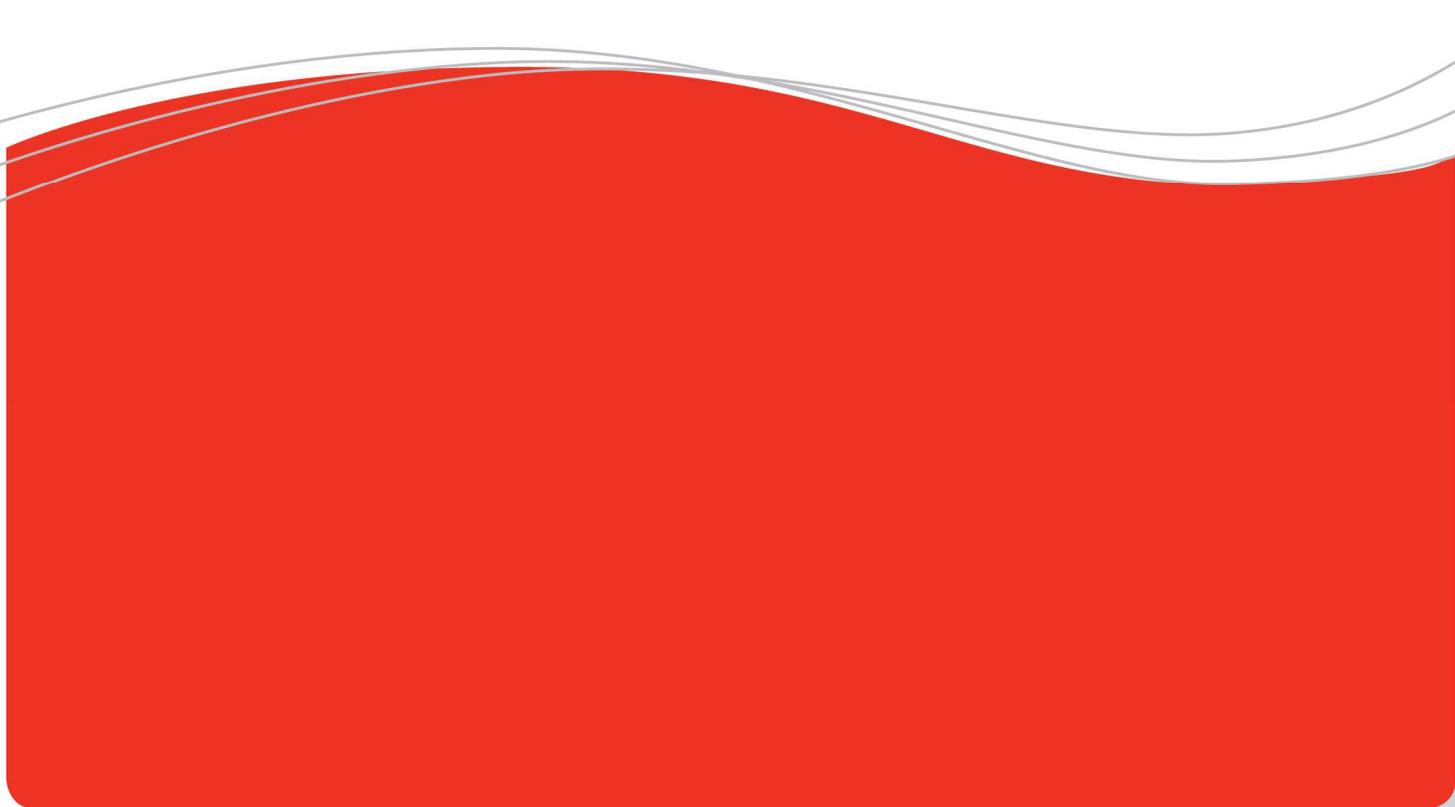




**Why is FMEA cost effective?**



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## Why is FMEA cost effective ?

### Introduction

FMEA needs resources, time and effort, Extra time at the design stage, maybe CAPEX for new equipment or software, possibly additional training. If the severity is in the 8-10 range then you will have to make the improvements just to be able to sell your product. What about the smaller issues, the minor inconvenience to the customer, the small variation that causes that bit of extra rework in the next manufacturing step?

In this White Paper we'll look at a range of cost savings or revenue improvements that FMEA can bring. Not all of them will be realised by every company in every situation. There will be a mixture of hard and soft benefits. Of course the list is incomplete; it's a selection to illustrate the financial benefits of FMEA.

