Operational Training Infrastructure (OTI) Air Force Learning Professionals Consortium (LPC-21)

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Agenda

- *Goals & Objectives of Presentation*

- *Bottom Line Up Front (BLUF)*

- *OTI Overview*

- *12 Major Challenges for OTI with Implications to OTI Workforce*

- *OTI Core Work Force Organizational Structure*

- *OTI Return on Investment – Metrics*

- *Future Implication to Other Communities and Organizations*

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Presentation Goals & Objectives

Air Force OTI presents an imperative to train as we intend to fight by employing realistic training environments

- **Goal - After attending this presentation participants will be enable to:**
  - **Describe the key concepts and terms involved with the OTI Enterprise**
  - **Explain the construct of the OTI Enterprise**
  - **Apply the construct of the OTI to each participant's area of expertise**

- **Learning Objectives:**
  - **LO 1: Describe the key concepts and terms involved with the OTI Enterprise and associated integrated architecture.**
    - **ELO 1-1: Define OTI**
    - **ELO 1-2: Understand - Why does the USAF need OTI?**
    - **ELO 1-3: Identify the 13 OTI Lines of Effort**
    - **ELO 1-4: Identify the 12 Major Challenges for OTI**
  - **LO 2: Explain the OTI Enterprise and the implications to each participant's area of expertise.**
    - **ELO 2-1: Determine how to develop OTI requirements for participant's area of expertise**
    - **ELO 2-2: Identify resources available to interface with the OTI Enterprise**

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Bottom Line Up Front

"OTI vision is a realistic, integrated training environment that allows our forces to train in an operationally and tactically relevant employment scheme to achieve and sustain full-spectrum readiness."

General David L. Goldfein
Chief of Staff of the U.S. Air Force
(2016-2020)

UNCLASSIFIED

Air Force
Operational Training Infrastructure
2035 Flight Plan

U.S. AIR FORCE

13 Lines of Effort

1. Funding Strategy
2. Human Capital Plan
3. Synthetic-to-live Capability
4. Data and Technical Standards
5. Acquisition Policy
6. Acquisition Oversight

7. Institutionalize OTI
8. Relevant Threat Environment
9. Quality Metrics
10. Joint Interoperability
11. Multinational Interoperability
12. Common Architecture
13. Exercise Oversight

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What is OTI?

- *All operational training that occurs after Initial Qualification Training (IQT)*
- *Defines relationships between training capabilities of air, space, & cyber*
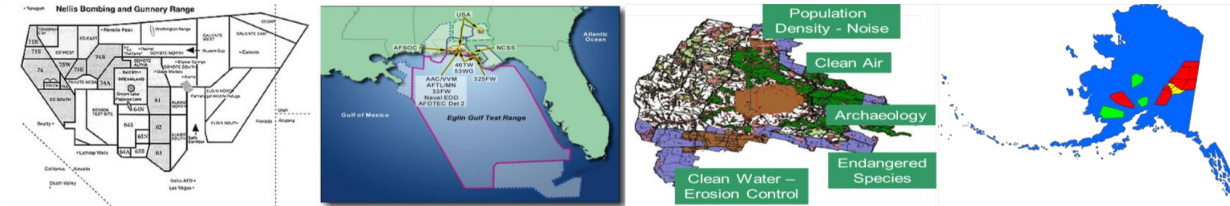- *Includes the following elements (not all inclusive):*

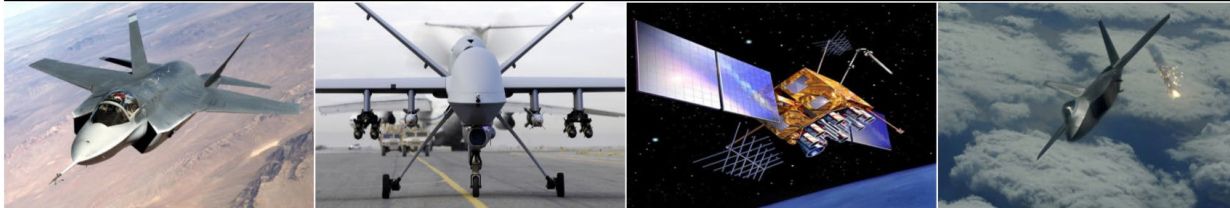| Simulators	Synthetic-to-Live	Live-to-Synthetic	Range Integration	Ranges	Targets
Embedded Training	Airspace	Live Mission Operation Centers (LMOC)	Synthetic Environments	Training Instrumentation	Distributed Training Centers (DTC)
Networks	Live Threat Systems	Aggressor Forces	Weapons Employment	Contracted Training Support	Multi-domain C2 Training Systems

Why is OTI Needed now?

