Recognize Impacts – Reliability Analysis of Systems

Improving system safety and reliability is a major challenge in product and process development. The Fault Tree Analysis method identifies the events and their combinations that can cause a system fail. It calculates estimates of the system's probability of failure. Depending on the industry or application area, different calculation methods can be used.

With PLATO e1ns, all parties involved in product and process development use a central system architecture for their activities. Functional interrelationships, as well as fault nets, are built up during the system analysis and then examined and assessed under various aspects. Thus, the failure net is used to build the FMEA and is also the basis for the fault tree analysis. New findings in fault tree modeling are automatically part of the system architecture and complement other analyses.
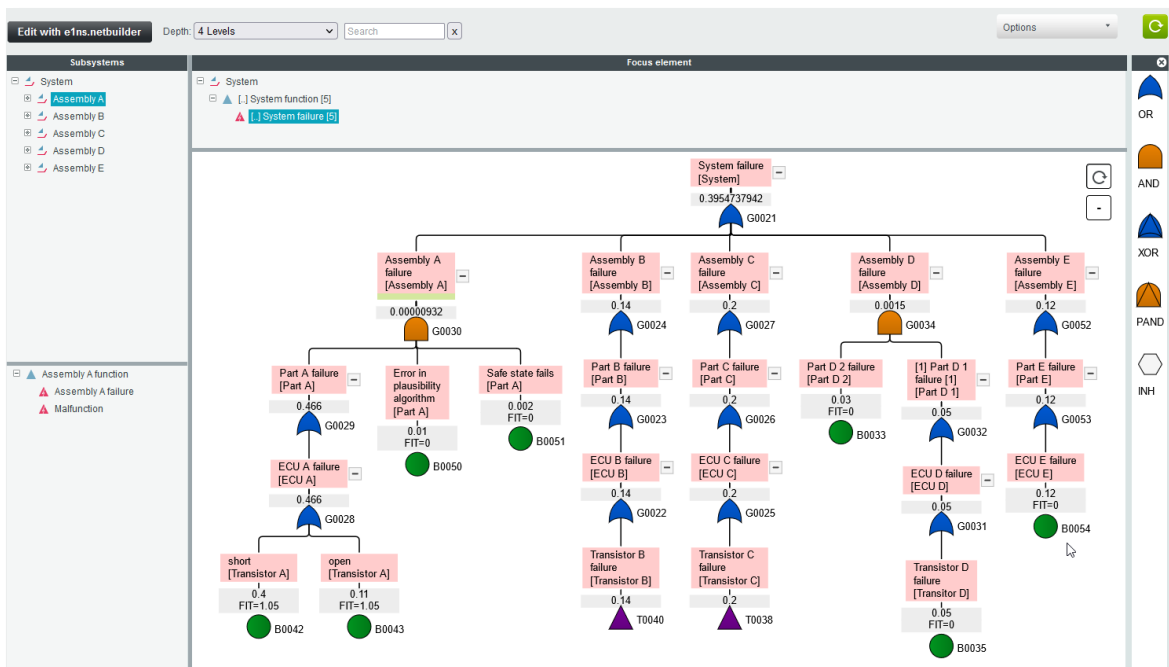

Fig.: Fault trees are created quickly and systematically using existing system structures and failure nets.

Use and Application

- Evaluation of system safety
- Design development: Identification of components that are major contributors to system fails
- Root cause analysis in case of complaints and deviations

- Functional safety according to IEC 61508 / ISO 26262
- Provides failures for FMEA
- Calculation of probabilities
- DIN 25424

Focus and Functions

System Definition

- For fault tree analysis basic knowledge about the system/product is required.
- In e1ns.fta all existing e1ns analyses are used as input: system structure, functional and failure nets, FMEA.

Qualitative Fault Tree Analysis

- The analysis starts with the identification of the top event in any depth of the system structure.
- Existing failure nets are automatically built up as a fault tree.
- Gates are created or changed by drag and drop.
- Determination and evaluation of minimal cut sets.
- Subtrees can be used multiple times.

Quantitative Fault Tree Analysis

- The basic events are assigned probabilities for their occurrence.
- For the top event, the probability is calculated with which the system fails / the top event occurs.

Reuse Knowledge and Reduce Effort

- Template management provides (generic) fault trees for variants and new projects.

Working in a Team

- Only a web browser is required to analyze a fault tree together.
- Simultaneous editing of the fault tree supports distributed working.

Use of Data for the FMEA

- Newly detected faults are used for the FMEA, but they can also be used exclusively for the fault tree analysis if required.

Functional Safety

- Interaction with FMEDA / ISO 26262 and the analysis of safety functions (monitoring, response).

Individual Configuration

- PLATO's modular concept enables company-specific configuration so that individual working methods can be made possible.
- Calculation models are plugins and are customized for companies. Additional calculations can be developed and easily installed as a plugin.

Your Benefit

- Visual, easy-to-understand representation
- Use of existing system structure and failure nets
- Design decisions are supported
- Optimization approaches are identified
- Quick start due to uncomplicated handling
- Provision via web browser; local installation is not required
- Data is always up to date