



## Root Cause Analysis

Root cause analysis refers to a set of analytical methods for uncovering the fundamental reasons why a problem occurred or a defect was introduced. Understanding the root cause is key to sustainable corrective actions.

Some common root cause analysis methods include:

- **5 Whys** - Iteratively ask "why" until the source is revealed. Each answer forms the basis for the next question.
- **Fishbone diagram** - Organizes potential causes visually. Helps analysts drill down by categories.
- **Fault tree analysis** - Models how failures propagate through dependent event chains.
- **Barrier analysis** - Identifies barriers that should have prevented the issue and how they failed.
- **Change analysis** - Compares a period without problems to a problematic period to spot differences.
- **Causal factor tree** - Represents causal factors in a tree hierarchy with branches showing multi-level relationships.

Effective root cause analysis depends on gathering data relevant to the problem, asking probing questions, pursuing multiple hypotheses, and resisting oversimplification. Analysts need an open mindset.

Benefits of identifying the true root cause include:

- Solutions address the source versus just the symptom
- Prevention of problem recurrence
- Increased process resilience
- Reduced inspection costs
- Improved capability maturity

Performing robust root cause analysis is a key enabler of proactive management and continual improvement. It transforms organizations from reactive firefighting to preventing fires before they ignite.