



17th Chemical Process Safety Sharing (CPSS)

Topic: Elevating PHA Quality for Sustainable Process Safety

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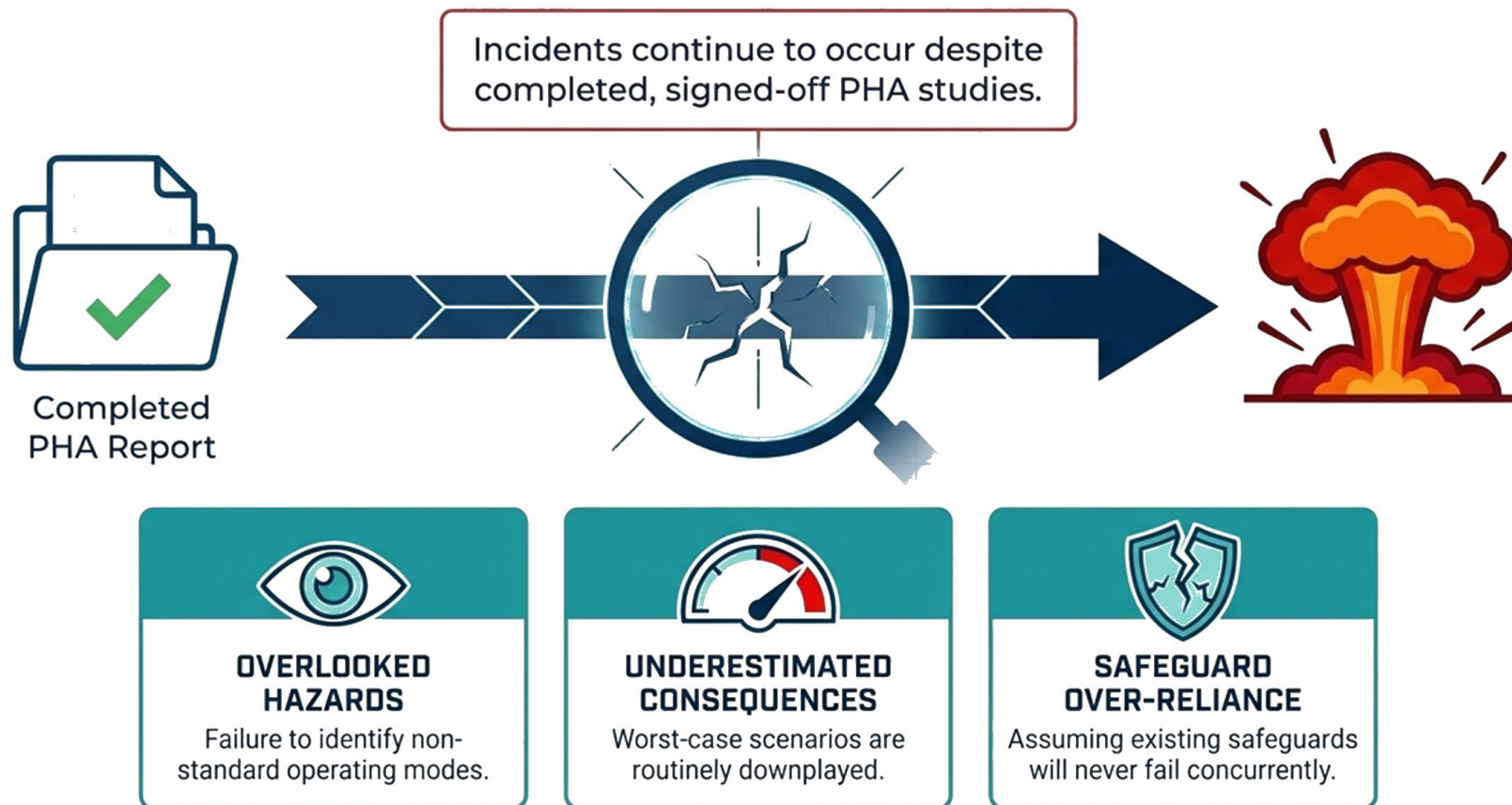
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Introduction

