

# Quality and Data-Driven Decision Making (D3M)

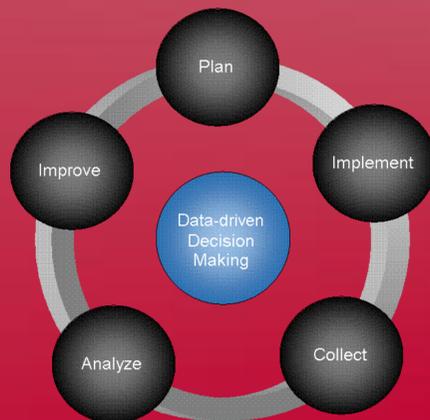


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## Introduction:

Quality is a never ending process and decisions made on ways to improve quality should not be made on your gut feelings or intuition. The key to implementing improvements to quality is data-driven decision making (D3M). Data-driven decision making is a systematic process of collecting and analysing data, making a judgment about the data; and then making a decision based on the knowledge derived from that judgment to make improvements.

## The Data-Driven Decision Making Process



Once the planning phase is complete the data collection methods should be tested and modified based on any feedback received. When the final methods for data collection have been agreed implementation and data collection can begin.



Data should be collected and analyzed on a regular basis and it should be analyzed in ways that reveal the relationships, patterns and trends. A few possibilities for data analysis include:

- Simple counting, graphing and visual inspection of frequency or rates.
- Calculating the mean (average), median (midpoint), and/or mode (most frequent) of a series of measurements or observations.
- Using visual inspection of patterns over time to identify marked increases or decreases in the measures over time.
- Statistical analysis.

- Keep data analysis simple and don't overwhelm the audience.
- Give a splash of color and use visuals.
- Label charts clearly.
- Avoid technical jargon.
- Focus on your quality goals.

After data analysis is complete it is time to make a decision based on the knowledge derived from that analysis to make improvements.

- Critically evaluate all data findings.
- Draw reasonable and proper inferences about quality from the results of your analyses.
- Do you have major findings?
- How do they impact the quality in your organization?
- Do the findings warrant a need for making an improvement?
- If a need for improvement is required try to identify a root cause or conduct further analysis to find out the root cause.
- Implement a change to make the improvement.

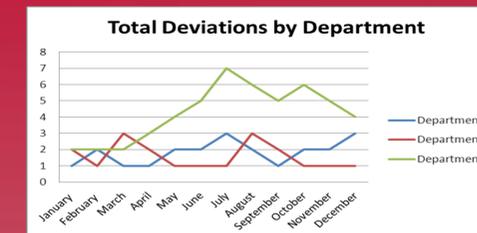
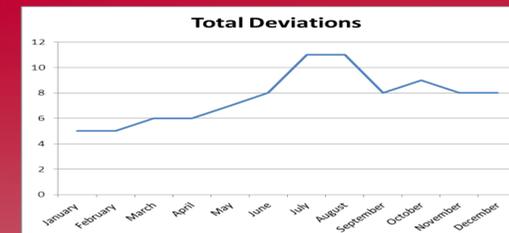
Once you've implemented D3M and gained the knowledge that your data provides, it's time to start the process again.

- Use what you've learned to continue to evaluate what you do.
- Continue to collect and analyze data and continually improve the quality within your organization.

## A simple example of the D3M process is provided below:

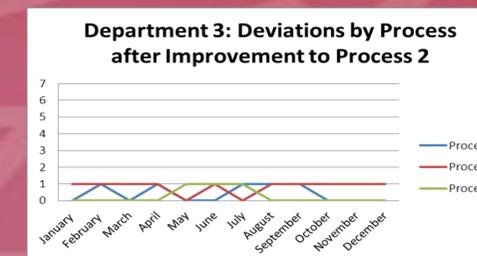
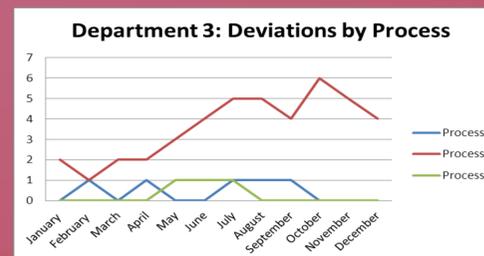
Deviations have been identified as a measure of quality within the company and data has been collected on deviations. Analysis indicates the following:

- There is an increase in deviations over the year.
- The increase in deviations can be attributed to one department in particular.



The findings were communicated to the relevant departments and the responsible person for department number 3 analyzed the data further and identified a problem in the department's process number 2.

- Process number 2 was deconstructed into its component parts.
- The root cause was identified.
- A decision was taken and appropriate changes were implemented to correct the process.
- The improvement was measured and monitored on a regular basis.



The example above demonstrates that the D3M process does not have to be complex and it can be valuable in making a clear and understandable decision based on data to improve the quality of a process.

## Conclusion:

The D3M process provides the capacity to make clear and understandable decisions for improving quality that are based on real data and not on gut feelings or intuition. The D3M process does not have to be complex and the process can be applied in any organization to make improvements to quality.



The first essential step of the D3M process is to develop a plan.

- Determine what data will be collected in order to improve quality.
- Determine who will collect the data.
- How the data will be collected.
- When the data will be collected.
- When the data will be analyzed.
- Identify data that will reflect the quality goals of your company.
- Identify benchmarks and performance targets.
- Identify stakeholders, create data ownership and involve the stakeholders in all stages of the process.
- Ensure stakeholders have some basic understanding of the fundamental principles of data analysis and the D3M process.
- Ensure data collection and analysis is built into the workflow making it easier for the stakeholders.