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and Conference Center
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Human Factors Considerations for AI in Nuclear Power Operations

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Disclaimers

The content and views captured are those of the RIC participant and do not necessarily represent the official views of the NRC.

Artificial intelligence (AI) was used for the creation of images used in this presentation.



AI Is Coming



Safety and Reliability Are Paramount



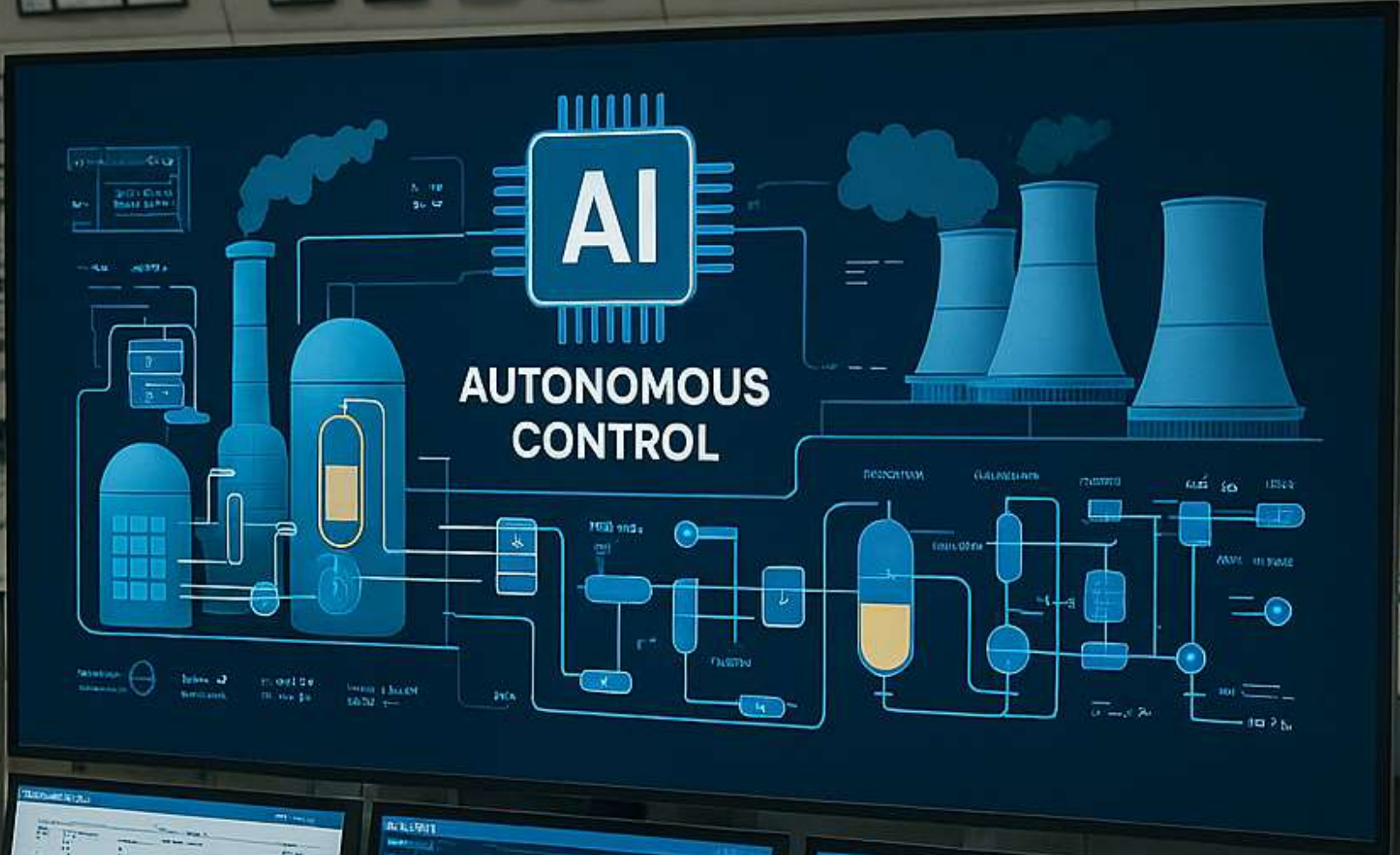
Predictive Maintenance



Anomaly Detection



Decision Support







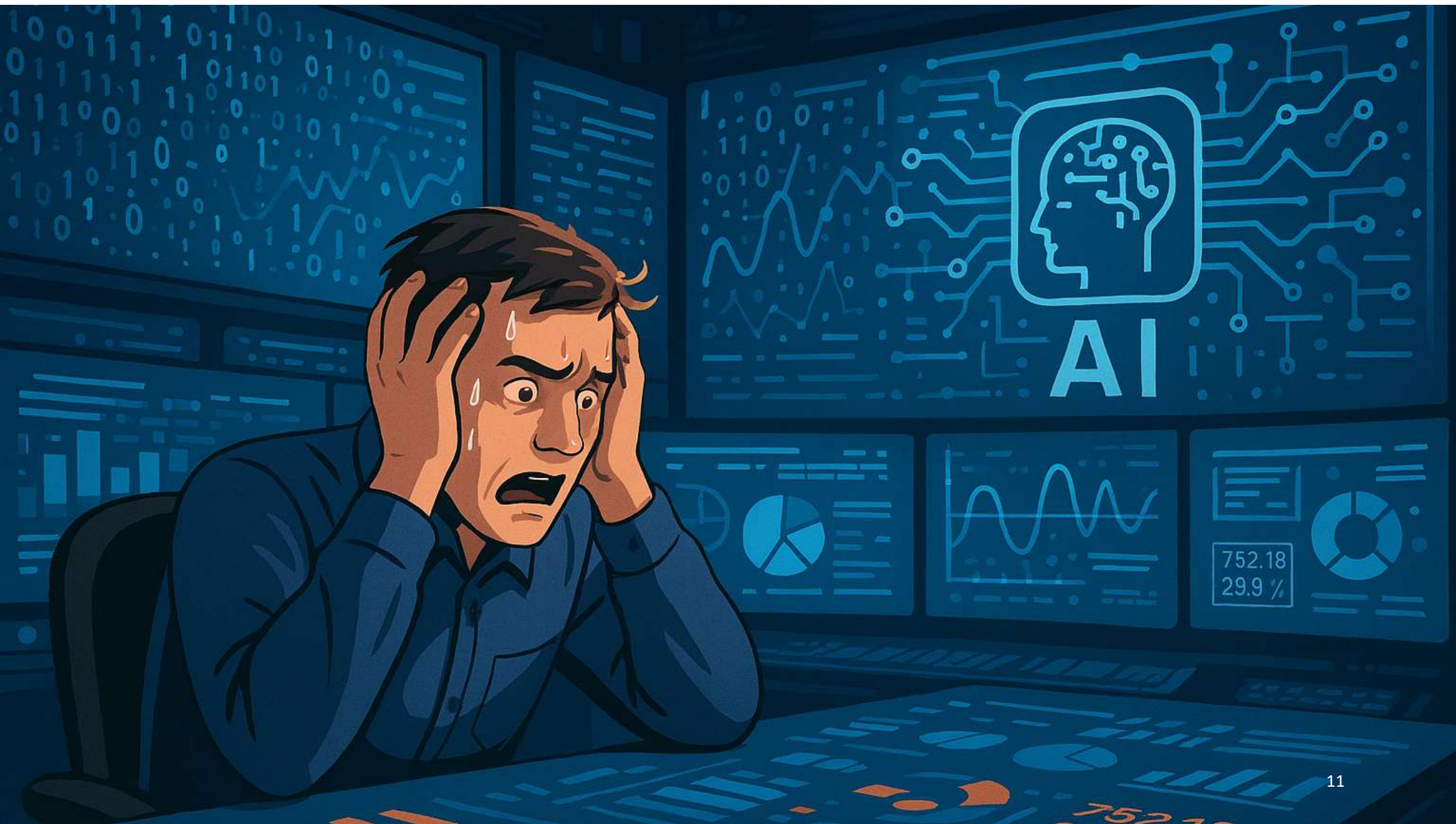
