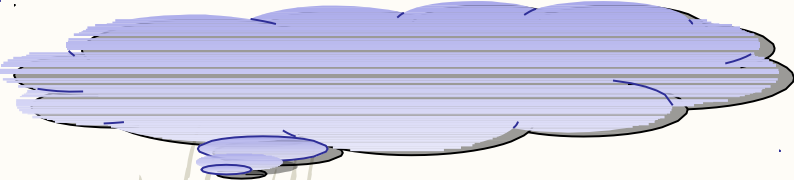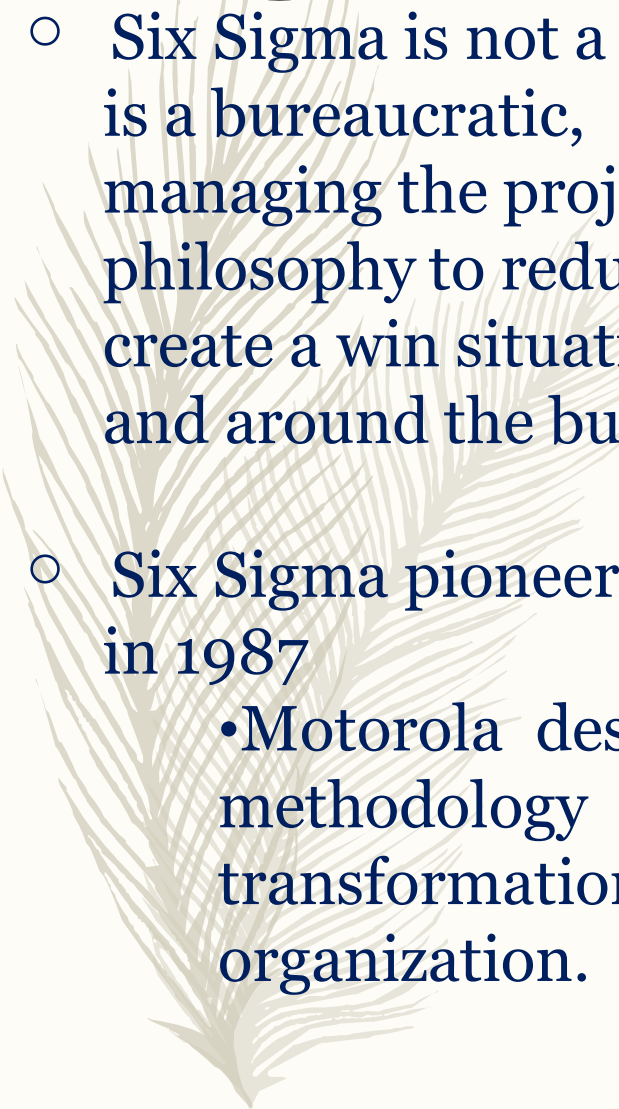# CONCEPT OF

SIX SIGMA

What is Six Sigma

- Six sigma is a way of thinking and the results of the approach can yield a spectrum of improvement choices based on the balance of values and risk.

- Six sigma is an internationally recognized management process focused on producing high quality products or services to meet the customer's need and satisfaction

○ Six Sigma is not a set of statistical tools, neither it is a bureaucratic, stage – gate approach to managing the projects but it is represents a philosophy to reduce variation continuously and create a win situation for all the partners in and around the business or services.

○ Six Sigma pioneer Motorola started the program in 1987

• Motorola describe Six Sigma as a standard methodology "for driving and achieving transformational change within an organization.

Objectives of Six Sigma:

1. To reduce variation.
2. To solving the problems in scientific manner.
3. Six Sigma places an emphasis on the DMAIC approach (define, measure, analyze, improve, and control) to problem solving.
4. To develop the bottom line responsibilities towards continuous improvement.
5. Organizations using Six Sigma often utilize teams that are assigned well-defined projects with a direct impact on the bottom line.

Three Key Characteristics of SIX SIGMA:

1. Leadership Commitment:

Achieving Six Sigma is not easy – it requires serious commitment in the form of time, effort, and resources.

For a company to be successful, such commitment must come first from the top executive leadership of the organization and must be practiced by everyone.

2. Managing Decisions with Data:

♣ It is not enough to run a business based on one's experience or "tribal knowledge." Decisions must be based on data versus the typical "I think", "I feel", or "In my opinion" practices that often exist today.

♣ With the maturation of the information economy, data is available to virtually everyone in the organization, along with the tools for analyzing that data.

♣ Properly using data to Measure, Analyze, Improve, and Control performance forms the foundation of the Six Sigma methodology.

3. Training and Cultural Change:

•Improved performance does not and will not happen automatically. High-calibre training is required. Disciplined implementation must follow, and people at all levels have to change the way they go about doing their jobs.