Challenges of the OTI Environment
Determining the Right Mix

Live - OTI Environment
Involving real people operating real systems.
DOD Glossary June 2019

Advantages

| True Environment | Actual Interactions | Actual Systems | Realistic Training |

Disadvantages

| Resource | Environmental | Weather | Safety |

Challenges of the OTI Environment
Determining the Right Mix

Virtual - OTI Environment
Involving real people operating simulated systems.
DOD Glossary June 2019

Advantages

| Save Time | Reduce Costs | Increase Environments | On-demand Availability |

Disadvantages

| Sickness | Realism Variations | Human Senses | Human Response |

Challenges of the OTI Environment
Determining the Right Mix

Constructive – OTI Environment
Involving simulated people operating simulated systems.
DOD Glossary June 2019

Advantages

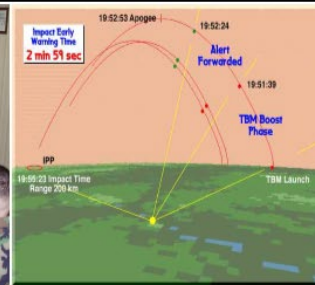| Stimulates C2 Systems	Particle - Large Aggregate	Human Bias Removed	Analysis Capability

Disadvantages

Most Are Over 20 Years Old	Utilize a Lot of Work Arounds	Rely Heavily - Human Input	Lack Documentation

Challenges of the OTI Environment
Determining the Right Mix

Training Matrix	Individual	Individual to Individual	Small Organization	Multiple Organizations
Live				
Virtual				
Constructive				

12 Major Challenges for OTI with Implications to Human Capital

U.S. AIR FORCE

Challenge 1 - Technical and Complex Nature of Operational Training

Highly Complex Undertaking	Multiple Disciplines	Lack Proficient Workforce	Proliferation of Digital Systems

Challenge 2 - Advances in Technology

Computer Capabilities	Technology Advances	Lack Proficient Workforce	Obsolescence of Digital Systems

12 Major Challenges for OTI with Implications to Human Capital

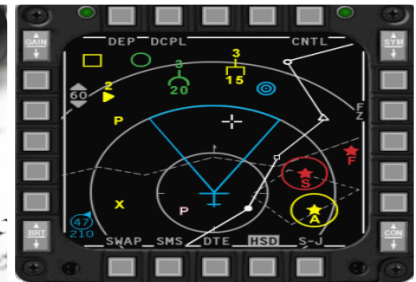## Challenge 3 - Digital Systems to Interoperate

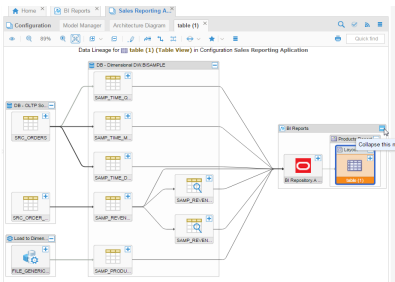| Lack of Interoperability | Technically Challenging | Not Just a Technical Issue | Secondary Impacts |

Challenge 4 - Information Traceability & Associated Documentation

| Lack Original Requirements | Lack of Formal Documentation | No Data Pedigree | Ad Hoc Documentation |

12 Major Challenges for OTI with Implications to Human Capital

Challenge 5 - Diverse Functionality of OTI Community

MAJCOM Requirements	Functional Requirements	Lack Focus with Large Investment	Duplication of Efforts

Challenge 6 - Re-use of OTI Tools and Applications

Limited Re-use	Proprietary Restrictions	Lack Repository Construct	"I Own It" Mentality

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12 Major Challenges for OTI with Implications to Human Capital