Substitution Myth

Automation simply replaces human action with automated action

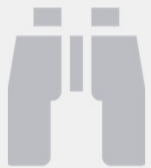


Substitution Myth

Automation simply replaces human action with automated action



Human Factors Considerations with Use of Automation



Situation
Awareness



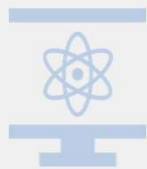
Trust and
Automation
Reliability



Workload



Teaming



Training



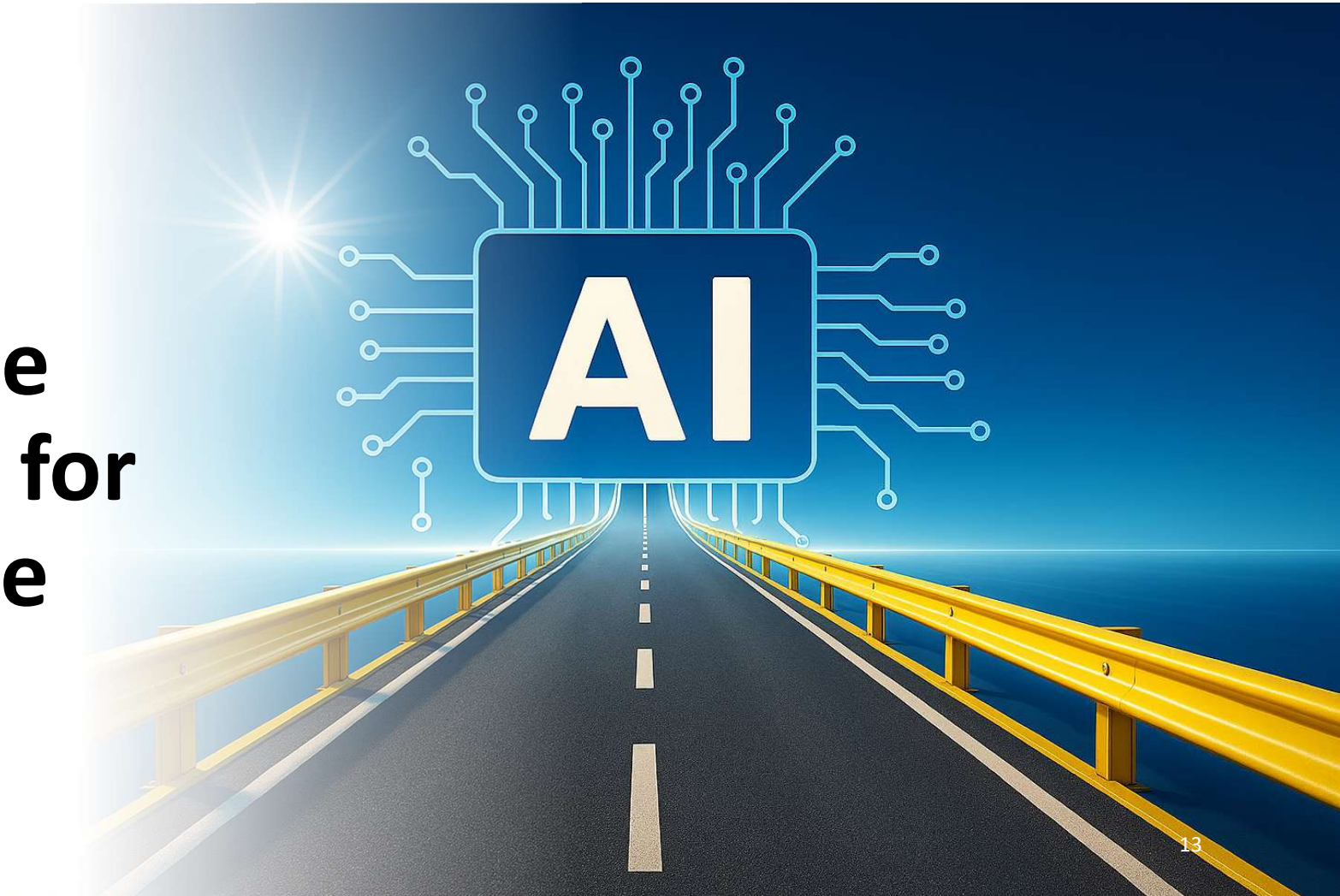
Skill and
Knowledge
Retention



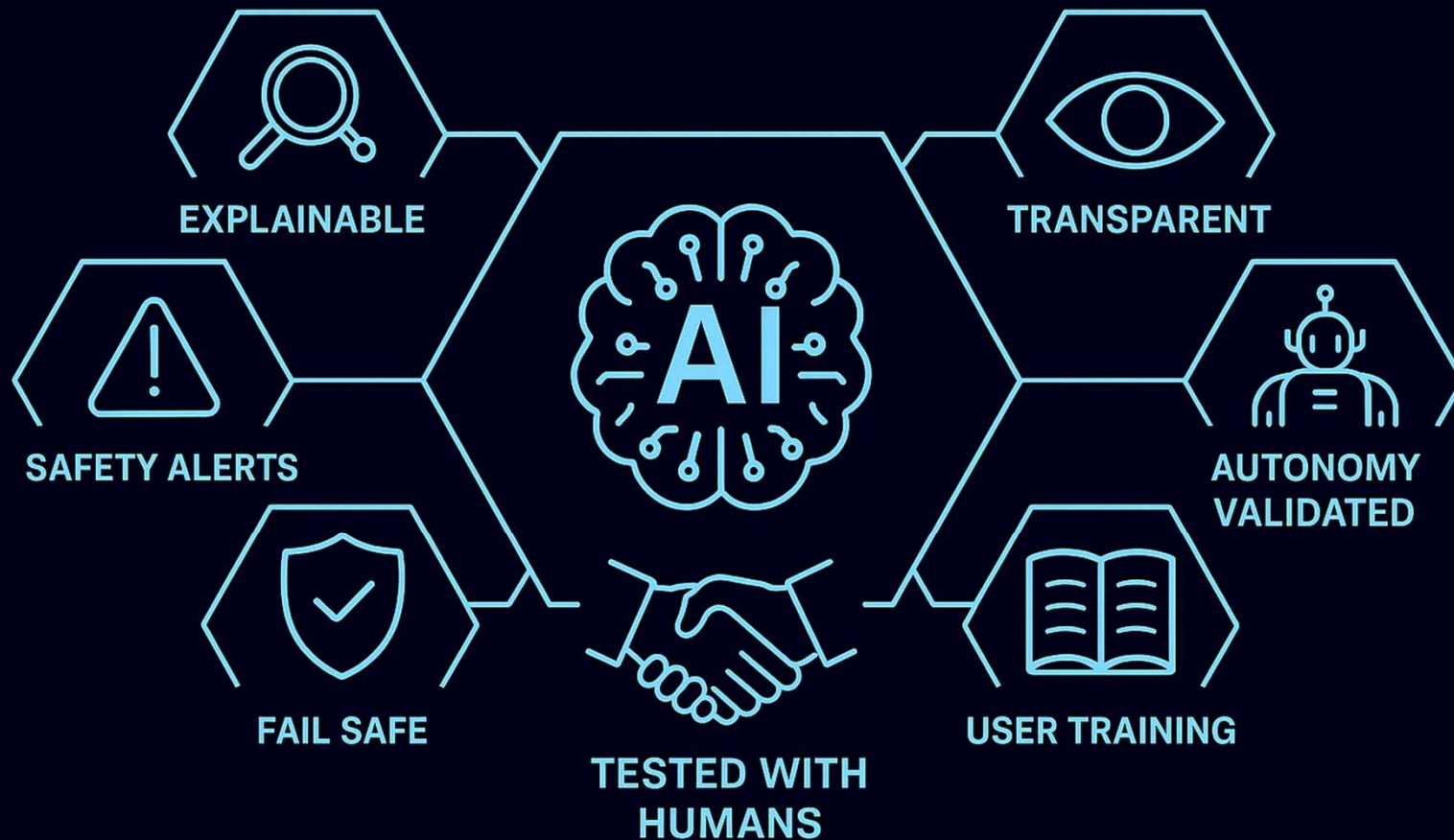
Novel Error
Types



Artificial Intelligence Guardrails for Human Use



AI GUARDRAILS FOR SAFETY-CRITICAL APPLICATIONS



Human Factors Engineering Program Review Model

