

## Research Area: Human Factors

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**WHAT:** This project aims at providing a comprehensive analysis of the current fleet composition and location in relationship to the mission needs/requirements of Flight Program Operations customers.

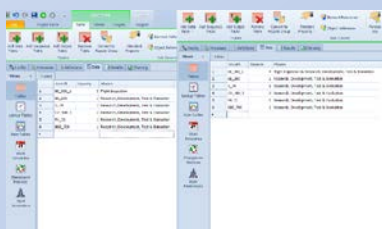
### GOALS:

1. Measure the current state of Flight Program Operations in terms of customer demands, mission current and potential future requirements, fleet composition, system hard and soft constraints, aircraft utilization, and pilot training needs.
2. Develop discrete event simulation models to replicate the current state Flight Program Operations; after model validations, utilize these models to answer “what-if” questions for system-wide optimizations.
3. Use AHP to systematically compare key variables that drive cost, consolidation of assets, functions, mission capabilities and mission requirements, and compare alternative operational settings within the multi-criteria decision making framework, for the comprehensive fleet study recommendation.

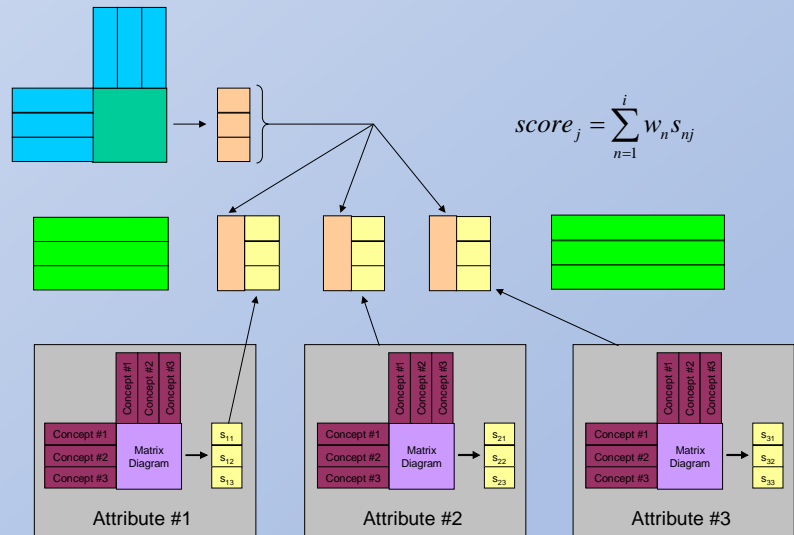
### HOW:



Step 1: Baseline simulation development



Step 2: Alternative scenario modeling



Step 3: AHP (Analytical Hierarchy Process) for multi-criteria decision making

### WHY:

- Investigating potential system optimizations for Flight Program Operations at various levels
- Predicting and quantifying the potential impacts of:
  - Facility consolidation
  - Dual-mission operational scenarios
  - Fleet moderation strategy
  - Various aircraft utilization decisions

**IMPACT:** The results can be used to recommend the optimal strategic, tactical, and operational settings for Flight Program Operations in terms of fleet composition, fleet requirements for each mission and a fleet modernization strategy across all missions and locations.