•In short, new ways of thinking, communicating, and operating must pervade the entire organization. You also need a methodology. DMAIC and DFSS provide a structured problem solving roadmap and tools towards obtaining the results you expect.
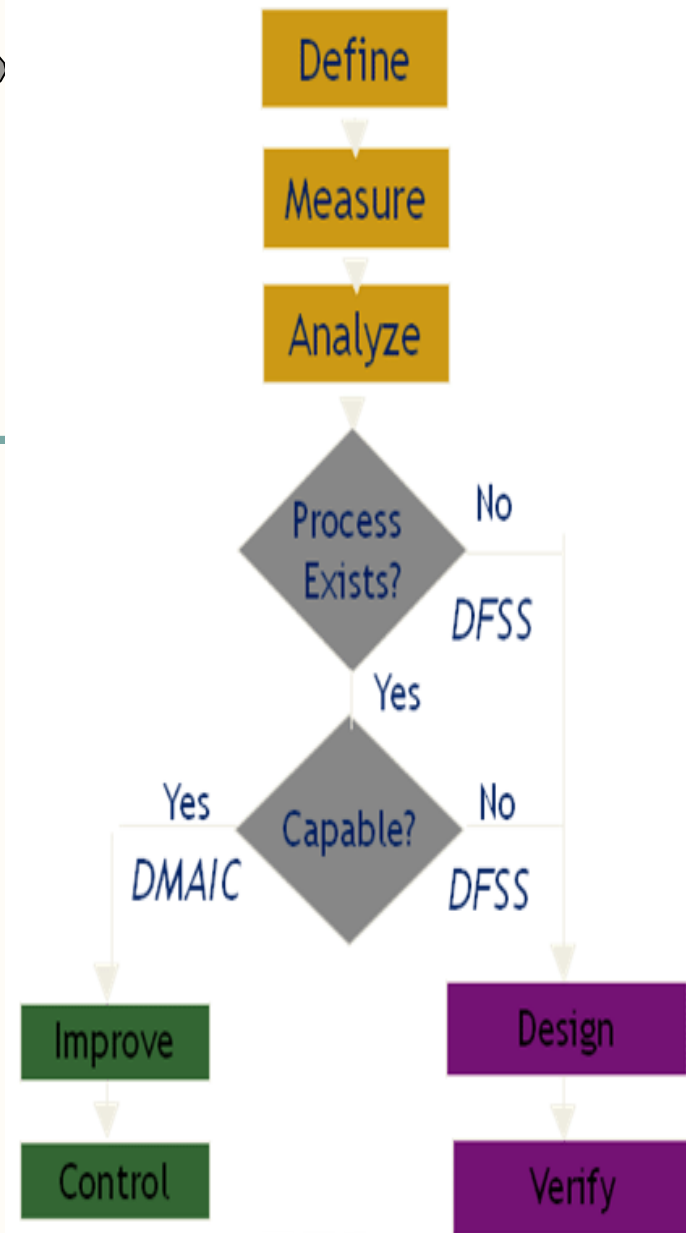
Six Sigma Methodology – DMAIC & IDOV

¬Six Sigma is a process oriented methodology designed to improve business performance by improving specific areas of strategic business processes. There are 2 different methodologies available for carrying out improvements in processes or operations.

Improvements can be of two types: improving the existing process or designing a new process altogether. When we have an existing process and we want to improve the process we deploy the DMAIC methodology. While designing a new process or completely revamping the existing process the Design for Six Sigma or IDOV methodology is deployed.

DMAIC Methodology

Define
Define the problem.
Define the customer(s) and the requirements.
Define the current capability.
Define the key processes that will have the greatest impact on customer.

Measure
Identify the statistical measures to monitor the key process.
Set up the data collection plan.
Measure the process

Analyse
Determine the analysis tools and methods to be used.
Summarize the data measured.
Run the analysis and determine the root causes, effects,etc.

Improve
Improve and Implement.
Focus on developing process/technology to improve the root cause.
Test the method on sample process and validate the improvement.

Control
Standardize and document the process and implement the plan.
Monitor the process and feedback the results back to the process for continuous improvement.

DFSS (IDOV) Methodology

Identify   Develop a team.
Create team charter.
Gather VOC.
Perform competitive analysis.
Develop CTQs and formally tie design to VOC.

Design   Identify functional requirements.
Develop alternative concepts.
Evaluate alternatives and select a best-fit concept.
Deploy CTQs and predict sigma capability.

Optimize   Determine process capability.
Develop detailed design elements.
Predict performance.
Optimize design.

Verify   Test and validate the design.
Share feedback with manufacturing and sourcing to
improve future manufacturing and designs.

Six Sigma **Philosophy**

Improve customer satisfaction by reducing and eliminating defects

Best quality and safe product Minimum or without side effects, Customer satisfaction

6σ