U.S. AIR FORCE

Challenge 7 - Changes to USAF Environment and Missions

Asymmetric Warfare	Cyber	Space Operations	Other Services & Coalition

Challenge 8 – USAF OTI Skill and Competency Gaps

Lack Body of Knowledge (BOK)	Lack Articulated Competencies	Lack of OTI Education	Impact to Overall OTI Workforce

12 Major Challenges for OTI with Implications to Human Capital

Challenge 9 – Lack of a Formal USAF OTI Workforce

Limited Military Availability	Multi Disciplinary	Lack Formalization	Ad Hoc

Challenge 10 – Multiple Organizations Competing for the Same Workforce

Flight Crew Experience	Industry	Internally to USAF	DOD & Other Services

12 Major Challenges for OTI with Implications to Human Capital

Challenge 11 – Government Civilian OT Workforce

Flight Crew Experience	Industry	Laws, Policies & Regulations	Approaching Retirement

Challenge 12 – Credentials of the Workforce

Security Clearances	Cyber Certifications	Cost for Credentials	Retention of Workforce

Certificate of Completion

Milli Vanilli, jr

Has completed

DoD Information Assurance Awareness
Version 7.0

FEDERAL REGISTER
The Daily Journal of the United States Government

Retention of EB-1, EB-2, and EB-3 Program Improvements Affecting H Workers

A Rule by the Homeland Security Department on 11/18/2016
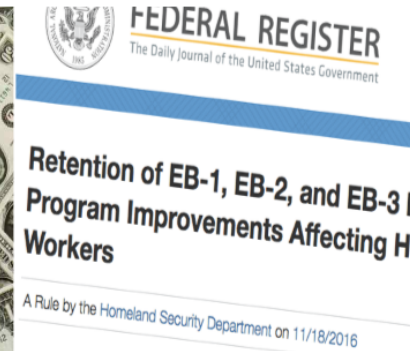
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OTI-HC Workforce Crosses All OTI LOEs

OTI-HC baseline has been conducted and established from which the optimum OTI workforce composition and organization is defined to maximize effectiveness, productivity, and skill use in support of long-term AF readiness.

Military	Civilian	Contractors	Total
6,980	962	4,117	12,359

Results of the Baselining effort Included:
- **Established the OTI Body of Knowledge**
- **Identified OTI competencies for the OTI workforce**
- **Defined the current OTI organization structure and workforce**
- **Identified the OTI workforce critical-to-quality characteristics, competencies & skills**
- **Standardized 28 Position Descriptions (PD)**
- **Determined future OTI workforce requirements**

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OTI Human Capital Documents
Purpose of Each Document

