

Air Force Acquisition: Speed—Innovation—Technology



Steven D. Wert
PEO Digital, AFLCMC/HB

“The United States must bolster its **competitive military advantage**—which the NDS sees as having eroded in recent decades—relative to the threats posed by China and Russia.”

Summary of the National Defense Strategy

“The **traditional requirements-driven process** that the DoD has to deal with for acquisition has become more than inefficient ... it’s become dangerous.”

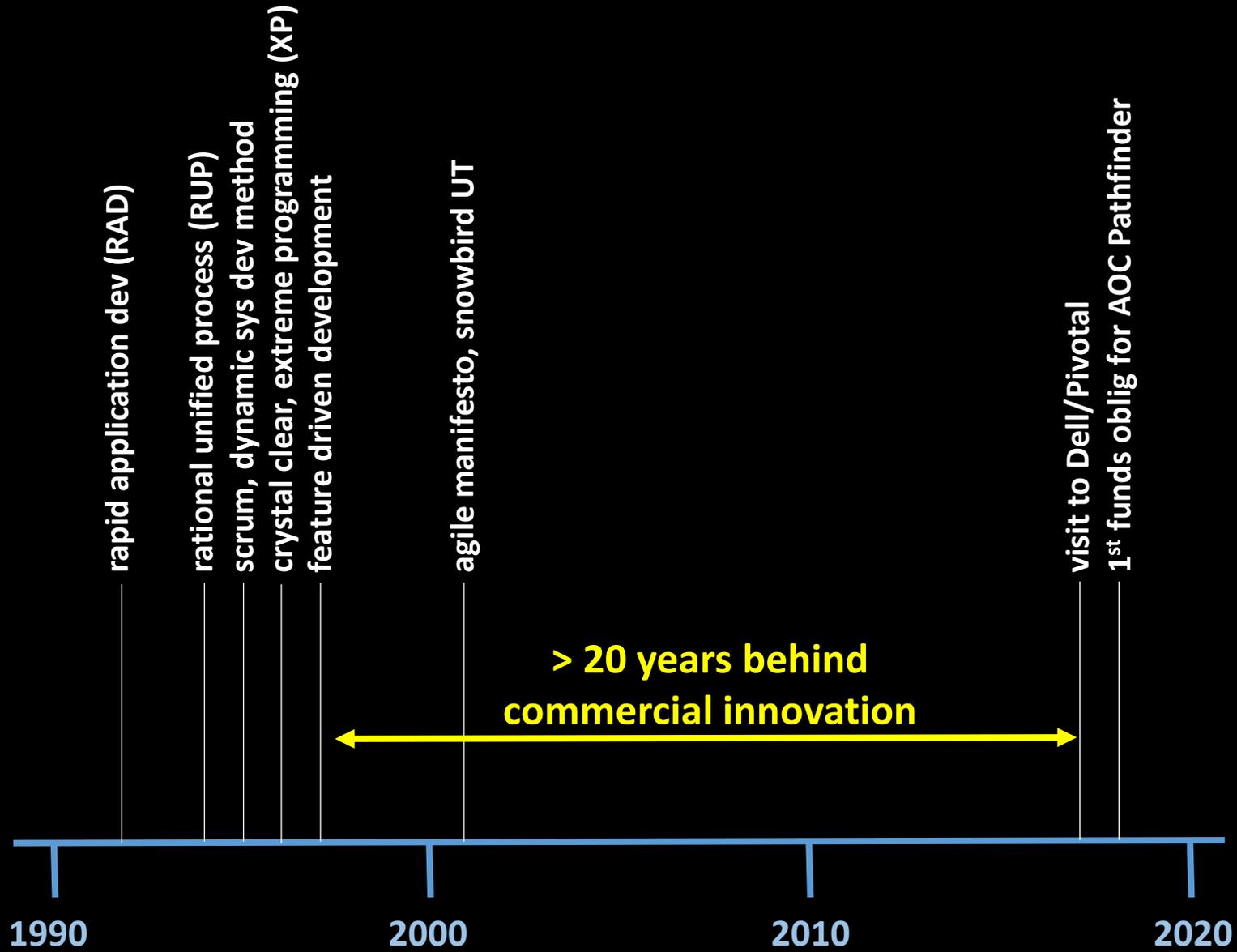
Milo Medin, Alphabet Inc.
Defense Innovation Board

“The **defense industry** has been feeding us yesterday’s technology.”

