satisfaction are based on the “statistical thinking”
- Statistical thinking, therefore, is fundamental to the methodology because Six Sigma is action-oriented, focuses on processes used to serve customers, and defect reduction through variation reduction.

# Six Sigma: *Myths Demystified*

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## ***Six Sigma is only for manufacturing companies.***

- The popularity of Six Sigma as a means of improving the quality of service and customer satisfaction is growing exponentially in the last couple of years in the European service industry
- The objective of a Six Sigma strategy in service processes is to understand how defects occur and then to devise process improvements to reduce the occurrence of such defects, which improve the overall customer experience and thereby enhance customer satisfaction.
- GE Capital, the financial division of GE, was one of the first financial institutions applying this methodology in order to increase their profitability and customer satisfaction .
- Many health-care organizations embraced the Six Sigma challenge within their processes, examples include Mount Carmel Medical Centre

# Six Sigma: *Myths Demystified*

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## ***Six Sigma works only in large organisations.***

- GE treated its business as many small business units integrated together.
- It does not matter what type or size of business this problem solving methodology is applied to.
- The SMEs do not require an extensive role system where Master Black Belts, Black Belts are involved in projects as are applied to large organizations.
- It is highly advisable to develop a White Belt system for SMEs instead of heavily investing in Black Belt system.
- Excellent on-line self-paced Six Sigma training from authoritative sources at reasonable costs is becoming widely available.
- Six Sigma can be applied where there is a problem, irrespective of type or size of business.
- Six Sigma can act as a catalyst for changing SMEs in the quest for business excellence by mobilising their intellectual capital, provided there is total commitment.



# Six Sigma: *Myths Demystified*

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## ***Six Sigma is the same as TQM.***

- Companies that have embraced Six Sigma within their working culture previously made improvements through the use of TQM
- these organisations would not be spending additional time and money to implement Six Sigma. If TQM was the same
- There are three aspects of the Six Sigma strategy that are not emphasised in total quality management (TQM):
- Six Sigma is result-oriented and therefore places a clear focus on bottom-line business impact in hard dollar savings.
- Six Sigma methodology DMAIC links the tools and techniques in a sequential manner.
- Six Sigma creates a powerful infrastructure for training of Champions, Master Black Belts, Black Belts, Green Belts and Yellow Belts.
- Six Sigma provides us with a common language as it reduces things to a common denominator – 3.4 DPMO and sigma capability level, thus providing the ability to benchmark ourselves against like

# Six Sigma: *Myths Demystified*

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## ***Six Sigma requires strong infrastructure and massive training.***

- Deploying Six Sigma in an organisation requires new skills, Black Belts and Green Belts.
- The measure of success for an investment in Six Sigma should be based on the successful completion of projects .
- Start Six Sigma deployment by identifying a manageable number of critical projects that can be successfully completed within two-five months.
- Six Sigma requires some investment to create the “change agents”. However, the benefits obtained from Six Sigma implementation outweigh the investment costs.
- The training should focus on how to select the right projects and how to form the right teams so that the company’s limited resources are effectively utilized.

# Six Sigma: *Myths Demystified*

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## ***Six Sigma is not cost effective.***

- Six Sigma has been launched all over the world and many companies have testified to its pivotal role in their success
- Six Sigma business management strategy has been exploited by many world class organisations such as GE, Motorola, Honeywell, Bombardier, ABB, Sony
- popularity of Six Sigma in the business world is because many corporations have seen how Six Sigma generated substantial return on investment in its implementation.
- It is reported that the savings achieved by Motorola reached \$1 billion in 1998 and \$16 billion in 2005

## Six Sigma: *Concluding Remarks*

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Organisations that implement Six Sigma have benefited from it in three major ways:

- Reduced defect rate;
- Reduced operational costs; and
- Increased value for both customers and shareholders

Six Sigma is neither a fad nor just another quality initiative. It relies on factual data coupled with hard work and is a disciplined and structured problem-solving methodology.



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Thank You