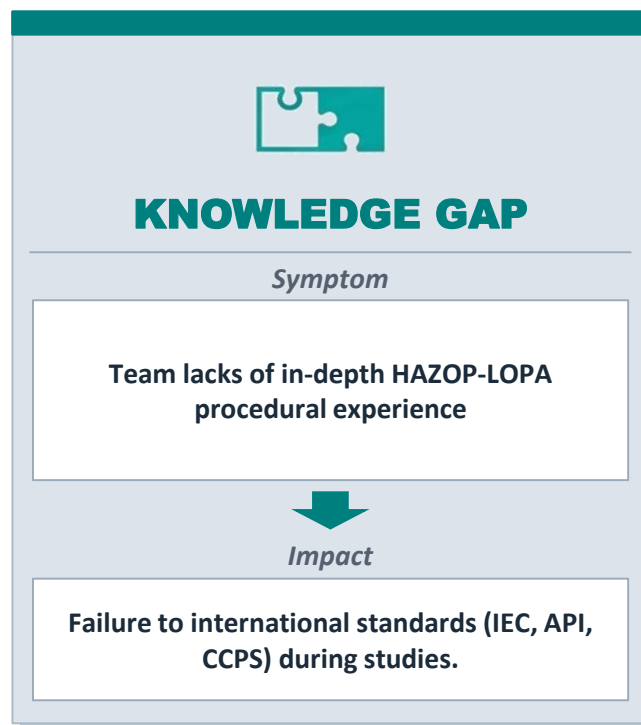
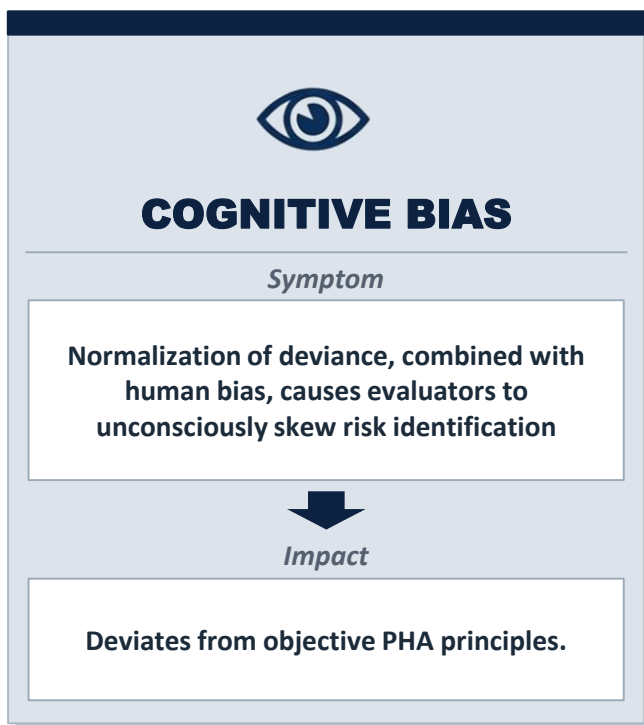
THE PROCESS SAFETY PARADOX