Hon Katerina MacFarland

Five stories ...

- **History of agile software development**
- **The real story of Kessel Run**
- **Why PEO Digital?**
- **Our larger AF journey**
- **Latest campaign**



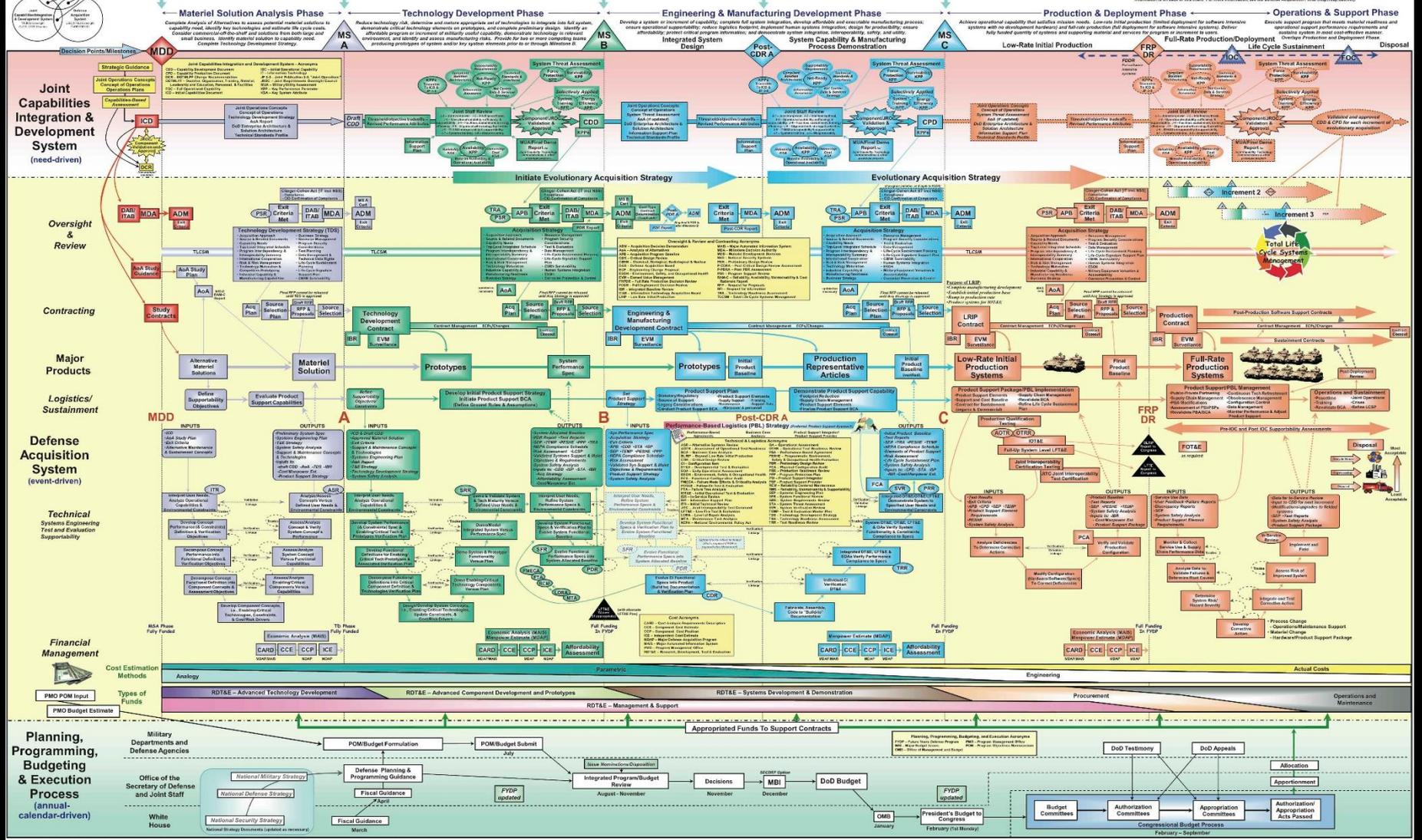
While commercial innovation was happening, we've been doing this ...

