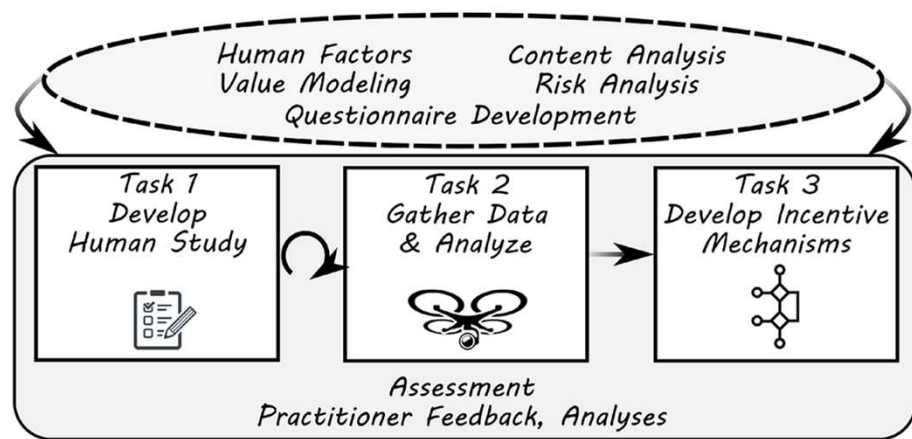


Motivating Use of Unmanned Assets in Human-Autonomy Teaming



Proposed Research Tasks

- Develop a novel human study based on experience within a simulated battlefield environment, employing questionnaires and semi-structured interviews to elicit preference and beliefs on interfaces with autonomous systems.
- Conduct the human study on NPS students and/or Redstone Arsenal personnel.
- Analyze evidence using content analysis and descriptive statistics. Examine using human study evidence and systems engineering approaches of value modeling, game theory, and risk analysis.
- Develop a toolset to aid in motivating warfighters to consider autonomous systems for missions, based on research findings.

- Autonomous systems have inherent challenges with being chosen by the warfighters for missions due to the way warfighters perceive and interface with the system. This may lead to reduce effectiveness by warfighters.
- **Deliverables:** Technical report and/or one or more journal manuscripts discussing the human study and the use of the toolset for aiding autonomous system interface design developed from this research.
- **Deliverables:** Reusable simulation experiment, questionnaire, and semi-structured interview on human-autonomy teaming; Evidence of warfighter preferences concerning autonomous system interfaces; Toolset of systems engineering approaches to investigate and aid in interface design. Toolset will be directly applicable to DON systems and design engineers.

- It is important to identify psychological (internally held attitudes) challenges that may alter the warfighter’s decision to use unmanned assets over manned assets using psychology and engineering risk management approaches.
- Systems engineers need actionable information about how warfighters perceive autonomous systems to integrate that information in the design of autonomous system interfaces, and incentives.
- Motivating warfighters to use autonomous systems can make the warfighter more effective, reduce potential risks to the warfighter, and potentially reduce mission costs.
- Supports the “Organizational Change and Adoption” concept from the 2017 Warfare Innovation Continuum Workshop and the SECNAV 16 March 2017 Memorandum establishing the goals for CRUSER.