Gap Analysis

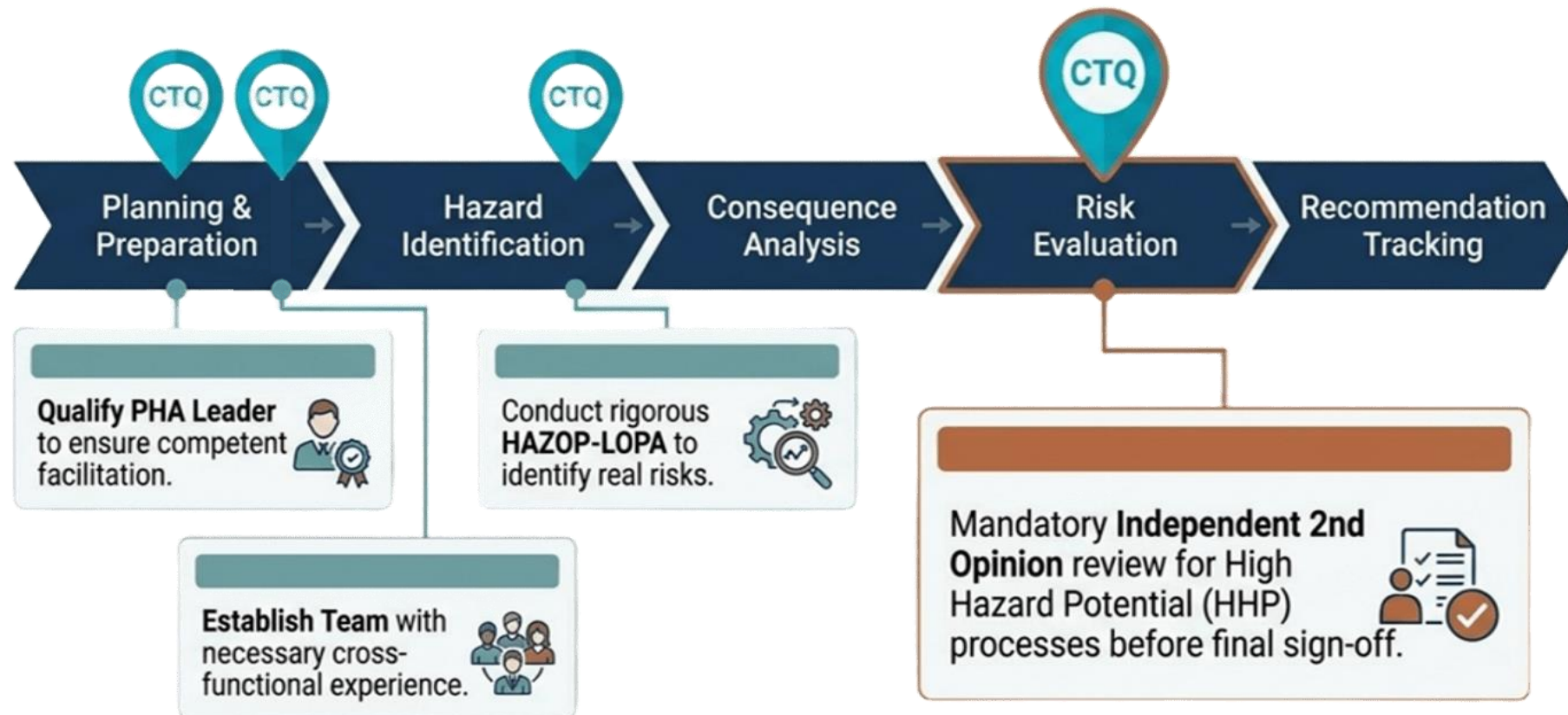
DECODING THE BLIND SPOTS IN CURRENT WORK PROCESS





Strategies for Elevating PHA Quality

RE-DEFINE PHA WORKFLOW TO ELIMINATE BILID SPOTS



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Strategies for Elevating PHA Quality