Version 5.4 15 June 2010

Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System



Following the Materiel Development Decision, the Milestone Decision Authority may authorize entry into the acquisition process at any point, consistent with phase-specific entrance criteria and statutory requirements

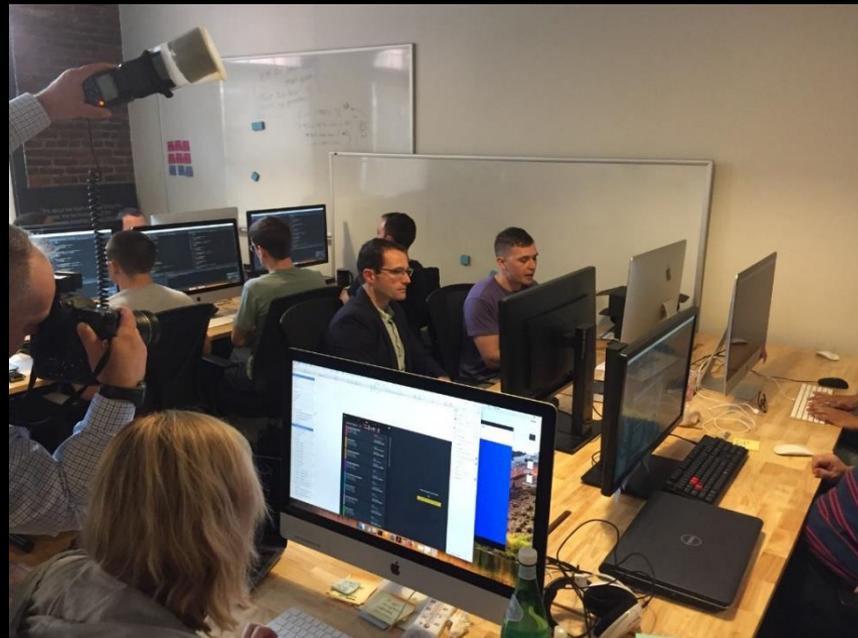


Authors: Chuck Conroy and Brad Brown. For a single copy of this chart, visit and request to the pmg@dau.edu. Best recommendations represent the content of this chart as of the date shown.

Stunning implications

- DoD 5000.02 is a completely wrong approach for rapidly changing threats and technology
- Major defense primes are not the best industry partners for many of our programs
- Single large prime contract means sub-optimizing somewhere ... often in several areas
- We did not learn agile devops from anywhere in the DoD, traditional OEMs, or FFRDCs

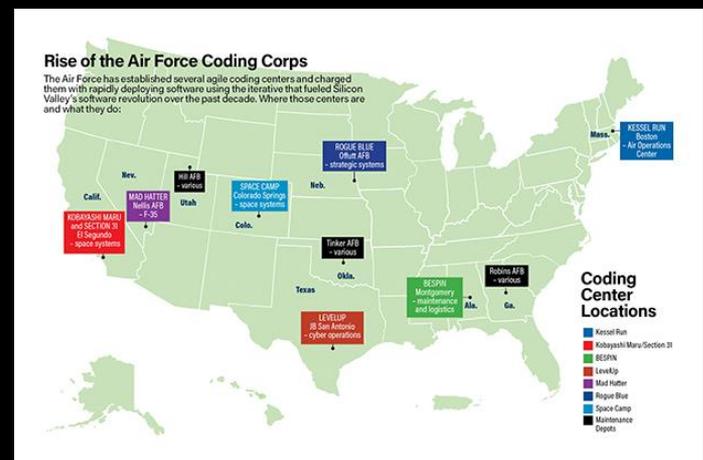
The real story of Kessel Run



**KESSEL RUN BOSTON
 HIRING EVENT
 January 23-24**

Registration required.
 Register at
afciviliancareers.com/kesselrun

#ItsACivilian



#innovation

- Embraced DDS and DIUx
- Convinced Congress to fund “AOC Pathfinder”
- Convinced OSD to delegate to the Air Force
- Micro-services contracting strategy (30+ SB contracts)
- Launched in WeWorks space in downtown Boston
- Organically-led coding teams using extreme programming
- LTTDY positions to spread culture
- Established first continuous delivery to warfighting AOC within months
- Selected non-acquisition leader with the right skills

Okay ... heard of Kessel Run, but why PEO Digital?

