Event Tree and Fault Tree Analysis Defined

from PMGT613

by

Troy Stempfley

Embry-Riddle Aeronautical University Worldwide

PMGT 614

November 2016

An event tree analysis and its closely related, yet converse operation, the fault tree analysis are two quantitative methods that identify the events which lead to a risk occurrence. The event tree starts at an event and then looks at the possible outcomes and their associated probabilities and risks to chart the best path forward. The fault tree looks at the risk and backwardly identifies the possible event probabilities that led or leads to the risks realization.

Each of these tools are useful in risk mitigation or avoidance, but can also be used to capitalize on opportunities. An event tree typically answers the questions what could happen if "X". Where a fault tree answers the question if "X" what probable event lead to it. Choosing one over the other depends upon the knowledge of the threat or opportunity. If you know the risk you're trying to avoid or capitalize on then the fault tree is the most logical path. When trying to determine possible risks from an event then the event tree is the most appropriate.

In my work we predominantly use a fault tree analysis to determine causal probabilities and enhance lessons learned following an incident. "Fault tree analysis techniques were first developed in the early 1960's. Since this time they have been readily adopted by a wide range of engineering disciplines as one of the primary methods of performing reliability and safety analysis" (Event Tree Analysis). As a post action tool it helps to provide all the contributing factors and predominate cause of the event.

Reference:

Event tree analysis (n.d.). Retrieved April 21, 2016, from http://www.eventtreeanalysis.com/