Signed	*Signed*	*Initial Draft*	*Initial Draft*
Human Capital Strategy	Human Capital Operating Plan	OTI Work Force Implementation Plan	OTI AFMAN Work Force Improvement Program
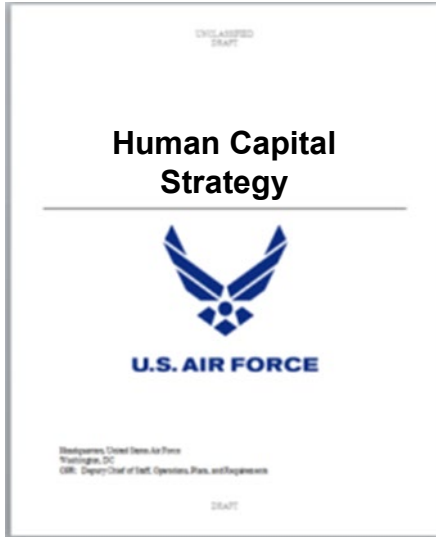
Strategy
- Defines OTI HC
- Challenges
- Goals
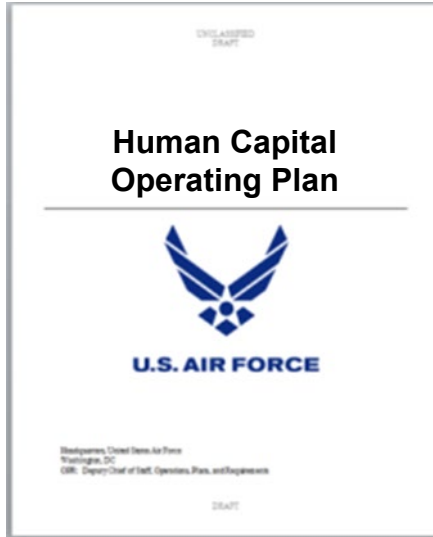
HC Operating Plan
- Approach
- LOE
- High-Level Timeline
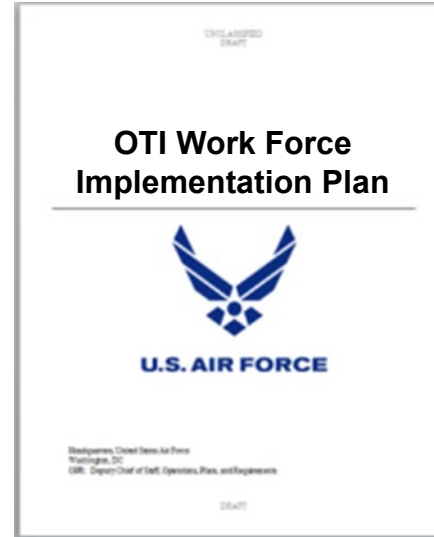
HC Implementation Plan:
- OCRs & OPRs
- Detail Roadmap
- 5 Detailed LOEs
- POA&Ms
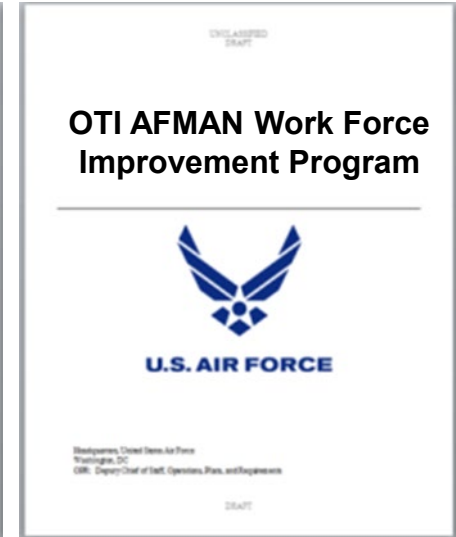
OTI AFMAN
- Identification
- Qualifications
- Certifications
- Skill Acquisition

Supports the CPI methodology / requirement to have traceability between documents from strategic vision to operational execution.

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OTI Core Work Force Organizational Structure

US. AIR FORCE

MAJCOMs

- 06 - OTI Lead A(?) Or Position
  - 05 - Operations Lead A(?) Or Position
    - Operations Deputy A(?) Or Position
    - Budget A(?) Or Position
    - Compliance A(?) Or Position
    - Planning A(?) Or Position
    - Other A(?) Or Position
  - GS-14 Foundations Lead A(?) Or Position
    - Foundations Deputy A(?) Or Position
    - Resourcing A(?) Or Position
    - RMF A(?) Or Position
    - Execution A(?) Or Position
    - Manpower A(?) Or Position
  - GS-14 Requirements Lead A(?) Or Position
    - Requirements Deputy A(?) Or Position
    - Contracting A(?) Or Position
    - Administration A(?) Or Position
    - Oversight A(?) Or Position
    - Other A(?) Or Position

FOAs & DRUs

- Superintendent E6/E7
- Office Manager GS9 341
- Contract GS13 1101
- Finance GS12 501
- Commander 06 - Rated
- Tech Director GS14 801
- Deputy 05
- OTI-Foundations GS14 343
  - OTI Operations 05
    - Project 1 O4/O5 — GS9/11/13 343
    - Requirements O4/O5 — GS9/11/13 343
    - Project 2 O4/O5 — GS9/11/13 343
    - Functional 02/03/04/05
    - Project 3 O4/O5
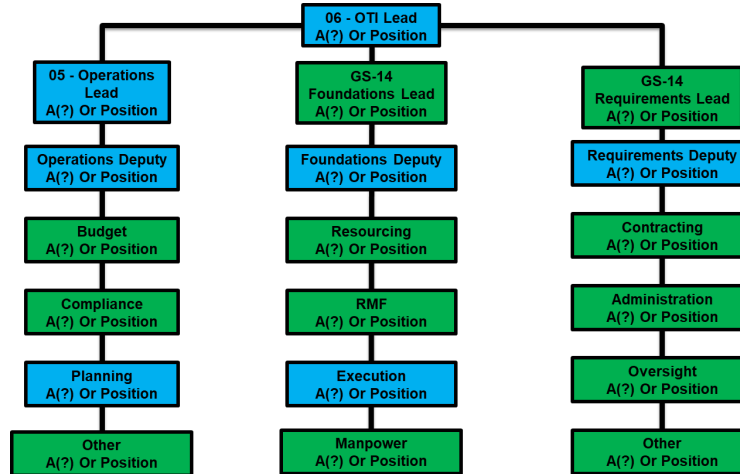   - Acquisition GS 9/11/13 2210
  - Technical O4
    - Simulation GS9/11/13 343
    - Networks GS9/11/13 2210
    - Architecture GS9/11/13 2210
    - Exercise GS9/11/13 343
    - Standards GS9/11/13 343
    - RMF GS11/13 2210
    - Databases GS9/11/13 343
    - Testing GS9/11/13 2210
  - Non Technical GS13 343
    - Facilities GS9 1640
    - Security E5/E6
    - Human Capital GS11/13 201
    - Education GS11/13 1750
    - KM GS11/13 343
    - Logistics GS7/9 346

