



Improving the Use of Experiments within Six Sigma

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We are interested in improving high-volume manufacturing processes. Six Sigma provides a template for process improvement with a series of well-defined steps: Define, Measure, Analyze, Improve, Control (DMAIC). Within these steps, empirical investigations and statistical analysis are used to help move to the next step. Statistical Engineering refers to the science of doing Statistics better. Our goal is to improve the way we use full and fractional factorial experiments within DMAIC to investigate a variety of process changes. The goal of such experiments may be to find a way to shift the process center or to reduce the sensitivity of the process to some known or unknown sources of variation. Such experiments are often carried out after the existing process has been well studied. We consider how a variety of available data, collected in the early stages of a project, can be used to improve the planning and analysis of the experiment.

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