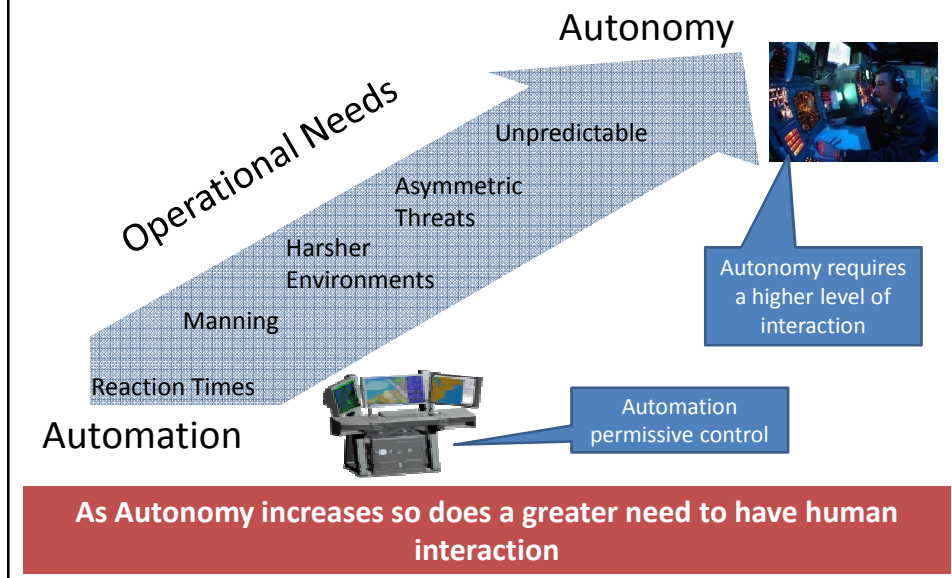


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Autonomy vs. Automation

- *Automation*: little to no human operator involvement.
 - Well-defined tasks that have predetermined responses, i.e. rule-based responses in reasonably well-known and structured environments.
- *Autonomy*: Systems have a set of intelligence-based capabilities or learning adaptive capabilities that allow it to respond within a bounded domain to situations that were not pre-programmed or anticipated in the design.
 - Degree of self-governance and self-directed behavior and must be adaptive to and/or learn from an ever-changing environment (with the human's proxy for decisions).

Paradigm shift Automation to Autonomy



Challenges: Automation to Autonomy

- Testing, Validation, & Certification Systems
 - Predicting, with a certain degree of confidence, what the complex autonomous system has done and what it will do next based on what is considered normal for that system in a given context.
- Training & Operations
 - Change how we develop and train our operator to interact with systems
 - Rethink how we manage and deploy a fleet or battalion
 - Rethink how we fight a battle
- Humans
 - Trust, there needs to be a level of trust established

A paradigm shift that impacts aspects of military operations from procurement of systems through to deployment