DIGITAL DIRECTORATE

Scope and Mission Areas

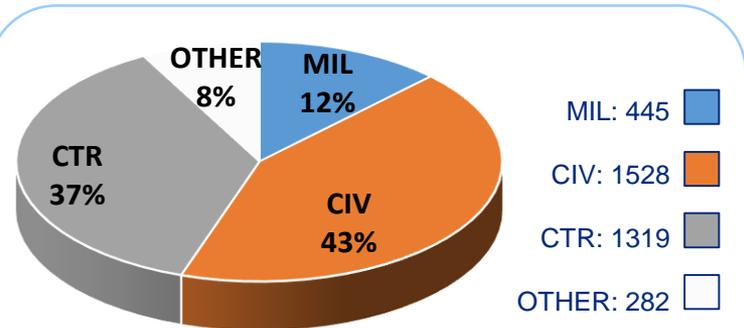


Mission Expedite delivery, and effectively support, warfighting battle management systems in partnership with users and industry

Vision: Our people make the Digital Directorate the most proactive and effective DoD life cycle management organization

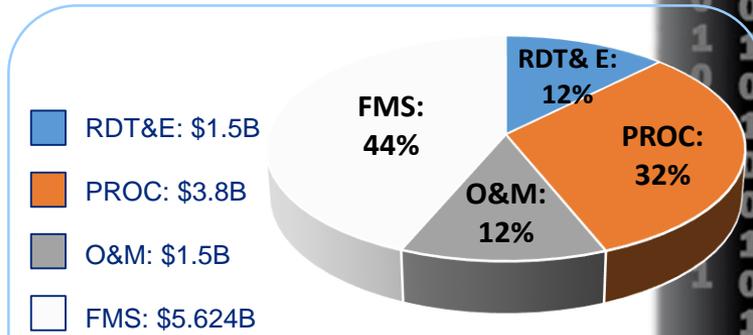
Goal 1: Plan and execute extremely well achieve 85% on-time or early for planned critical events in FY19 to build the trust and confidence of our stakeholders

Goal 2: Speed, innovation, and technology: the majority of our programs include innovative approaches to speed capability to the warfighter



3574 Total Manpower

ACAT I	6
(4 ACAT 1C, 2 ACAT 1A)	
ACAT II	1
ACAT III	71
FMS	147
804 Prgms	14
AML EXEMPT	26
SUSTAINMENT (O&M/O&S/Supt)	61



\$12B Total AY & FMS

Personnel Recovery C2

ISPAN Msn Planning and Analysis System

ISPAN Nuclear Planning and Execution System

ISPAN GAP CIE

NCR-IADS

Mission Planning CSAR Pedro King

C-sUAS Medusa C2

C2AOS/C2IS

Targeting and GEOINT

UC2

AF-DCGS Phoenix

OA-DCGS

DMO DIB

Weather Data Analysis

Cheyenne Mountain CIC2S

Legacy SPADOC SPEARR

Cobra Dane ADPE Re-host

Integrated Broadcast Service

F-35 ALIS “Mad Hatter”

Two smaller agile devops stories:

- **Mobility AF Planning System (618th AOC/TACC)**
- **ISPAN Inc 4 fielding decision**

Strategic best practices

- **The program office must enable agile—get “hands on!”**
- **Requires PEO engagement with senior stakeholders**
- **Platform operations, pipeline tools, and security require attention and effort**
- **SAFE Agile Release Train (ART) may be a trap**
- **Employ small wins strategies**
- **Scaling up is a major challenge**

Growing revolution

- BESPIN, PEO/BES, Montgomery
- Level Up, PEO/C3I&N, San Antonio
- Space Camp, SMC Colorado Springs
- Kobyashi Maru (Surf Camp), SMC West Coast
- Rogue Blue, PEO/Digital, Offutt
- Software Engrg Groups, Hill, Robins, and Tinker

We have successfully implemented agile devops with:

- Organically-led PMO coding teams
- Government as integrator—industry coding teams
- Traditional contract relationships with industry
- Organic SEGs at Robins, Hill, & Tinker

The larger AF journey

- Outside influences—DIB, DDS, DIU, AFWERX, AFWIC, and others
- Unprecedented delegation of authority
- Changing strategies—agile devops, prototyping, design agent, MVP
- Working with accelerators and start-ups, AF Pitch Days
- Technology—commercial tools, ML/AI, etc
- New partnerships—Northeastern University/KRI, MassChallenge, NSIN
- DoD 5000.02 is being re-written—DAU revising training
- AF leadership demanding speed, innovation, and technologies

VCSAF: “Status quo is not acceptable”

Dr. Roper: “Be radical! Make me nervous!”