SHIFT TO QUALITY-DRIVEN

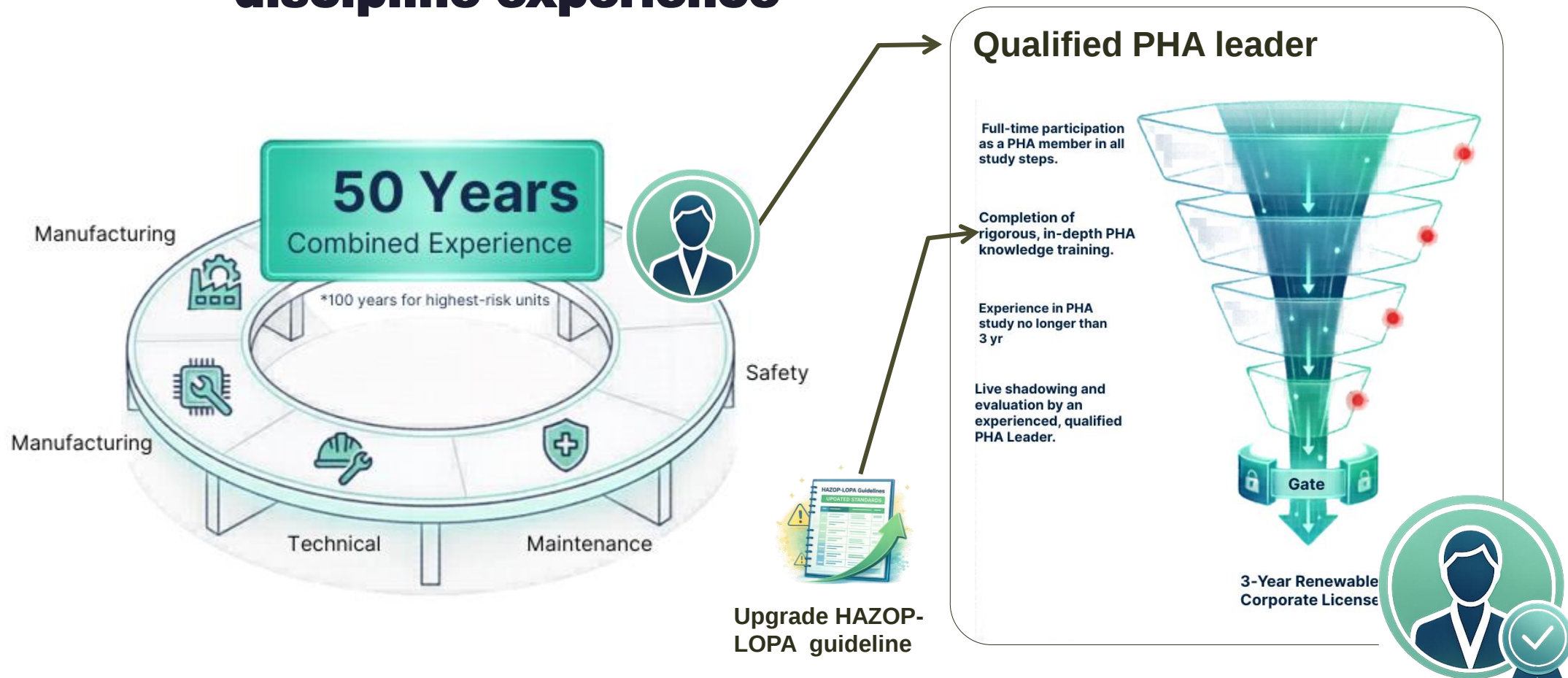
To eliminate inconsistency and bias, safety must move from checklist-based workflows to a CTQ-driven





Strategies for Elevating PHA Quality

PEOPLE: Enhance leader competency & cross discipline experience



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Strategies for Elevating PHA Quality

PROCESS: INDEPENDENT 2ND OPINION

The check & balance system Mandatory independent review by a cross-functional PHA expert before report closure



WSP		Operations		Confirmation		Potential
S&OP		Questions	Criteria			
5.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
6.8	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
6.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
7.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
8.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
9.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
10.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
11.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
12.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
13.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
14.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			
15.9	WSP	Are the WSPs for the process?	1. Are the WSPs for the process?			

Looking for Bias

THE 12-POINT QUALITY CHECKLIST FOCUS AREAS:

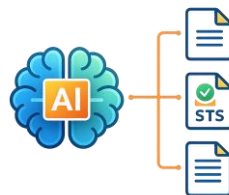
- 1 Hazardous Scenarios (5 checks):
initiating frequencies accurate? Are all operating modes covered?
- 2 Consequences
artificially suppressed below worst-case?
- 3 IPL Criteria (3 checks):
Protection Layers truly independent auditable, and effective?



