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**FINANCIAL AND STRATEGIC
MANAGEMENT**

MODULE 2

PAPER 8

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Strategic Implementation and Control

Six Sigma

Six Sigma is a set of management tools and techniques designed to improve business by reducing the likelihood of error. It is a data-driven approach that uses a statistical methodology for eliminating defects.

The etymology is based on the Greek symbol "sigma" or " σ ," a statistical term for measuring process deviation from the process mean or target. "Six Sigma" comes from the bell curve used in statistics, where one Sigma symbolizes a single standard deviation from the mean. If the process has six Sigmas, three above and three below the mean, the defect rate is classified as "extremely low."

The Five Key Principles of Six Sigma

Six Sigma has its foundations in five key principles:

1. *Focus on the Customer:* This is based on the popular belief that the "customer is the king." The primary goal is to bring maximum benefit to the customer. For this, a business needs to understand its customers, their needs, and what drives sales or loyalty. This requires establishing the standard of quality as defined by what the customer or market demands.
2. *Measure the Value Stream and Find Your Problem:* Map the steps in a given process to determine areas of waste. Gather data to discover the specific problem area that is to be addressed or transformed. Have clearly defined goals for data collection, including defining the data to be collected, the reason for the data gathering, insights expected, ensuring the accuracy of measurements, and establishing a standardized data collection system. Ascertain if the data is helping to achieve the goals, whether or not the data needs to be refined, or additional information collected. Identify the problem. Ask questions and find the root cause.
3. *Get Rid of the Junk:* Once the problem is identified, make changes to the process to eliminate variation, thus removing defects. Remove the activities in the process that do not add to the customer value. If the value stream doesn't reveal where the problem lies, tools are used to help discover the outliers and problem areas. Streamline functions to

achieve quality control and efficiency. In the end, by taking out the above-mentioned junk, bottlenecks in the process are removed.

4. *Keep the Ball Rolling:* Involve all stakeholders. Adopt a structured process where your team contributes and collaborates their varied expertise for problem-solving.

Six Sigma processes can have a great impact on an organization, so the team has to be proficient in the principles and methodologies used. Hence, specialized training and knowledge are required to reduce the risk of project or re-design failures and ensure that the process performs optimally.

5. *Ensure a Flexible and Responsive Ecosystem:* The essence of Six Sigma is business transformation and change. When a faulty or inefficient process is removed, it calls for a change in the work practice and employee approach. A robust culture of flexibility and responsiveness to changes in procedures can ensure streamlined project implementation. The people and departments involved should be able to adapt to change with ease, so to facilitate this, processes should be designed for quick and seamless adoption. Ultimately, the company that has an eye fixed on the data examines the bottom line periodically and adjusts its processes where necessary, can gain a competitive edge.

The Six Sigma Process of Business Transformation

Although Six Sigma uses various methods to discover deviations and solve problems, the DMAIC is the standard methodology used by Six Sigma practitioners. Six Sigma uses a data-driven management process used for optimizing and improving business processes. The underlying framework is a strong customer focus and robust use of data and statistics to conclude.

The Six Sigma Process of the DMAIC method has five phases:



Source: Simpli Learn

Each of the above phases of business transformation has several steps:

1. Define

The Six Sigma process begins with a customer-centric approach.

Step 1: The business problem is defined from the customer perspective.

Step 2: Goals are set. What do you want to achieve? What are the resources you will use to achieve the goals?

Step 3: Map the process. Verify with the stakeholders that you are on the right track.

2. Measure

The second phase is focused on the metrics of the project and the tools used in the measurement. How can you improve? How can you quantify this?

Step 1: Measure your problem in numbers or with supporting data.

Step 2: Define performance yardstick. Fix the limits for "Y."

Step 3: Evaluate the measurement system to be used. Can it help you achieve your outcome?

3. Analyse

The third phase analyzes the process to discover the influencing variables.

Step 1: Determine if your process is efficient and effective. Does the process help achieve what you need?

Step 2: Quantify your goals in numbers. For instance, reduce defective goods by 20%.

Step 3: Identify variations using historical data.

4. Improve

This process investigates how the changes in "X" impact "Y." This phase is where you identify how you can improve the process implementation.

Step 1: Identify possible reasons. Test to identify which of the "X" variables identified in Process III influence "Y."

Step 2: Discover relationships between the variables.

Step 3: Establish process tolerance, defined as the precise values that certain variables can have, and still fall within acceptable boundaries, for instance, the quality of any given product. Which boundaries need X to hold Y within specifications? What operating conditions can impact the outcome? Process tolerances can be achieved by using tools like robust optimization and validation set.

5. Control

In this final phase, you determine that the performance objective identified in the previous phase is well implemented and that the designed improvements are sustainable.

Step 1: Validate the measurement system to be used.

Step 2: Establish process capability. Is the goal being met? For instance, will the goal of reducing defective goods by 20 percent be achieved?

Step 3: Once the previous step is satisfied, implement the process.

The Six Sigma Tools

1. Cause and Effect Analysis
2. Flow Chart
3. Pareto Chart
4. Histogram
5. Check Sheet
6. Scatter Plot
7. Control Chart

Sigma Levels

The Six Sigma training levels conform to specified training requirements, education criteria, job standards, and eligibility.

White Belt

This is the simplest stage, where:

- Any newcomer can join.
- People work with teams on problem-solving projects.
- The participant is required to understand the basic Six Sigma concepts.

Yellow Belt

Here, the participant:

- Takes part as a project team member.
- Reviews process improvements.
- Gains understanding of the various methodologies, and DMAIC.

Green level

This level of expertise requires the following criteria:

- Minimum of three years of full-time employment.
- Understand the tools and methodologies used for problem-solving.
- Hands-on experience on projects involving some level of business transformation.
- Guidance for Black Belt projects in data collection and analysis.
- Lead Green Belt projects or teams.

Black Level

This level includes the following:

- Minimum of three years of full-time employment
- Work experience in a core knowledge area
- Proof of completion of a minimum of two Six Sigma projects
- Demonstration of expertise at applying multivariate metrics to diverse business change settings
- Leading diverse teams in problem-solving projects.
- Training and coaching project teams.

Master Black Belt

To reach this level, a candidate must:

- Be in possession of a Black Belt certification
- Have a minimum of five years of full-time employment, or Proof of completion of a minimum of 10 Six Sigma projects
- A proven work portfolio, with individual specific requirements, as given here, for instance.

- Have coached and trained Green Belts and Black Belts.
- Develop key metrics and strategies.
- Have worked as an organization's Six Sigma technologist and internal business transformation advisor.