

Artificial Intelligence and Machine Learning for Nuclear Operation and Maintenance

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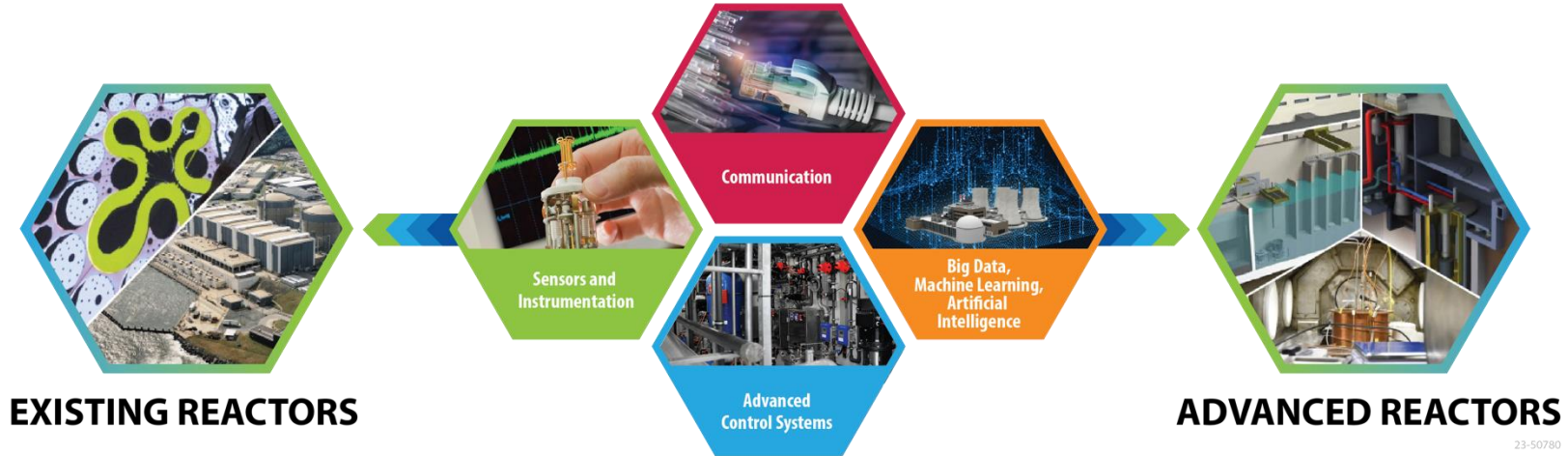
Idaho National Laboratory



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Introduction and Motivation

Technology Transformation



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ENABLES:



low operating cost



remote, autonomous or semi-autonomous operation

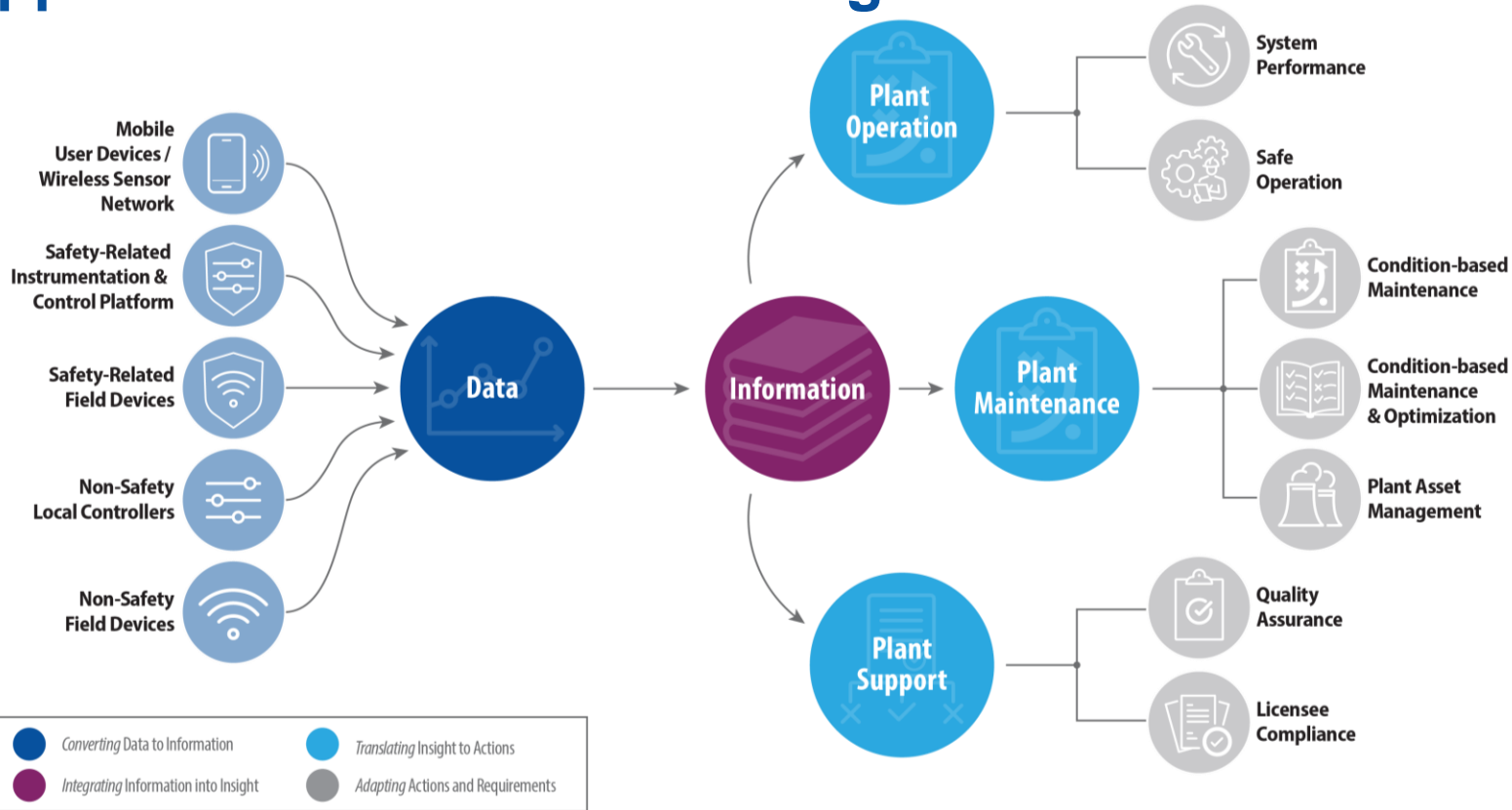


high reliability



flexibility to support expanded application and market.

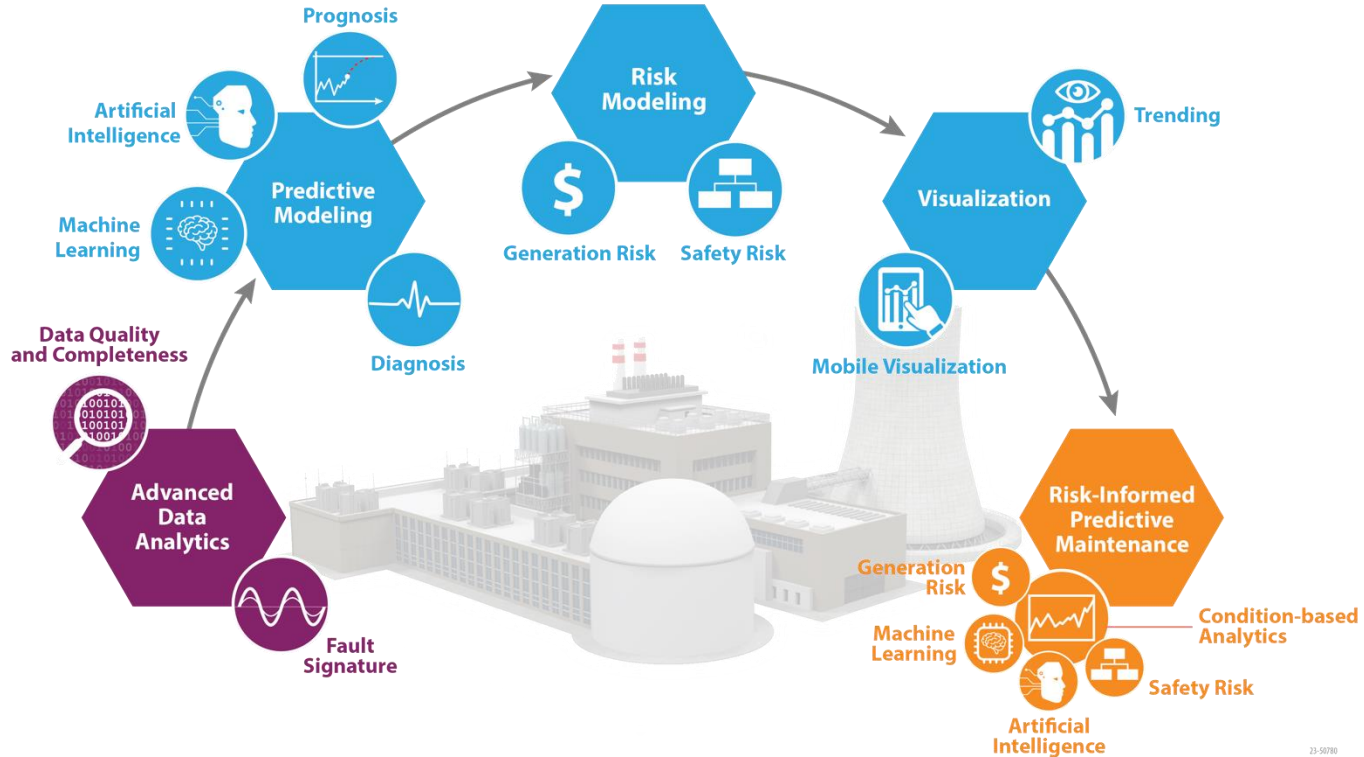
Applications of Artificial Intelligence in Nuclear



