Practical Guide to FMEA

A Proactive Approach to Failure Analysis

PRACTICAL GUIDE TO FMEA: A PROACTIVE APPROACH TO FAILURE ANALYSIS

First edition. September 27, 2020.

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Publisher: Personal Lean Publications
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No AI-generated text, translation, or images were used in the production of this work.

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Defining Failure Mode Effect Analysis FMEA and Potential Applications

An FMEA is a systematic method for identifying and preventing product and process problems before they occur. FMEAs are focused on preventing defects, enhancing safety and increasing customer satisfaction.

FMEAs are conducted in the product design or process development stages, although conducting an FMEA on existing products and processes can also yield substantial benefits.

What is the purpose of a FMEA?

Preventing the process and product problems before they occur is the purpose of Failure Mode Effect Analysis. Used in both the design and manufacturing process, they substantially reduce costs by identifying product and process improvement early in the develop process when changes are relativity easy and inexpensive to make.

FMEA can provide the answer to many problems:

How can we prevent this problem from occurring again in the future?
How can we minimize the risk of this potential failure?
How can we produce an error-free product?

How can we reduce the warranty costs?
How can we improve the safety condition in the workplace?

FMEA as a part of a Comprehensive Quality System
Can FMEA be used alone? While FMEAs can be effectively used alone, a company won't get maximum benefit without systems to support conducting FMEAs.

Two things are necessary needed:

1. A reliable product or process data. Without this data, FMEA becomes a guessing game based on opinions rather than actual facts. Without data the team may focus on the wrong failure modes or missing significant opportunities to improve the failure modes that are the biggest problems.
2. Documentation of procedures. In the absence of documents and procedures, people working in the process could be introducing significant variation in to it by operating it slightly different each time

FMEA is one of the ISO 9001:2000 requirements as you must have a system capable of controlling process that determine the acceptability of your product or services.

Benefits of Failure Modes Effect Analysis "FMEA"

The object of an FMEA is to look for all of the ways a process or product can fail. A product failure occurs when the product does not function as it should or when it malfunctions in some way.

Contribute to improve design for product & process

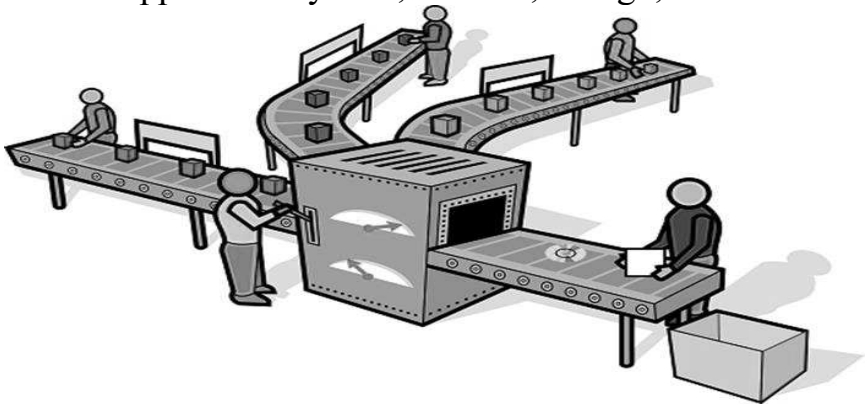
- Higher reliability.
- Better Quality.
- Increase Safety.

Contribute to cost saving

- Decrease development time & redesign cost.
- Decrease warranty costs.
- Decrease wastes.

Contribute to continuous improvement

FMEA Applies to: System, Process, Design, and Service



FMEA helps manufacturing engineers control the process and eliminate errors during production, thus decreasing warranty costs and wastes.

Service engineers use FMEA to improve the lifecycle of the product and lower its service costs by developing a proper maintenance program.

Potential Applications:

- Equipment components & parts.
- Component proving process.
- Outsourcing/resourcing of product.
- Develop suppliers to achieve quality.
- Major process/ Equipment / Technology Changes.
- Cost Reductions.
- New Product/ Design Analysis.
- Assist in analysis in a flat Pareto chart.