Leveraging Synthetic Training to Enable an Operationally Ready Air Force
SecAF / CSAF #1 Priority: Restore Readiness . . . to win any fight, anytime!

World War II
US produced 6000 planes in 1939
Production in 1944 was 96,300

Vietnam
US Kill Ratio was 2:1
1:1 vs Mig-21

Post Desert Storm
Adversaries narrow the technology gap;
Try to surpass American innovation

Defense Industrial Base
Decisive Victory

Red Flag
Gulf War Success ♦ Air Dominance

Is this our Moody Suter Moment

USAF technological advantage has eroded...we must be better trained
Air Force Readiness Path

- Readiness is a combination of properly trained Airmen employing high quality equipment.

- The Air Force needs to invest in Airmen, their equipment and their training environments.
  - Airmen - Continue to grow the force to meet future strategic requirements
    - Solve the rated Manning crisis
    - Solve the aircraft maintainer crisis (numbers and experience balance)
  - Training - Improve the operational training infrastructure (OTI)
    - Create synthetic venues for sets of reps and full up employment
    - Live training still important (fog & friction, high G, true risk, exercise support functions)
  - Equipment – F-15E, AC-130W, UH-1, F-35, B-21, Directed Energy Weapons
    - Ensuring smart acquisition…it’s not just about the iron
Operational Training Infrastructure Defined

**Live**
- Ranges
- Interface devices
- Aggressors
- Threat generators
- Embedded training

**Synthetic**
- Simulators
- Ranges
- Aggressors
- Threat generators
- Secure networks

Blended

OTI = The framework needed for full-spectrum operational training to regain readiness
The Uncertain Future of Operational Training

Blended Training Strategic Decision Point

FY19

Technically Feasible? Affordable?

"Ready" vs "Ready for What?"

"Increased Dependence on Sims Limited Live Capability"

"Robust Sims with Blended Capability"

"Now"

"FULL SPECTRUM RED AI NESS"

"FULL SPECTRUM RED AI NESS"

LIVE

Advanced Radar Threat Systems
Joint Threat Emitter + Legacy Threat Recap
Live Mission Operations Capability

SYNT HETIC

MOS Sims - Trainer
Standard Space Trainer
Virtual Test & Training Center
Cyber LVC - Operational Training Infrastructure
Sim Common Architecture Requirements & Standards

"Ready" vs "Ready for What?"

B r e a k i n g  B a r r i e r s ... S i n c e  1 9 4 7
OTI Challenges

- **Live Challenges**
  - Geographically constrained ranges
  - Competition for airspace and spectrum
  - Operational security concerns
  - High Cost of replicating high-fidelity threats/targets
  - Increased flying-hour cost for 5th Gen systems

- **Synthetic Challenges**
  - Expensive to develop – Slow to procure – Difficult to keep concurrent
  - Cybersecurity
  - Interoperability Fidelity
  - Harvesting synergies between DT/OT and Operational Training (e.g. JSE-AF)

- **SCARS**
  - USAF needs cyber secure readiness
  - Open standards
Synthetic History

Historical
- Checklist training
- Emergency procedures
- Basic instrument training

Recently
- Sims connected when able
- Opportunity vs requirement
- Ad hoc MAJCOM efforts

Now
- Mandatory for high-end training

Relevant - Realistic - Interoperable - Secure
Wright Flyer at Ft Meyer

Training Infrastructure... an afterthought since 1907
Recovery Goals & Milestones

Pacing units are Air Force squadrons required by the 2018 National Defense Strategy

Prioritize Pacing Unit Readiness...Then Combat Coded Units...Then Whole Air Force
Focused Training, Improved Readiness Metrics... Steadily Enhanced as OTI Advances
Discussion