Strategies for Elevating PHA Quality

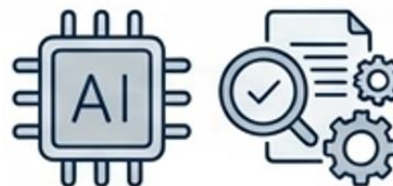
TECHNOLOGY: DIGITAL TOOL & GENERATIVE AI

Moving from Excel Era to a more integrated Digital and AI-driven approach



HAZMAN (KM Generative AI)

AI learning from expert knowledge to improve analysis quality and confidence



The 2nd Opinion AI Agent

Autonomous AI replicating expert checks to improve speed and consistency



Dedicated PHA Software

Unified PHA platform replacing Excel for connected data and proactive safety



Quality Measurement

TRANSITIONING FROM REACTIVE LAGGING METRICS TO PROACTIVE PHA QUALITY LEADING

This scoring system enables enterprise-wide benchmarking to identify and close gaps proactively



Lagging Indicators

Waiting for an incident to occur or counting simple completion rates.



Qualified Leader

Verifying the leader holds a formal, valid corporate license.



Team Experience

Ensuring the team hits the strict 50-year multi-disciplinary threshold.



2nd Opinion Review

Measuring the rigor and clearance rate of independent HHP audits.



