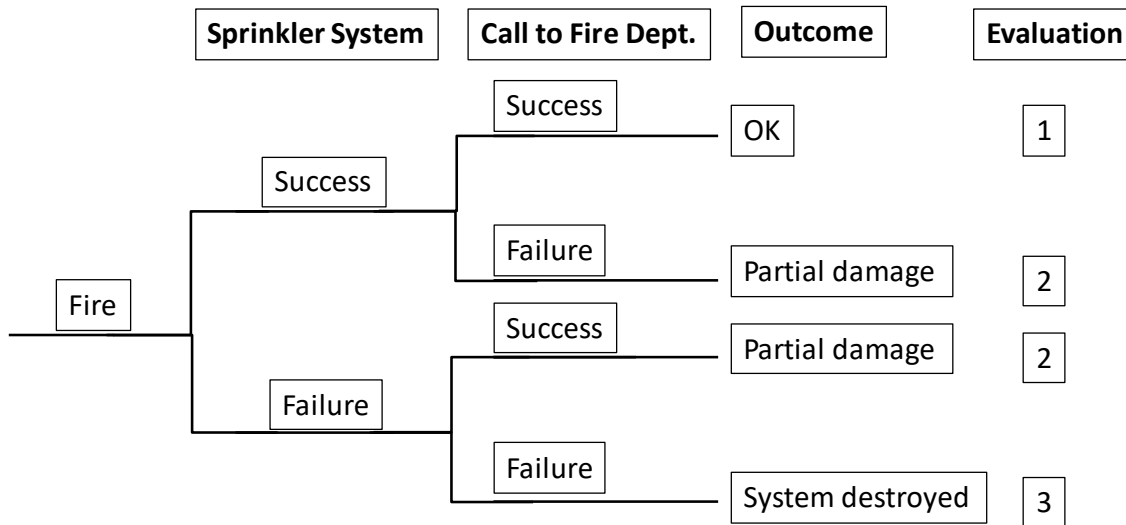


### Description

Event Tree Analysis (ETA) is a method that examines the consequences of a particular event. Starting from an initial event, the tree is divided into two branches, whereby the upper one represents a positive and the lower one a negative development (event trees are usually drawn from left to right). Repeated branching of the tree shows possible effects of an initial event on a system. The aim of ETA is the identification of possible damage events.

ETA has been effectively implemented to analyse the cause of accidents and to identify hazards for a top-event. This method can be applied qualitatively by obtaining the possible outcomes and quantitatively by evaluating the probability of occurrence.



### Basic procedure

1. define an initial event
2. carrying out a system analysis
3. define the subsequent causes
4. determine the probability of positive or negative development (quan. approach)
5. repeat steps 3 and 4 for all paths of the tree

### Prerequisites/Aids

- Sufficient information about the examined system

**Effort**

Depends strongly on the length of the event paths.

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• ETA is a method that can be learned quickly</li> <li>• Clear and comprehensible presentation of very complex contexts</li> <li>• Very structured and methodical approach</li> </ul>	<ul style="list-style-type: none"> <li>• ETA can become very extensive for longer paths and, in case of doubt, can only be evaluated with the help of computers.</li> <li>• Each ETA only takes one initial event into account</li> </ul>

**Related Literature**

Brunner, M. (2009): Tools for Improving Maintenance strategies and failure analysis processes, online available at: [https://reliabilityweb.com/articles/entry/tools\\_for\\_improving\\_maintenance\\_strategies\\_and\\_failure\\_analysis\\_processes](https://reliabilityweb.com/articles/entry/tools_for_improving_maintenance_strategies_and_failure_analysis_processes)

Klipper, S. (2011): Information Security Risk Management, Wiesbaden: Vieweg+Teubner.

Mokhtari, K., Ren, J., Roberts, C., Wang, J. (2011): Application of a generic bow-tie based risk analysis framework on risk management of sea ports and offshore terminals, Journal of Hazardous Materials, 192(2), 465–475