

Headquarters U.S. Air Force

Integrity - Service - Excellence

USAF Systems Engineering Initiatives



**NDIA 8th Annual
Systems Engineering Conference
San Diego, CA
25 October 2005**

**Mr. Terry Jagers, SES
Deputy Assistant Secretary
(Science, Technology, and Engineering)**

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Technical Vision Framework

Air Force Technical Enterprise

SAF/AQR Focus Areas

Programs

- ASPs
- MS Reviews
- SSACs
- TAG Teams

Policy

- SE AFI
- SoS Engineer
- System Safety
- OSS&E
- Acq Logistics
- Architecture
- HSI

Processes

- Tech Leaders' Roundtable
- Value Models
- TRAs
- SEPs
- MRAs

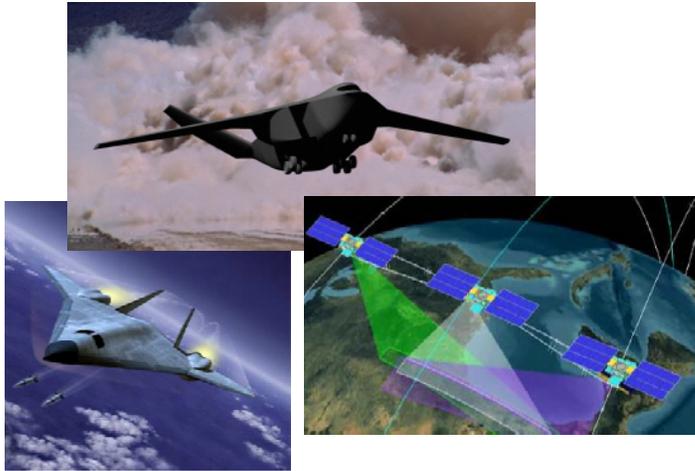
People

- Tech Asset Visibility
- AFIT
- SEAC
- DTs
- Recruitment & Retention



Technical Advisor to SAE

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- *Address credibility of AF acquisition*
- *Provide distinct and separate technical voice at the table during SAE and Milestone reviews*
- *Bring to bear the power of the larger AF technical community to identify and manage risk during acquisition*
- *Connect practical program support to develop better technical policy*

- Created Tech Advisor Concept of Operations (CONOPS)
- Staffing and training new branch in SAF/AQRE to manage effort
- Created ties to EN and S&T communities to form high-performance “Technical Advisory Groups” to support major reviews
- Establishing career-broadening positions to grow tech workforce

Putting the “AQ” back into SAF/AQR



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A Telling Statement?

“The only reason we in OSD are doing ‘Deep Dive’ technical reviews with your programs is because you [AF] aren’t ...”

– OUSD (AT&L)

Restore USAF Credibility and Ensure Relevance



Technical Advisor Groups

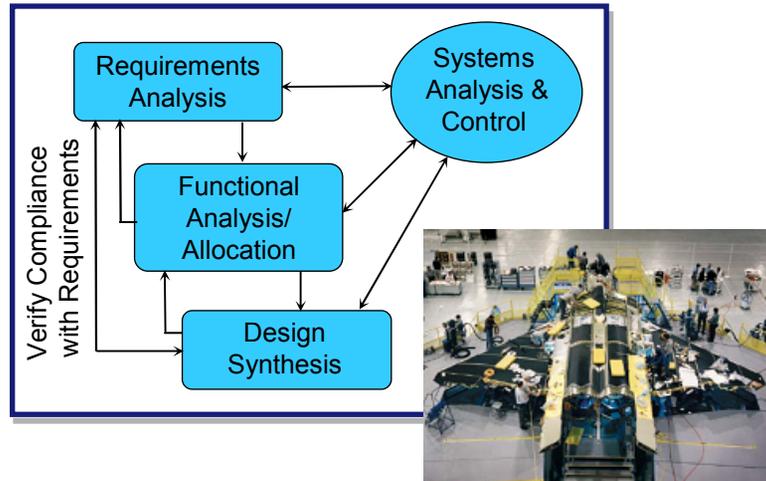
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- **Augment in-house team as needed for additional expertise on specific technical issues to:**
 - **SAF/AQR S&T PEMs and engineering staff**
 - **AFMC Staff or Center ENs**
 - **AFRL Staff or Technical Directorates**
 - **Other organizations (e.g., AFSTB, other Services)**
- **Appointed in consultation with AF Tech Leaders (AFMC/EN, AFRL/ST, etc.)**
- **May be called upon to support “Deep Dives” with programs, PEO reviews, and/or SAE reviews**
 - **Serve from appointment thru hot wash**
 - **Document lessons learned for feedback to AQR, PEO, SAE**
- **Use in conjunction with AQ Functional Management to broaden technical workforce and grow technical leaders**



