

Operational problem analysis (OPERA)

Presented by

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OPERA objective

■ Main objective

- Identify all kinds of unwanted events related to the concept through operational lifecycles*
- Reduce the risk to an acceptable level through risk reducing actions

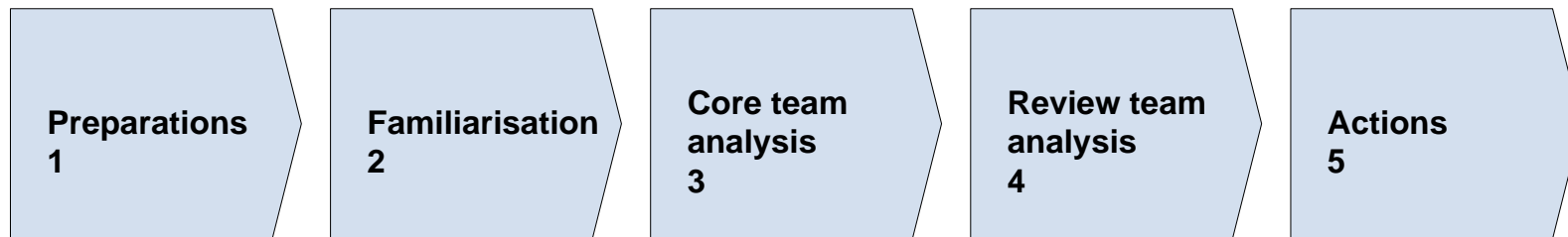
■ Detailed objectives

- Be a comprehensive and systematic documentation of potential problems
- Identify problem causes and problem cause reducing actions
- Identify serious consequences and consequence reducing actions
- Avoid costly modifications by early identifications
- Increase the knowledge and understanding of the system
- Further develop the requirement specification
- Improve vendor's and operators reputation by having control of potential problems

* storing, transportation, installation, operation and maintenance

Work process

- The OPERA work process is divided into five activities



The core team becomes familiar with the documentation

The analysis is reviewed and corrected by a multi-discipline review team

Agree on what to do, appoint participants and provide documentation

The core team is filling out the risk analysis worksheet

Actions are evaluated and implemented

Worksheet

■ OPERA worksheet

Operational steps	Study nodes	Operational problems	Causes	Consequences	Risk	Suggested risk reducing actions and remarks

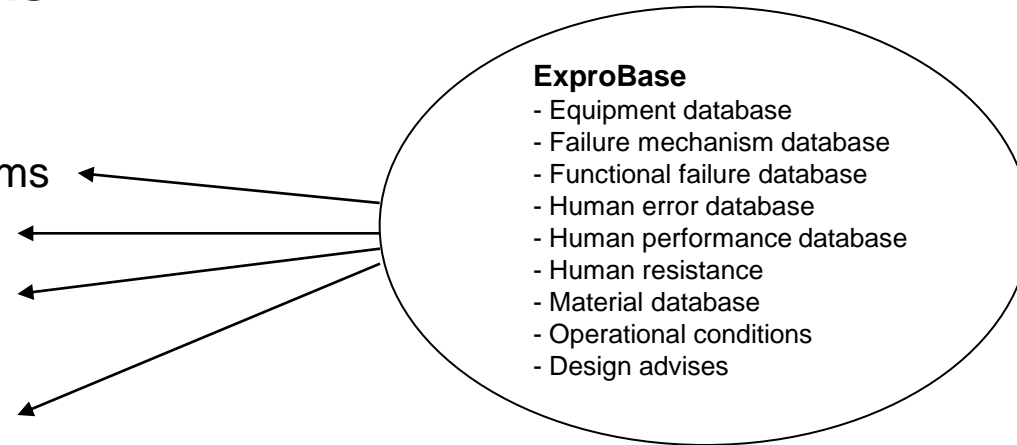
■ Note

- The worksheet will be adjusted to the system to be analysed
- Each column has a predetermined and structured format for the content
- Risk is a function of failure rate and severity
- Both *existing* cause and consequence reducing actions are included
- Suggestions for *new* cause and consequence reducing actions are included

Support

■ Worksheet columns

- Operational steps
- Study nodes
- Operational problems
- Causes
- Consequence
- Risk
- Risk reduction



When

■ Concept design

- The OPERA should be executed during the concept design phase

■ Existing equipment

- The OPERA can also be executed for existing equipment, but only as seen from the outside (coarse analysis)