Manuscript Completed: September 2012
 Date Published: November 2012

A systematic framework for human factors engineering

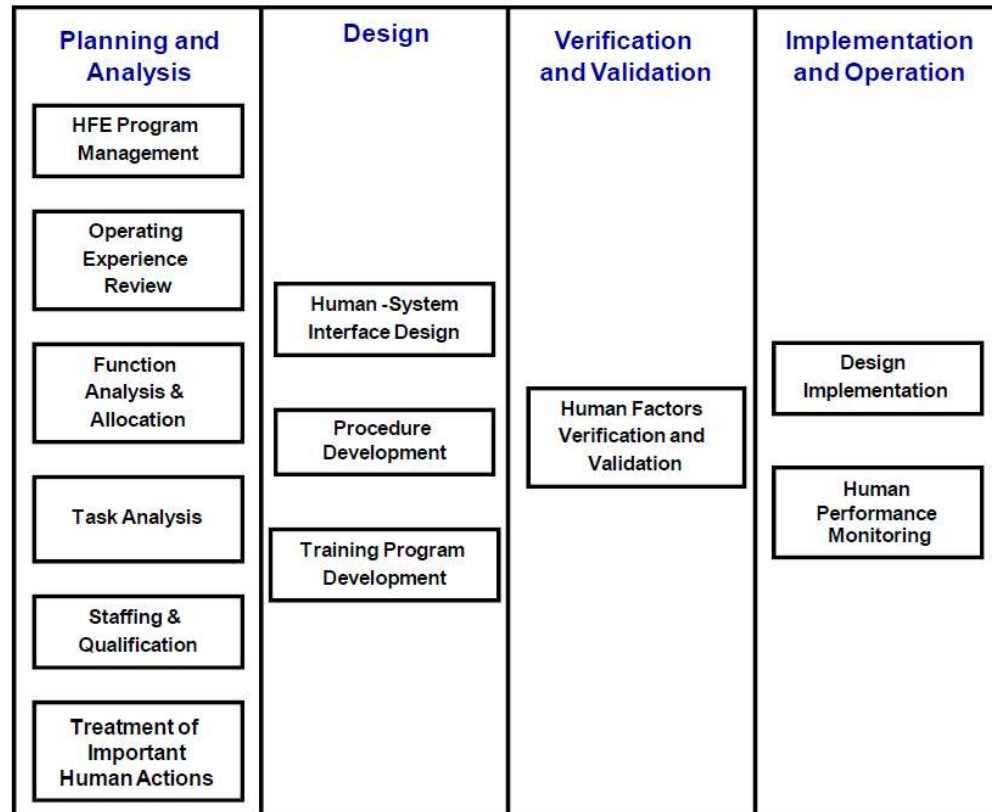
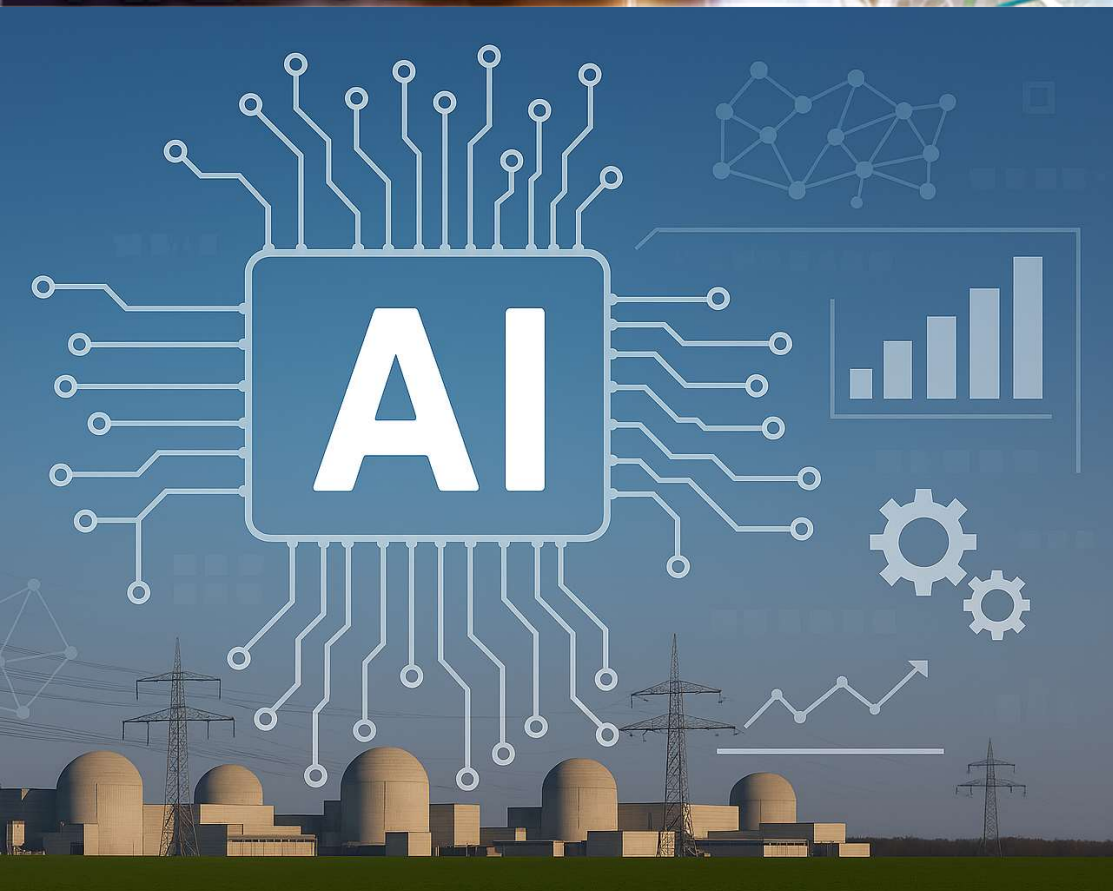


Figure 1-1 Elements of the HFE program's review model



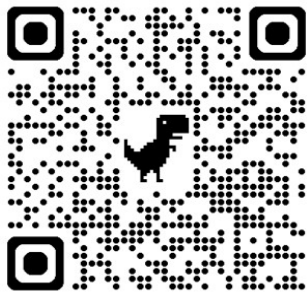
- Consider AI as a support tool, not a replacement for human judgment.
- Develop specific guidelines for human-AI collaboration in nuclear contexts.
- Incorporate human factors evaluation early and often during AI deployment.
- Emphasize resilience and adaptability in system design.

CONTACT INFORMATION

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