AF Engineering Vision & Leadership

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- *Provide a single AF voice to OSD on engineering and technical matters*
- *Unify proven AF engineering and technical methodologies across space and non-space efforts*
- *Resurrect systems engineering policy and re-institutionalize for AF*
- *Craft an achievable engineering vision to address architecture / systems-of-systems complexities*

- **Shifted roles and responsibilities for SE policy from SAF/ACE to SAF/AQR**
- **Established Technical Leaders' Roundtable for AF Technical Leaders to unite and caucus on engineering/technical vision**
- **Drafting new SE AFI to incorporate proven SE practices, new architecture/ SoSE vision, and space/non-space issues**
- **Leveraging experiences in Technical Advisor role to establish lessons learned from each acquisition review to roll into SE and technical policies**

Leading and Unifying AF Engineering Efforts



AF SE Policy Development

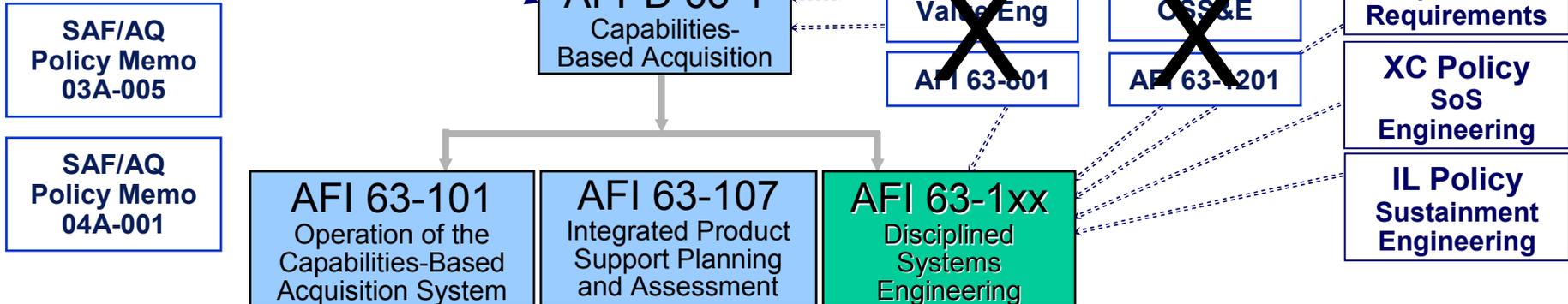
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Adapted from AFMC/EN, 5 Jul 2005

