

Improving Customer Satisfaction in the Service Industry
using Failure Mode & Effects Analysis

By

Debbie Vermilion

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IMPROVING CUSTOMER SATISFACTION IN THE SERVICE INDUSTRY USING FAILURE MODE & EFFECTS ANALYSIS

Introduction

Repetitive failures cost companies millions of dollars in redesign costs, liabilities, and transaction costs. However, by far the most serious cost of these failures is the lost business that results from customer defection. For service companies, the task of providing error-free services is even more challenging because their intangible nature renders subjective perceptions of quality. Equally troublesome is the uncontrollable element of customer participation in the service process because production and consumption occur as a simultaneous process. Despite these challenges however, service quality and customer satisfaction are closely related constructs. When service providers continuously strive to develop error-free processes, customer satisfaction is sure to follow.

What is FMEA?

Failure Mode and Effects Analysis (FMEA) is a logical, proactive technique that is used to identify and eliminate potential causes of failures. The technique was first used in the aerospace industry to find problems with an aircraft before it ever left the ground. Today, FMEA is in widespread use by a multitude of industries, many of which have begun imposing FMEA standards.

In the services industry, FMEA is critical because once a service encounter has occurred (and resulting customer dissatisfaction has ensued), any corrective actions taken by the service provider will likely be futile. With FMEA, potential failure modes in the process are identified in *anticipation* of the service encounter. In this way, the potential for errors is reduced or eliminated, allowing for only the smallest probability of customer dissatisfaction.

What steps should be taken to conduct a FMEA?

Once a service provider decides FMEA is the right choice, the following ten steps can be used to guide the implementation process:

1. Select a service process to be analyzed
2. Define responsibility (team, engineers, designers, developers etc)
3. Flow-chart the process
4. List and describe all failure modes at each step in the process
5. Perform a criticality assessment by determining the risk level for each fault by failure probability or severity of failure
6. Rank the faults in terms of priority
7. Design changes to reduce the risk of the highest priority failure modes
8. Specify outcome measures and criteria to determine the success of the changes
9. Specify a time frame
10. Implement the changes and evaluate

Design changes should continue until all possible causes of failure have been reduced or eliminated. As mentioned earlier, while FMEA can technically be performed at any stage, ideally it is performed at the process design stage. This way, potential problems can be identified and prevented *before* the process is put in place.

What potential rewards can FMEA provide?

Service companies who frequently conduct FMEA's and evaluate their success typically experience:

- Minimized customer defection/increased customer satisfaction
- Increased consistency in service quality
- Reduction of costly design changes
- Reduced transaction costs/increased profits
- Reduced liability

What are the advantages of using FMEA versus other methods?

FMEA is differentiated over other types of failure analysis methods in that it is particularly adept at:

- Identifying *cause* and *effect* of known and potential failures *before* they occur
- Providing documentation of failures which can be tracked over time
- Making accountability easier to pinpoint
- Facilitating continuous improvement
- Creating a common language that can be easily understood by both technical and non-technical people in the organization

FMEA in practice: Six Sigma Qualtec

An investment management firm providing a transactional web site to 401(K) plan participants received numerous complaints from clients who could not make informed investment decisions because the web site was not being updated in a timely manner. Mutual Fund Asset Value updates, for example, were late 35% of the time. The firm identified non-value added steps in their web site update process, using process maps, FMEA, measurement system analysis, ANOVA, multi-variable analysis and process control systems. The non-value added steps were eliminated, and manual reconciliation was automated. Eventually, the firm outsourced a standardized process to a third party web administrator, which yielded \$100,000 in net savings. **At-risk revenue retained through client satisfaction was \$5 million.**

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<http://www.apis.de>

<http://www.ipm-marketing.co.uk/fmea.htm>

<http://www.fmea.com>

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