Application Facilites
(Ranges, DTCs, Sim Centers, etc.)

- Superintendent E6/E7
- Office Manager GS9 341
- Contract GS11 1101
- Finance GS12 501
- Commander 06 - Rated
- Tech Director GS13 801
- Deputy 05
- OTI-Foundations GS14 343
  - OTI Operations 05
    - Exercise 1 02/03/04/05
    - Exercise 2 02/03/04/05
    - Exercise 3 02/03/04/05
    - C2 E3/E4/E5/E6
    - Functional 02/03/04/05
    - Control 343 GS9/11/13
    - Trainer 1750 GS 9/11/13
    - Scenario E5/O2/O3/O4
    - Feedback O3/O4/O5
    - White Force O4/O5 GS343 — GS9/11/13 343
  - Technical GS13 343
    - Simulation GS9/11/13 343
    - Networks GS9/11/13 2210
    - Architecture GS9/11/13 2210
    - Exercise GS9/11/13 343
    - Standards GS9/11/13 343
    - RMF GS11/13 2210
    - Databases GS9/11/13 343
    - Testing GS9/11/13 2210
  - Non Technical GS13 343
    - Facilities GS9 1640
    - Security E5/E6
    - Personal GS11/13 201
    - Education GS11/13 1750
    - KM GS11/13 343
    - Logistics GS7/9 346

OTI Core Standardized Position Example


GS7 Development
GS7 Fully Qualified
GS9 Development
GS9 Fully Qualified
GS11
GS12
GS13

Standardized PD
2210 GS11

Security Clearance
Secret

Experience Requirements
1 Year Equivalent to GS-09
Or

Educational Requirements
Ph.D. or equiv doctoral
degree or 3 full years of
higher level graduate

Certification Requirements
Information Assurance
Certification

Initial Draft

OTI AFMAN Work Force
Improvement Program

U.S. AIR FORCE

Standardized PD
2210 GS13

Security Clearance
Top Secret

Experience Requirements
1 Year Equivalent to GS-12
Or

Education can not
substitute for experience
requirement

Certification Requirements
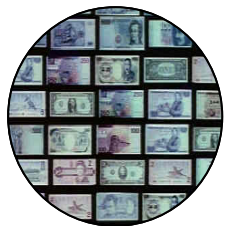Information Assurance
Certification
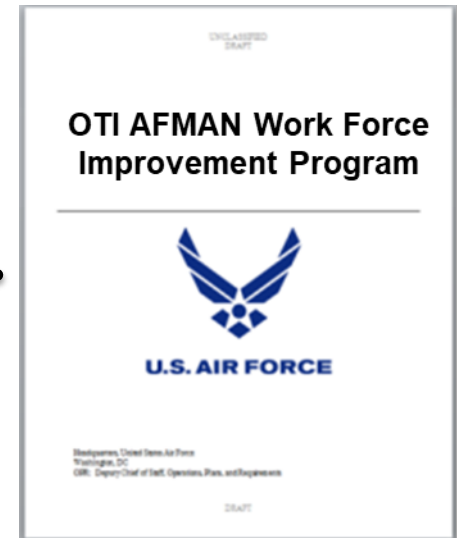
Determining the Return on Investment for OTI-HC