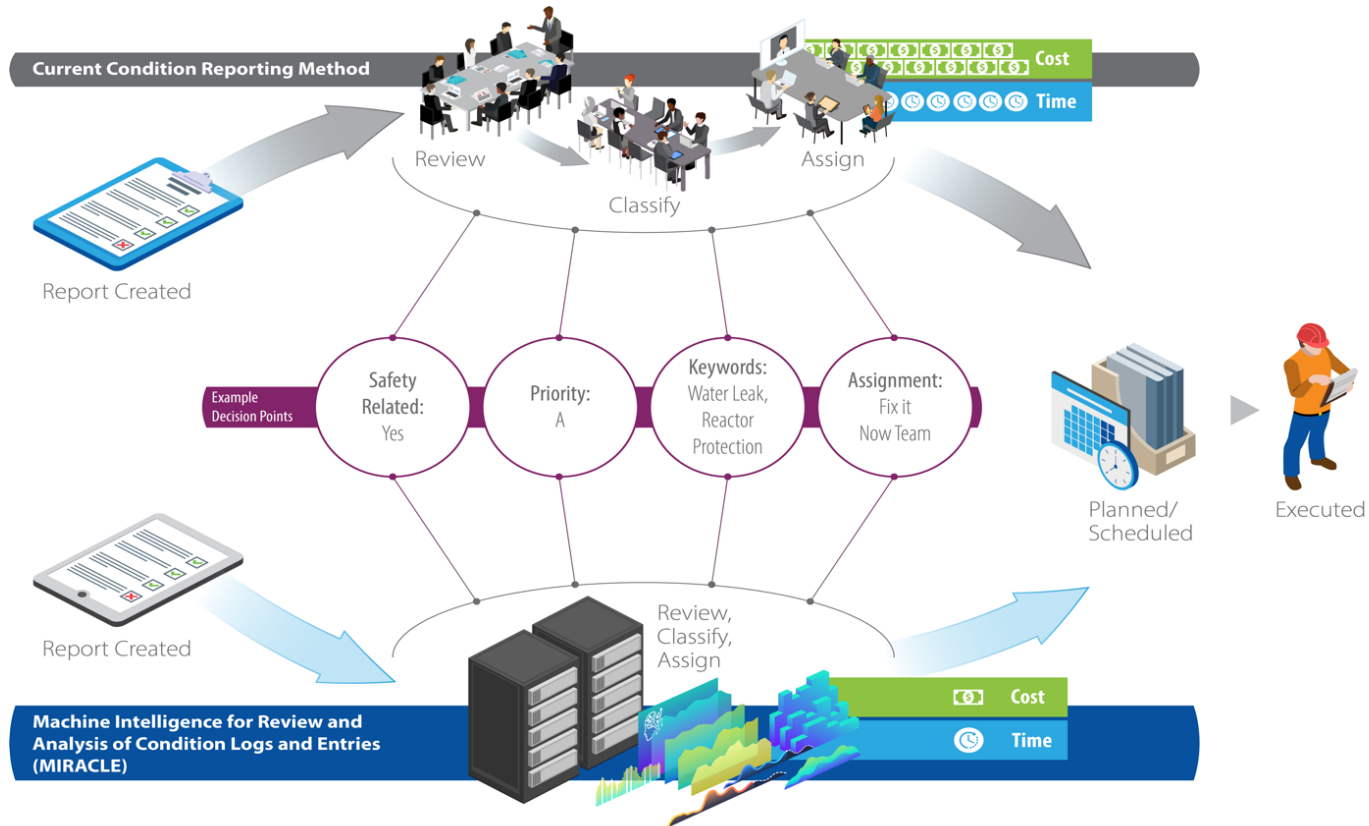
Automation of Nuclear Operations



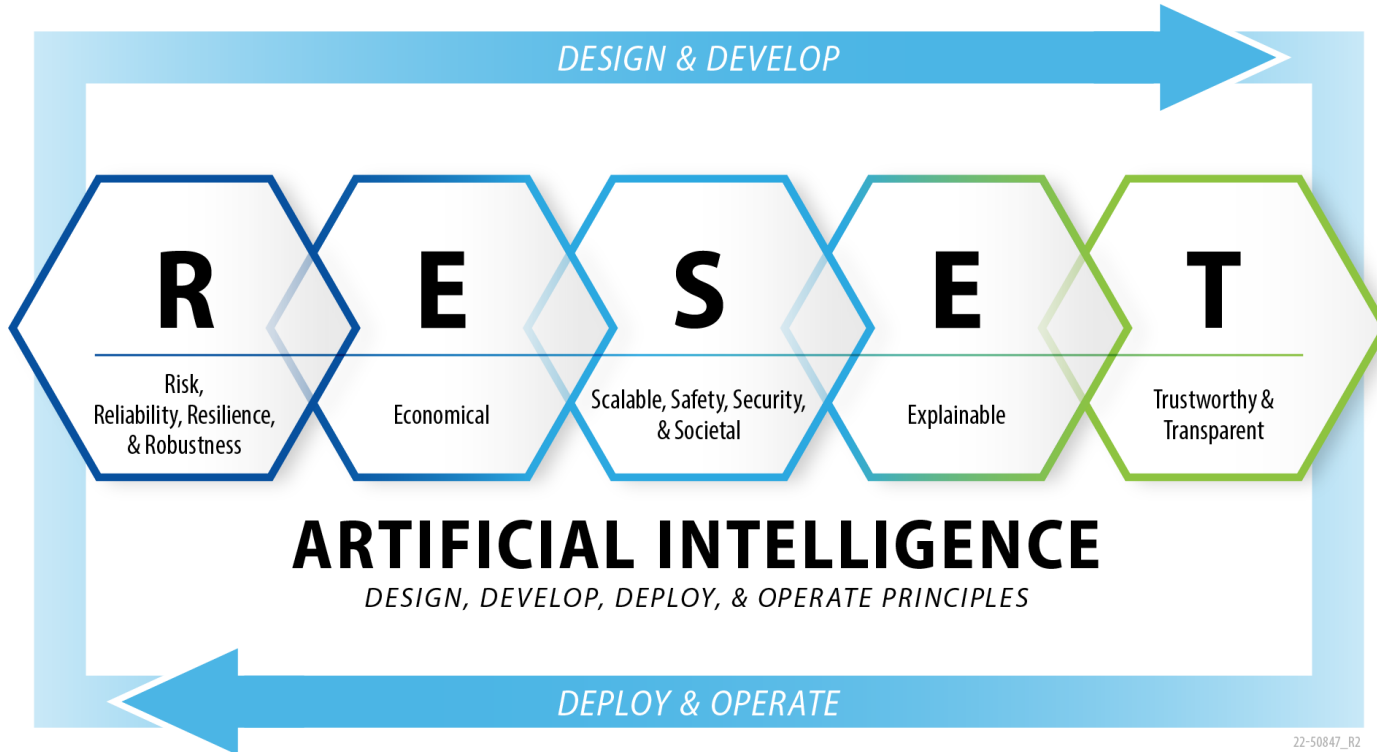
Risk-Informed Predictive Maintenance Strategy



Analysis of Textual Data using Machine Learning



Guiding Principles of Artificial Intelligence Lifecycle



Summary

- Artificial intelligence and machine learning have cross-cutting benefits and applications in nuclear
- It is essential to think about the artificial intelligence and machine learning lifecycle to ensure long-term benefits

*Nothing in life is to be feared, it is only to be understood.
Now is the time to understand more, so that we may fear less.
– Marie Curie*



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