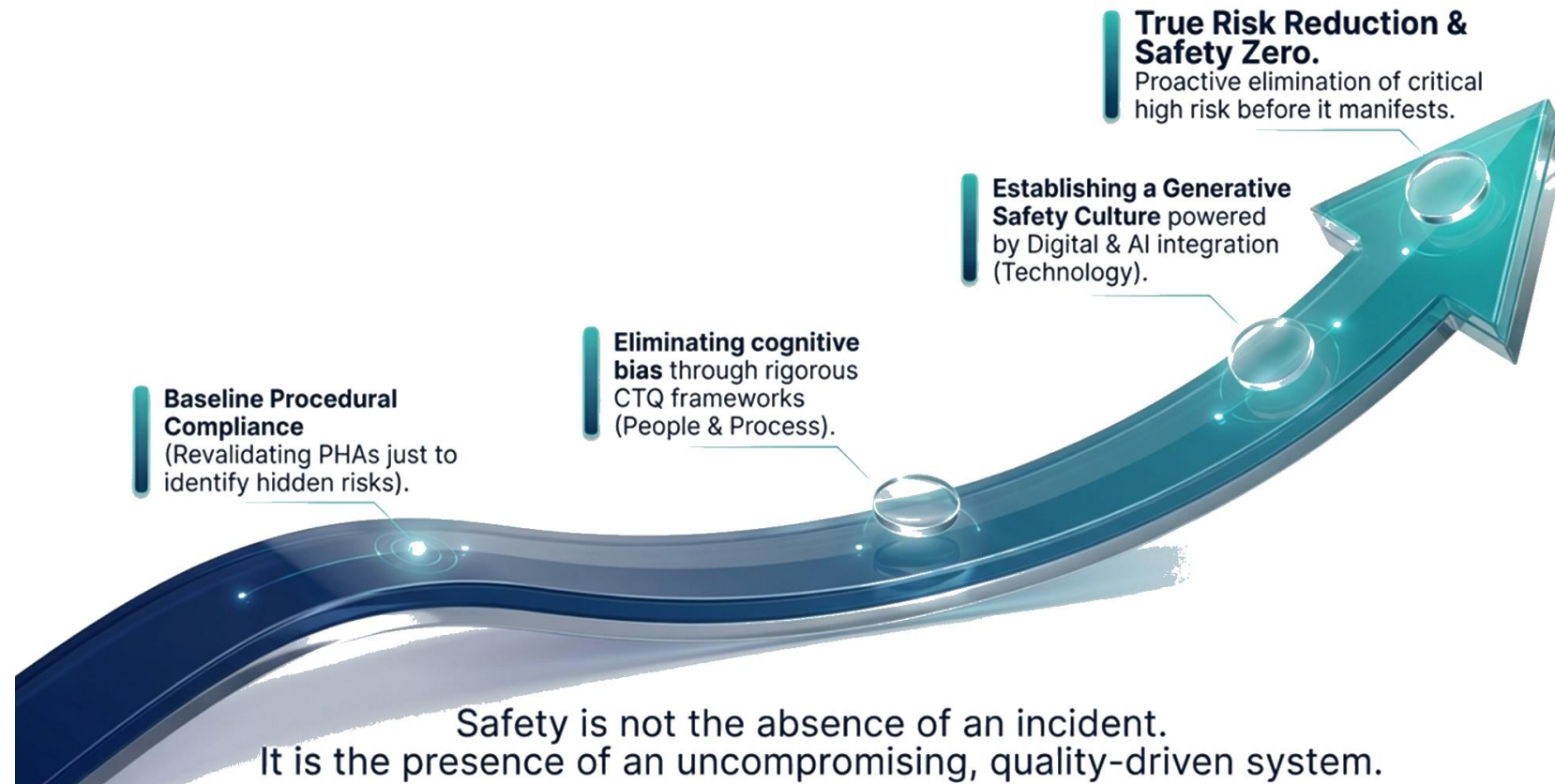
Study Follow-up

Tracking the speed and precise accuracy of action item closures.



Conclusion

TRUE RISK REDUCTION FROM PROCEDURAL COMPLIANCE TO THE PROACTIVE ELIMINATION



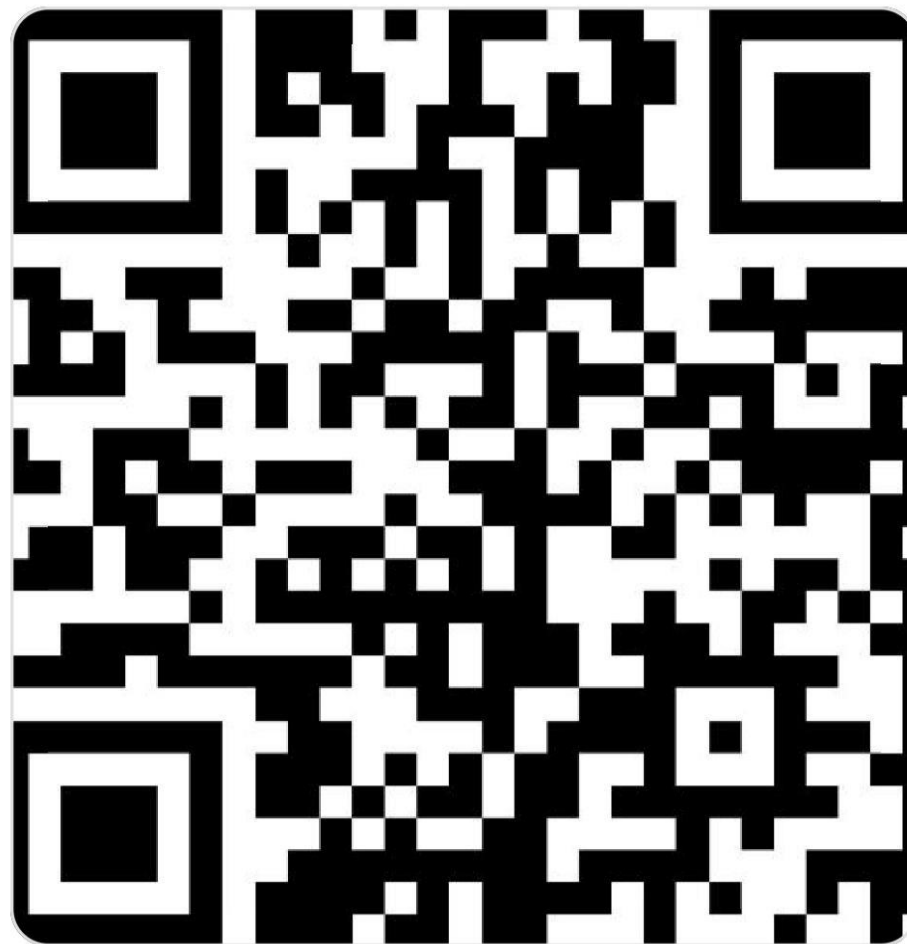


Thank you for your attention





Q&A



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QR Code - Evaluation

