



Causes of avoidable unscheduled outages

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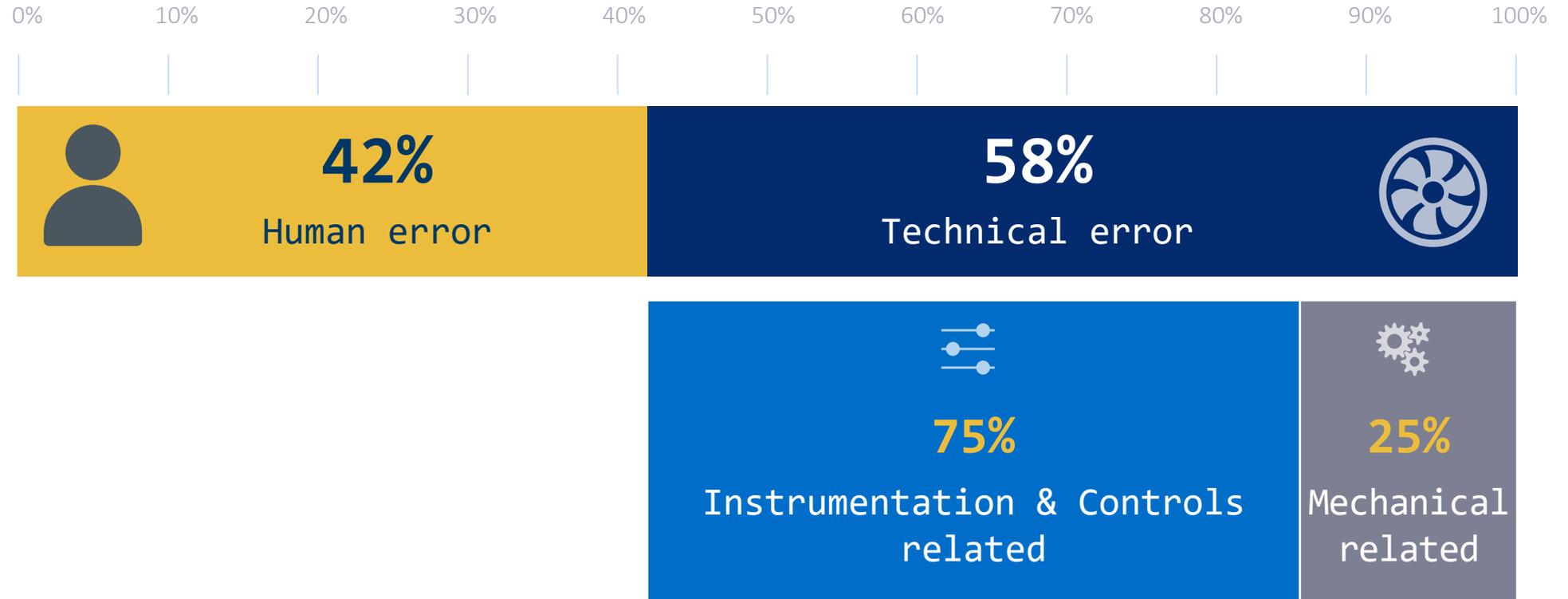
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Causes of avoidable unscheduled outages





Most common causes of human error

- Limited reliable information for decision making
- Limited education & training
- Limited professional experience
- Limited on-the-job guidance & support
- HMI not understandable for operators
- Procedures not up-to-date
- Manuals & drawings not up-to-date
- Lack of time for systematic analysis & reflection

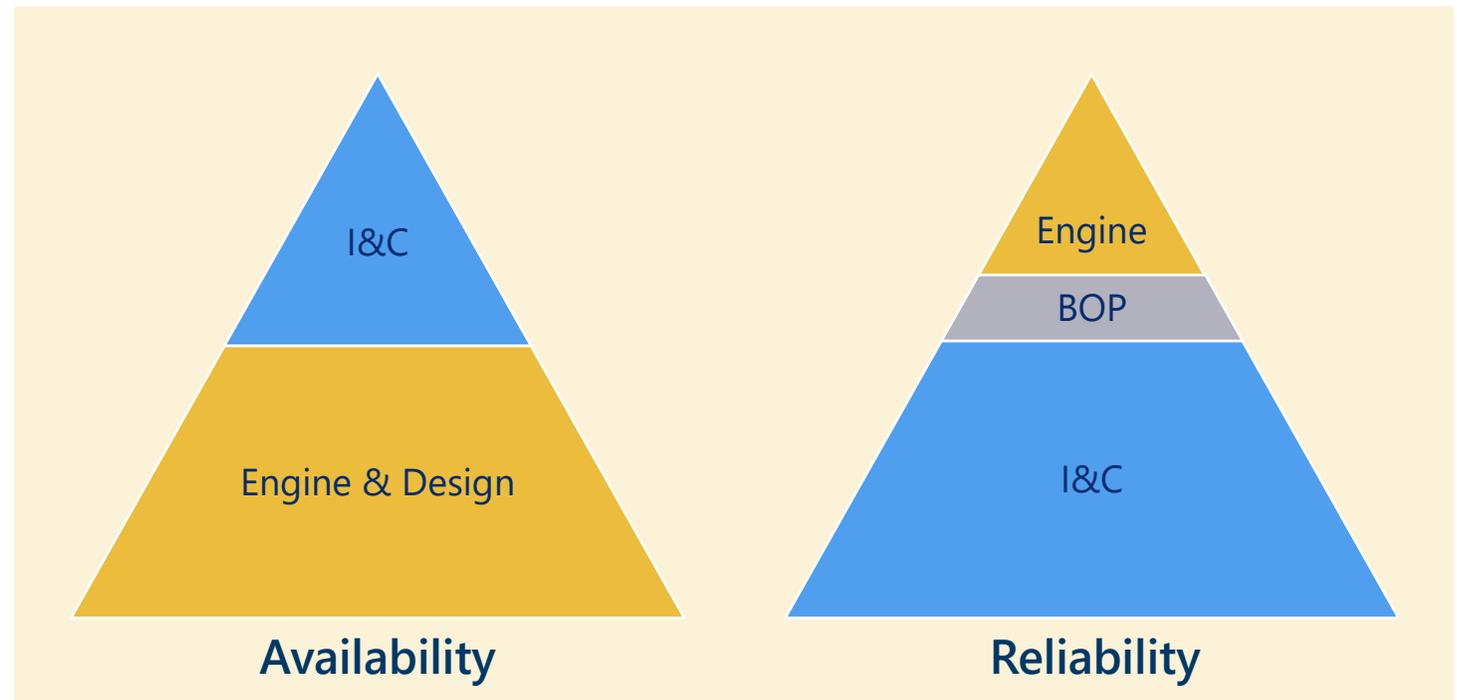




Main consequences of technical error

Technical error will always result in **lower availability** & **lower reliability**.

Instrumentation & controls errors have significant impact on availability and heavy impact on reliability.





Sustainable reduction unscheduled outages requires simultaneous improvement ...

Improvement process

