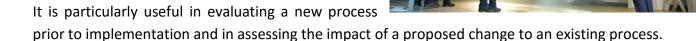# FMEA – Quantifying risk

FMEA is a systematic and proactive analysis of a system that estimates WHERE and WHEN a failure may occur and what effects it will generate.

FMEA is the acronym for Failure Mode and Effects Analysis

FMEA assess the relative impact of different failures, in order to identify the parts of the process/system that are most in need of change.

The FMEA was used by the American aeronautical industry during the Apollo missions in the '60 and then taken over in 1974 by the US Navy and the automotive industry.

It is particularly useful in evaluating a new process prior to implementation and in assessing the impact of a proposed change to an existing process.

FMEA uses three criteria to assess a problem:

❖ **Severity** of the effects for the customer
❖ **Occurence** – the probability to happen
❖ **Detection** – how easily the problem can be detected

The fundamental indicator of FMEA is RPN – Risk Priority Number, calculated according to the formula:

RPN = Severity x Occurence x Detection

Once all the failure modes have been assessed, the team should adjust the FMEA to list failures in descending RPN order. This highlights the areas where corrective actions can be focused. If resources are limited, practitioners must set priorities on the biggest problems first..