Are ATM Objective-Specific Scenarios Needed?

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ATM Objectives

- Capacity
- Economics
- Safety
- Environment
- National Security
- Operability
- Uniformity
- Training

Throughput
Access
Service Charges
Predictability
Equipment Cost
Flexibility
Risk Classification
Airport Capacity
Risk Management
Efficiency
Usability
Interface Standards
What are we asking...

- Are ATM objective-specific scenarios needed?
- Can the same scenario be used to meet several or all ATM objectives (e.g., “all-encompassing” scenario)?
Before we can answer...

- We need to consider
  - How are the objectives related/not related - with respect to incorporating scenario components that will address them?
  - At what stage of the Maturity Model is the concept?
  - What is the validation tool (i.e., real- or fast-time simulation)?
  - What does the sponsor/customer want?
How are the objectives related or not related?

- Can they even be addressed in the same scenario? If so, which ones?
- Can too many objectives in one scenario “spoil the broth”?
- Which ATM objectives pertain to the proposed concept?
At what stage of the Maturity Model is the concept?

- **R&D Activity Concept Validation**
  - V1 = Concept principle establishment
  - V2 = Initial proof of concept
  - V3 = Concept integration, Pre-ops simulations

- Do different ATM objectives apply at different validation phases?
What is the validation tool – real- or fast-time simulation?

- What resources are available (e.g., time, people, funding)?
- Would enough data be collected in an “all-encompassing” scenario to provide valuable data on each specific ATM objective?
What does the sponsor/customer want?

- Regardless of what is doable or practical, what does the sponsor want to get out of the simulation? What are his/her requirements?
One researcher’s experience

- Real-time simulation perspective
- Several ATM objectives can be explored in the same scenario (e.g., capacity, safety, operability) – but this is not always an optimal or feasible approach. Why?
  - Direction from sponsor
  - Not all ATM objectives pertain to proposed concept
  - Maturity phase of concept does not require application of certain ATM objectives
  - Limited resources – cost of real-time study, small sample size, quantity and quality of data
One researcher’s experience (cont’d)

- In some cases, several ATM objectives can be addressed in the same scenario.
- In many cases, however, ATM objective-specific scenarios are needed.
- ATM objective-specific scenarios can certainly help build other future scenarios – but they will require modification/tweaking due to different focus, changes to components as a function of time (e.g., current vs. previous traffic levels).