

## Improving Efficiency and Effectiveness of FMEA Studies

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**Abstract :** This paper discusses the challenges engineering teams face in conducting Failure Modes and Effects Analysis (FMEA) studies. This paper focuses on the specific topic of improving the efficiency and effectiveness of FMEA studies. Modern economic needs and increased business competition require engineers to constantly develop newer and better solutions within shorter timeframes and tighter margins. In addition, documentation requirements for meeting standards/regulatory compliance and customer needs are becoming increasingly complex and verbose. Managing open actions and continuous improvement activities across all projects, product variations, and processes in addition to daily engineering tasks is cumbersome, time consuming, and is susceptible to errors, omissions, and non-conformances. FMEA studies are proven methods for improving products and processes while subsequently reducing engineering workload and improving machine and resource availability through a pre-emptive, systematic approach of identifying, analyzing, and improving high-risk components. If implemented correctly, FMEA studies significantly reduce costs and improve productivity. However, the value of an effective FMEA is often shrouded by a lack of clarity and structure, misconceptions, and previous experiences and, as such, FMEA studies are frequently grouped with the other required information and documented retrospectively in preparation of customer requirements or audits. Performing studies in this way only adds cost to a project and perpetuates the misnomer that FMEA studies are not value-added activities. This paper discusses the benefits of effective FMEA studies, the challenges related to conducting FMEA studies, best practices for efficiently overcoming challenges via structure and automation, and the benefits of implementing those practices.

**Keywords :** FMEA, quality, APQP, PPAP

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