PEO Digital Section 804 Programs



Program	Benefit	Current Schedule Savings Estimate	Initiation Plan
Command and Control Air Operations Suite Command and Control Information Services (C2AOS-C2IS)	Utilizing Rapid Prototyping authority to develop Minimally Viable Products (MVPs) in support of deprecating TBMCS FL and other mission critical fielded applications to meet current warfighter needs.	-3 Years (to FOC)	Completed
Combat Search And Rescue (CSAR) Pedro King	Utilizing Rapid Fielding authority to integration and field the CSAR Unique Planning Component (UPC) into the Mission Planning Environment (MPE) which is a single software delivery.	-6 months (to IOC)	YES (29 Nov 18)
Integrated Strategic Planning and Analysis Network Increment 5	Frequent software deliveries that are more responsive and aligned with customer needs.	-2.5 Years (to IOC)	YES (8 Aug 18)
Nuclear Planning and Execution System Recapitalization (NPES Recap)	Delivers initial Minimum Viable Product (MVP) approximately 2 years prior and Minimum Operational Product (MOP) approximately 9-12 months prior to warfighter's original requested IOC.	-9 months (to IOC)	YES (14 Sep 18)
Communications Network Upgrade (CNU)	Enables CNU to modify multiple aircraft before the crypto mandate. A traditional acquisition approach would yield zero aircraft by the mandated date. The prototype will be based on the earliest available AWACS software baseline and integrated at the first opportunity. This prototype will then be incorporated within the next AWACS baseline software.	-1 Year (to IOC)	YES (10 Oct 18)
AWACS Mode 5 Acceleration	Mode 5 804 enables Mode 5 capability to be delivered separate from ADS-B Out. Purchasing and quickly installing this GOTS solution enables AWACS to utilize a more resilient IFF capability in contested air space multiple years prior to the DRAGON update. Reduces the gap of not meeting the JROC Mode 5 mandate by five years (from DRAGON's planned FY27 FOC date to FY22).	-5 Years (to FOC)	YES (18 Nov 18)
AWACS Electronic Protection	AWACS EP 804 enables the program to compete the AWACS EP system and to recover from the schedule delays from the previous sole-source effort. This competition will save cost and provide a better solution to the warfighter	-6 months (to IOC)	YES (27 Nov 18)
MAF Modernization AGM	MAF Modernization 804 will enable the program to get on contract 1 year earlier than previously planned under 5000.2. In addition, by moving to Agile DevOps releases will be delivered to the field in a 3-month cadence enabling rapid user feedback.	-1 Year (to IOC)	YES (8 Nov 18)
C-sUAS SIREN Phase 0	Under section 804, the team plans to field to CAPE list and minimum 30 installations, up to 187. Goal is to field to as many as possible given available funds. Fielding the Minimum Viable Product provides ability to improve capability quickly	-9 Months (to IOC)	NO (in div coord)

PEO Digital Section 804 Programs



Program	Benefit	Current Schedule Savings Estimate	Initiation Plan
AOC Intelligence Collection	In this effort KR will create a portfolio of loosely coupled microservices architecture to modernize the way IC efforts are executed inside the AOC. Efforts will include, but are not limited to: intelligence, surveillance, and reconnaissance (ISR) mission planning, assessment, and monitoring.	-1 Year (to FOC)	YES (27 Jul 19)
AOC Objectives, Monitoring, and Assessment	KR will create a portfolio of loosely coupled microservices architecture to modernize the way OMA is conducted inside the AOC. Efforts will include, but are not limited to: mission analysis, strategy-to-tasking, space intelligence products, air operations directive, and battle damage assessment.	-2 Years (to FOC)	YES (27 Jul 19)
AOC Allocations, Taskings, and Re-taskings	KR will create a portfolio of loosely coupled microservices architecture to modernize the way ATR efforts are executed inside the AOC. Efforts will include, but are not limited to: tanker planning, master air attack planning, in-theater aircraft status, airspace management, and aircraft tasking.	-2 Years (to FOC)	YES (27 Jul 19)
AOC Data Science	KR will create a portfolio data science services and algorithms to optimize Air Operation and Targeting applications. Efforts will include, but are not limited to: data auditability, data sharing across applications, data translation, data standardization, metrics generation, and algorithm development.	-2 Years (to FOC)	YES (27 Jul 19)
AOC Wing Operations	KR will create a portfolio of loosely coupled microservices to bring modern tools to Air Base Wings and operational squadrons. Efforts will include, but are not limited to: flight operations and scheduling, test and operations range space management, aircraft maintenance and servicing, airfield management, base defense coordination, aircrew training and qualification, mission readiness planning, and aircraft tasking.	-2 Years (to FOC)	YES (27 Jul 19)
AOC Target Development	Portfolio of loosely coupled microservices architecture to modernize the way the joint targeting cycle is executed. Efforts will include, but are not limited to: modernizing the target development databases, target development tracking, dynamic targeting, target system analysis, target production, target list management, battle damage assessment, and target discovery.	-3 Years (to FOC)	YES (27 Jul 19)



