

Checklist:

Step 3 - Functional analysis in accordance with the standardized FMEA method description

1. Important input for the functional analysis from the results of the structural analysis.
2. No colloquialisms used; first presented in a practical manner.
Example: rather than "Ballpoint pen writes," it is better to say: "Ballpoint pen converts movement into writing."
3. Function consists of a noun and a verb.
Example: Induce torque. But it can also consist of more words like: Transfer torque from A to B.
4. Strategy for processing requirements is elaborated.
5. The assignment of functions to components is checked once more.
Example: Function of a sealing ring. Although it is tempting to say that the sealing ring seals, the sealing ring alone cannot seal: it must be part of an assembly in order to seal.
6. Checks whether components are carriers of the product features.

Tips and tricks:

- Parameter diagrams can be very helpful when it comes to accurately specifying functions, as they make it easy to show the system's inputs and outputs. This is also makes it easier to describe the function based on the transformation of the system.
Example: wireless mouse. Input: biaxial movements. Output: signals. Functions: convert biaxial movement into signals and send signals to the computer.
- Use of strong verbs; they describe physical effects. Weak verbs tend to indicate a requirement rather than a function.
Examples:
 - i) Weak verbs: "ensure" "guarantee" → Strong verbs: "friction-locked" "positive-locked" fixation, "position."
 - ii) Ensure non-corrosiveness → requirement rather than function

- Linking the function of all levels & system elements to functional networks.
Example: function of the refill: store ink. Function of the overall ballpoint pen system: implement motion → functional relationship is represented in terms of function networks by means of functional linkage

Important questions:

- 1) **Why?** – Answer on the next highest level
- 2) **How?** – Answer on the next lower element
Example: Why does refill need to store ink in the overall ballpoint pen system? To transform motion into an image.



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