

What in the world is Failure Modes and Effects Analysis?

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This tool applies to all businesses and process areas: Service, Manufacturing and Design
Have you ever implemented a new process or released a new product and have problems occur that you did not anticipate?

“We were designing a new product and thought we had really smart engineers working on the project-but we still had lots of problems after product release!! What happened?”

“We assembled the best team to redesign this process but we still missed deadlines and had many changes after we thought we were done!”

The FMEA tool has been around for over 30 years (it has it’s origin from the Apollo Space program) but it is still under utilized. Automotive suppliers are well aware of its QS 9000 requirement but are not fully realizing it’s full potential. This tool does not require complicated statistics and is easy to learn. It incorporates several other tools such as brainstorming, teaming and paretos.

The FMEA answers the question: “How can this design or process fail to do what it is supposed to do?”

It is a preventive action tool that tries to anticipate problems and causes before they occur and institutes corrective actions so that they don’t.

“We got the team together to work on a problem but we focused all of our energy and time on something that just wasn’t as important to the customer.”

The FMEA tool looks at the customer impacts of these failure modes and prioritizes the risks based on their severity to that customer. Health and Safety issues are always at the top of the list.

The FMEA is conducted in a team setting where all the stakeholders brainstorm potential failure modes (or problems) before a product or process is released! It is one of the most powerful tools available to identify and reduce potential failure modes and risks.

Elements of the Tool: **Process Function:** List the area being reviewed. **Potential Failure Mode:** The potential failures or problems that occur to the customer (Symptoms). **Potential Effects:** What effect does this failure mode have on the customer?

The **Severity, Occurrence and Detection** are numbers from 1-10 and determine how severe the failure is, how many times it has occurred and how good are the controls to detect the failure. The RPN is the **Risk Priority Number** and is found by multiplying these 3 numbers together. This RPN determines the priority of corrective actions.

Potential Failure Mode and Effects Analysis, FMEA																
<input type="checkbox"/> System <input checked="" type="checkbox"/> Subsystem <input type="checkbox"/> Component <u>01 03/Body Closures</u>		POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS (DESIGN FMEA) Design Responsibility <u>Body Engineering</u>					FMEA Number <u>1234</u> Page <u>1</u> of <u>1</u> Prepared By <u>A. Tate - X6412-Body Engr</u> FMEA Date(Orig) <u>0X 01 22</u> (Rev) <u>0X 03 22</u>									
Model Year(s)/Vehicle(s) <u>199X/Lion 4dr Wagon</u> Core Team <u>T. Fender-Car Product Dev., Childers-Manufacturing, J. Ford-Assy Ops (Dalton, Fraser, Henley Assembly Plants)</u>		Key Date <u>9X 03 01 ER</u>														
Item Function	Potential Failure Mode	Potential Effect(s) of Failure	S e v e r i t y	C a u s e s	P o t e n t i a l C a u s e s (s) M e c h a n i s m (s) o f F a i l u r e	O c c u r r e n c e	C u r r e n t D e s i g n C o n t r o l s	D e t e c t i o n	R e c o m m e n d e d A c t i o n (s)	R e s p o n s i b i l i t y & T a r g e t C o m p l e t i o n D a t e	A c t i o n s R e s u l t s					
											A c t i o n s T a k e n	S e v e r i t y	O c c u r r e n c e	D e t e c t i o n		
Front Door L.H. 188HX-0000-A	Corroded interior lower door panels	Deteriorated life of door leading to unsatisfactory appearance due to rust through	7		Upper edge of protective wax application specified for inner door panels is too low	6	Vehicle general durability test veh. T-118 T-109 T-301	7	294	Add laboratory accelerated corrosion testing	A Tate-Body Engr BX 09 30	Based on test results (Test No. 1481) upper edge spec raised 126mm	7	2	2	28