Learnings via Sequential Applications of Designed Experiments: It's Not Just About The Xs

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Abstract

Although Six Sigma initiatives vary in breadth and depth of content, Statistical Design of Experiments is a typical methodology in these efforts. A widely-held belief is that organizational gains are primarily obtained from optimal level setting of experimental the factors (i.e., Xs) explicitly manipulated in Designed Experiments. In contrast, it is the authors' experience that the greatest gains are often derived from understanding sources of variation not deliberately manipulated in the experiment but that manifest themselves over the course of the experiment. Several examples, based on applications of designed experiments in manufacturing and product design, are provided and discussed.