People

Money

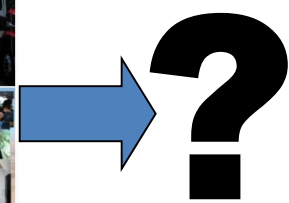**Time**

Investment

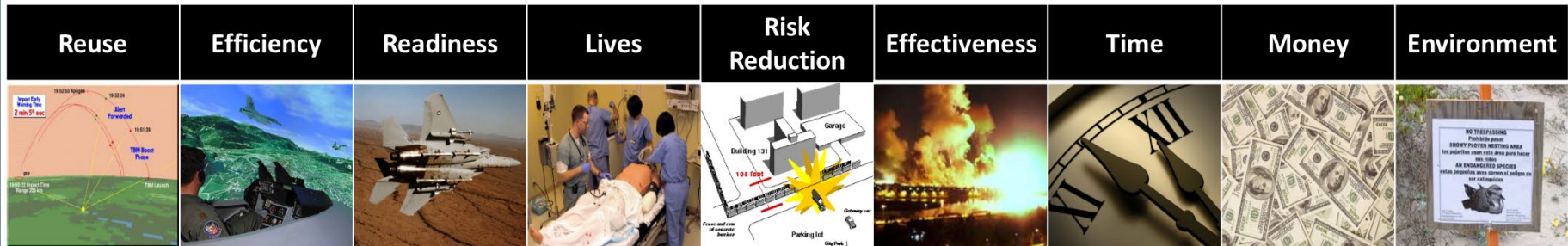| Training Matrix	Individual	Individual to Individual	Small Organization	Multiple Organizations
Live				
Virtual				
Constructive				

Alternative(s)

?

ROI

OTI Work Force - Impact on Readiness (Return on Investment)

U.S. AIR FORCE

- *Metrics developed & aligned to 9 ROI areas for governmental organizations*

Reuse	Efficiency	Readiness	Lives	Risk Reduction	Effectiveness	Time	Money	Environment

- **Metrics are being focused on the OTI Work Force impact on:**
  - *Enhancing the training effectiveness of military forces*
  - *Ability to provide warfighters realistic training environments in order to:*
    - *Exploit the full spectrum of their missions' capabilities*
    - *Minimize mission execution risks*
  - *Allow airmen the opportunity to determine how systems will perform in many representative geographical regions*
  - *Providing the warfighter the ability to experience the operation in a sufficiently realistic environment prior to the actual operation*
  - *Instilling confidence in how systems will perform in current and future missions*
  - *Providing a timely and adaptable training environment as an enabler to establish, develop, maintain and manage a mission ready USAF*

Future Implication to Other Communities and Organization

- **Establishment of the USAF Modeling & Simulation Office**
  - **Under Acquisition**
  - **Organization still being defined**
- **Focus on the Foundational Aspects of M&S for the USAF**

Foundational Components (Not All Inclusive)							
Data	Architecture	Human Capital	Standards	Contracting	Interoperability	Equipment	Security

- **Application Focus – Remains with MAJCOMs & Functional communities**

MAJCOMs									
ACC	AETC	AFGSC	AFMC	AFRC	AFSOC	AMC	USAFE	PACAF	AFNG

Functional Communities							
Acquisition	Planning	Analysis	Testing	Training	Experimentation	Education	Medical

Any Questions?

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References

- **AF 36-2102, Classifying Military Personnel (Military and Enlisted), 25 Jun 2013**
- **AFI 17-130, Cybersecurity Program Management, 13 Feb 2020**
- **AFI 33-360, Publications and Forms Management, 28 Jun 2019; reissued 26 Jun 2020**
- **AFI 36-1401, Civilian Position Classification, 2 Jan 2019**
- **AFI 36-2651, Air Force Training Program, 30 Jul 2019**
- **AFI 38-101, Manpower and Organization, 29 Aug 2019**
- **AFI 38-401, Continuous Process Improvement, 15 Apr 2016**
- **AFMAN 33-363, Management of Records, 1 Mar 2008**
- **USAF Operational Training Infrastructure (OTI) 2035 Flight Plan, 5 Sep 2017**
- **USAF OTI Human Capital Strategy, 30 March 2020**
- **USAF OTI Human Capital Operating Plan, 6 March 2020)**