

1. Discuss the DMAIC principles of six sigma optimization method.

Answer:

DMAIC: A simple, data-driven method to improve and optimize existing business processes by managing changes in a controlled and effective way.

TABLE 12-1. *DMAIC: A five-phase approach to Six Sigma*

Phase	Description
Define opportunities	Determine customer and core processes. Determine the customer's requirements for the products and services being produced. Map the processes that are being improved. Gain the customer's commitment.
Measure performance	Develop a plan to collect and measure the defect data. Collect data from many sources in the organization and determine the defect rates and other metrics. Compile and display the data.
Analyze opportunity	Analyze and verify the data collected. Determine the root causes for the defects and identify opportunities for improvement. Prioritize the improvement opportunities.
Improve performance	Design creative solutions to improve the processes. Create a problem statement and a solution statement for each problem. Test specific improvements with an experimental approach. Deploy the improvements.
Control performance	Monitor the improvement programs to control them. Develop an ongoing monitoring plan to keep the process on the new course and prevent it from reverting to its previous state. Assess the effectiveness of the improvement. Develop staffing and training incentives to make the improvements permanent.

Define:

- Understand the customer and their needs.
- Identify the key processes involved.
- Map out what needs to be improved.
- Get the customer's agreement to move forward.

Measure:

- Collect data to understand the current situation.
- Find out where defects or issues are happening.
- Record and display the data for clarity.

Analyze:

- Study the data to find root causes of the problem.
- Identify areas where improvements can be made.
- List and prioritize improvement opportunities.

Improve:

- Brainstorm ideas to fix the problem.
- Test possible solutions and choose the best one.
- Implement the solution to make the process better.

Control:

- Monitor the results to ensure the improvements last.
- Create a plan to keep things on track and avoid slipping back.
- Train staff and make changes permanent.

2. Discuss the key principles of six sigma optimization method to execute a project in an effective way.

Answer:

The goal of Six Sigma is to view every part of a business as a process that can be measured and improved using statistics. The main tool for doing this is a five phase approach called DMAIC.

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