### To start with "A picture says a thousand words".

When you are completing the FMEA and it seems hard it's worthwhile keeping this picture in your head along with this rule of thumb;

"A problem that cost \$1 to fix at the design stage costs \$10 to fix at the manufacturing stage and \$100 to fix if the customer finds it"

If a significant number of customers find a problem the damage to your reputation may be irreparable.

### The cost of solving failures





### **Financial consequences that hit the top and bottom line.**

Often your initial continuous improvement effort will be focused on reducing waste and directly contributing to the bottom line. As your skills develop you will find that improving quality can add significantly to the top line as well. Quality improvements will increase business. Your initial DFMEA or PFMEA will probably include a lot of issues that you already know about. The FMEA will ensure this list is complete and in one place. It will also help you to prioritize these issues from the customer's perspective. Just having the issues in one place saves time and this is before you have accrued the benefits of acting on the FMEA

Financial benefits can include;

- Reduced scrap or rework inline. The savings here in labor and material are obvious but what if the problem process is a bottleneck step? In this case you get the additional benefit of increased capacity. This can be particularly useful during the early life of a product when it is demanding a premium price.
- Reduced field failures. Even a low level of field failures in automotive is expensive. Root cause analysis and corrective actions can eat up everybody's time from the nightshift operator performing a DOE to the CEO taking a long call from a disgruntled CEO at a major OEM. On the other hand if you do a great job, review your FMEA and discover a few more improvements you can demonstrate to you customers how you really are working hard to reduce defects. This can result in more business; you may well find yourself being asked to provide 40% of the customers' requirements instead of 30%.
- A good design FMEA will result in a faster production ramp up and less defects produced during the initial phase of production. You will have already analyzed the manufacturing process and made some initial improvements. The NPI will go smoothly. The sooner a product is in production the sooner it is generating revenue often at a higher margin than the mature products. Fewer defects will result in less field failures.
- As scrap and defects are reduced less labor is required within the manufacturing process. You can reduce expensive overtime. Use the labor savings to pursue even higher levels of quality; it is a continuous process towards perfection!

### **Less obvious additions to the top line**

Increase market share can result from your improved reputation as your quality improves. Again we mentioned this earlier but it is worth repeating. Improving your quality can mean that existing customers place more orders with you. If you communicate this well, then new customers will seek you out as a supplier. Make sure you tell people how you have used FMEA to improve your quality. The improvements have come about by good method and hard work not luck. They will be sustained.



### **Obvious soft savings**

Generating a FMEA can help to build your team and improve your communication. Often the contributors are disparate groups, designers, customer quality engineers and manufacturing experts who rarely talk to each other. The FMEA will get them working together as a team. Their ideas will result in focused useful actions

Internal audits, External audits, Customer audits they are a fact of business life. Preparing for them can be time consuming and frustrating. Staff would much rather be doing something useful. If you have your FMEA up to date and stored in an easy to use software system then preparing for audits just becomes a bit of sanity checking. The time previously spent searching for the FMEA, updating them and working out what to say to the auditor becomes time that can be used to drive improvements.

### **Less obvious soft savings**

The mere process of performing a FMEA can help a quality culture develop within your organization. Within your design and manufacturing areas once people realize that recognizing problems is recognized as useful then they will start to do more. The FMEA will be the focus for these efforts; staff will start to use the method without being asked because it works. This culture can spread beyond your engineering and manufacturing and into your other business processes for example new equipment installation, purchasing and recruiting. The awareness of risk will increase within your organization and you can broaden the use of FMEA to mitigate this risk.

How do you define your routine work? Inputs come from various sources, engineers, designers, and shop floor staff. What actually gets done can depend on who shouts the loudest or if the problem actually interests anybody. You can use the FMEA to collect these ideas systematically prioritize those which give maximum benefit to the customer.

### **Conclusion**

The use of FMEA can have a direct impact on the top and bottom line of the balance sheet. Hard savings and top line benefits are realized by reducing scrap, defects and field failures. With good communication the overall quality improvements realized can result in increased orders and new customers. Broadening the use of FMEA to other business processes for example process transfer will reduce errors and save time. Communicating your success to your customers can bring extra business. FMEA will become an integral part of your business and will play an essential role in improving customer satisfaction.