Optimize Mission Thread Selection In Complex Interdependent Systems
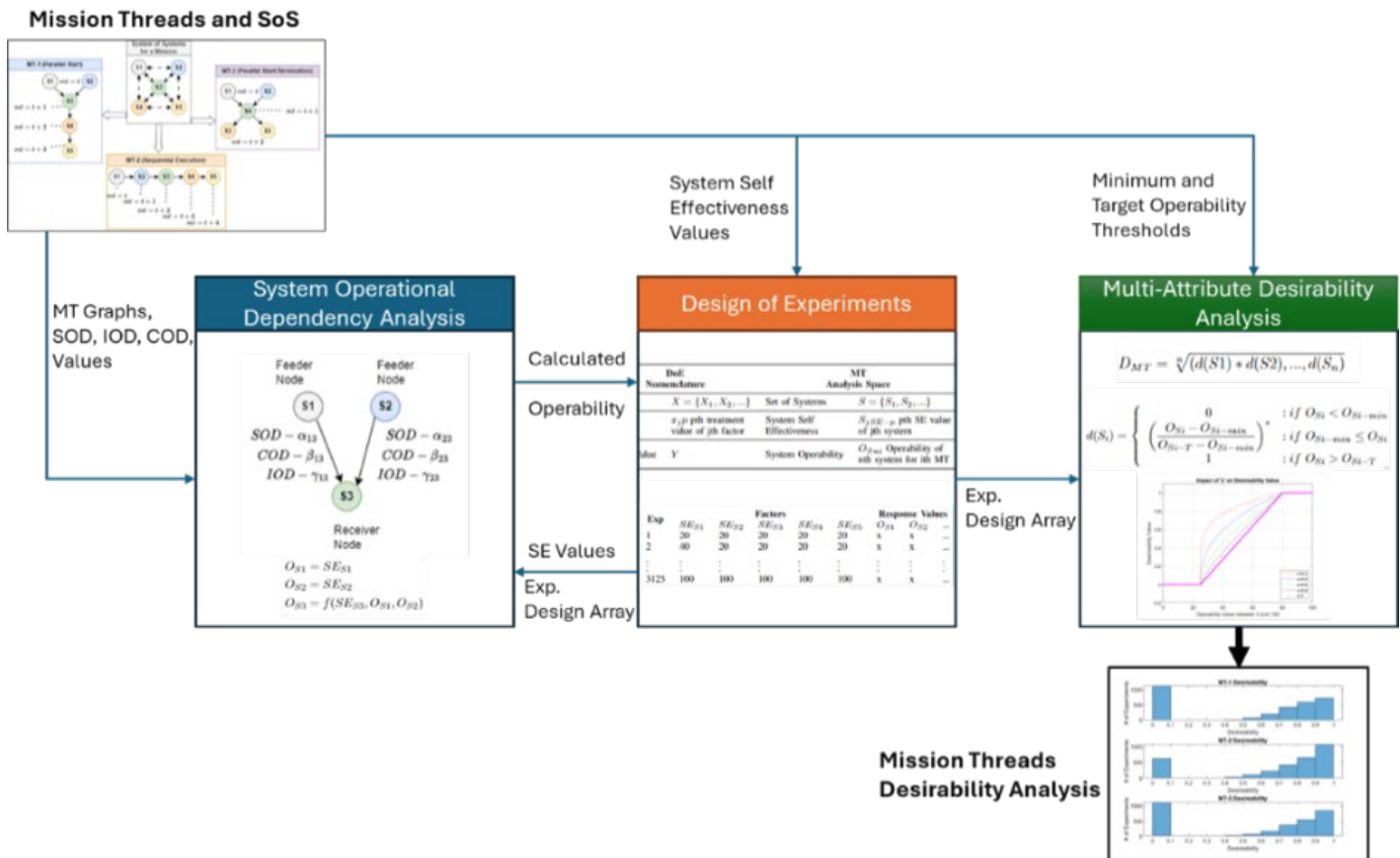
This method enables identification of the optimal individual Mission Threads (MT) in a System of Systems (SoS) even when individual systems are not operating at peak performance. This approach enables mission success under degraded conditions.

System Operational Dependency Analysis (SODA) is paired it with Design of Experiments (DoE) and multi-attribute desirability analysis to select the most promising SoS architecture.

This is an improvement over current methods for selecting MTs that do not address how interdependent systems in a SoS architecture perform when degradation occurs.

Advantages:

- Real-time decision-making under degraded conditions
- Accurate quantification of system interdependencies to understand degradation impacts
- Latent system interactions identification
- Mission thread selection tailored to current operational capabilities
- Vulnerable systems identified for targeted interventions and resource allocation