28 years of potential savings already identified!

Working with Accelerators and Start-ups

AF Pitch Day #1 NYC, 6-7 March



AF Pitch Day #2 KRI, 24 July



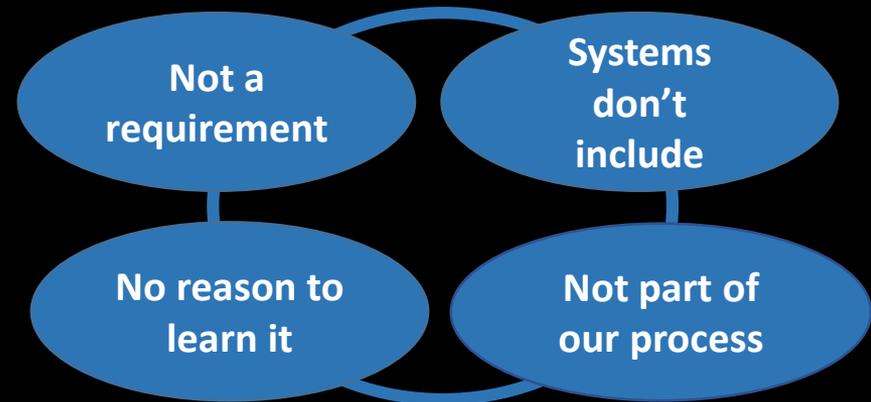
AF Pitch Day #3 Kessel Run, 26 July



We're learning that we've fallen behind ...

Most of our systems do not leverage modern technologies

- Automation
- Optimization
- Full instrumentation and analytics
- Realistic M&S
- Attended and unattended BOTS
- ML/AI
- Blockchain
- Gaming technology
- Augmented and virtual reality
- 4G/5G technology
- Unintended emissions detection
- Zero trust cybersecurity



We're simply responding to requirements in both our programs ... and how we train our people

The Challenge

We can no longer be a traditional acquisition organization simply delivering and sustaining capability in response to requirements or problems ... **we need to be an S&T organization**

Making us a **true life cycle management organization**—working ahead of the requirements process to prototype and advance our industrial age systems

How do we think through **what our systems could be** and make that a reality?

We can get help from small businesses, start ups, and AFRL—**how do we best engage them to work with us?**

PEO Digital 2020 Campaign—Accelerate Technology Adoption into our Systems

- Renewed and intense partnership with AFRL/RI—direct participation in AFRL’s planning process starting January 2020
- Technology roadmaps working with lead-MAJCOMs and AFRL—imagine what our systems could be
- Direct participation with AFRL/RI in meetings and events
- “Vanguard” partner efforts on cross domain solutions, BCS, ML/AI, Cobra Dane, AF-DCGS/VI2E, and C-sUAS
- Division/program-level AF Pitch Days focused on our UFRs
- Renewed focus on learning—training that we identify we need
- Establish a small Directorate team to help Divisions/programs headed by an HQE with deep commercial industry technology experience

PEO Digital Internal Pitch Day



To sum it all up ...

- **The NDS challenge is very serious—we have fallen behind on commercial technology and near-peer adversaries**
- **Unprecedented rapidly changing environment provides flexibility and opportunities for speed, innovation, and technology adoption**
- **Welcoming outside influences—working directly with start-ups helps the Air Force with new ideas, new tech, and better leverages SBIR spend**
- **PEO Digital 2020 campaign—finding ways to drive modern commercial technology into our systems**

PEO DIGITAL
AFLC/AHB



INNOVATE...DEPLOY...WIN