DoD



AF



MAJCOMs



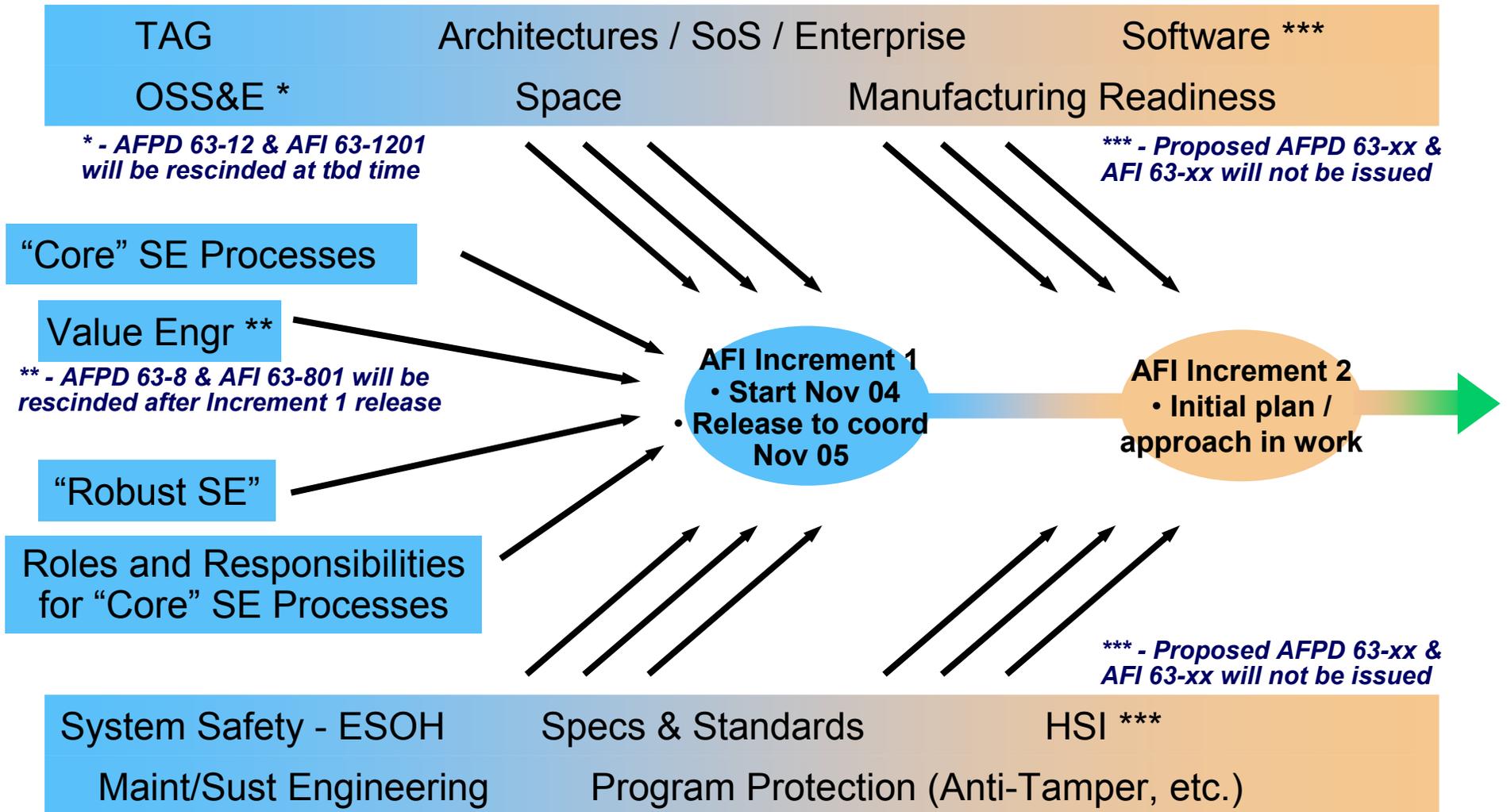
Practitioners





AF SE Policy Roadmap

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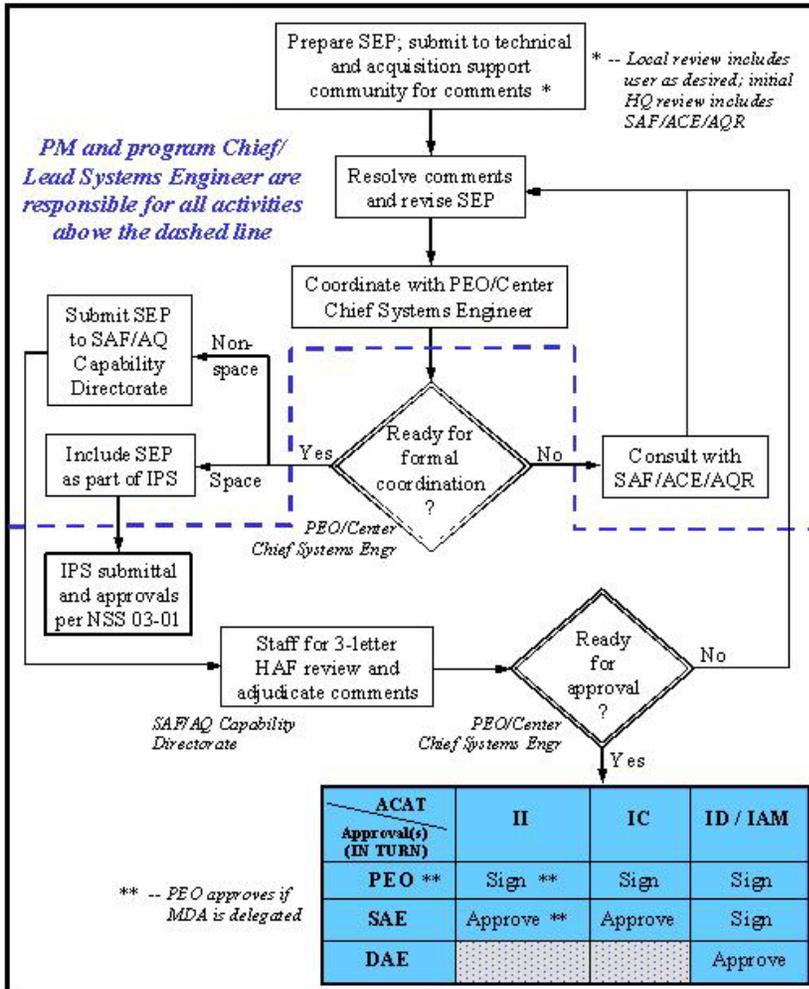




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AF SEP Approval Process

USAF SEP SUBMITTAL & APPROVAL PROCESS FLOW FOR ACAT I/II PROGRAMS



- MAJCOMs responsible for SEP preparation guides
- Program Executive Officers (PEO) Chief/Lead Systems Engineers responsible for SEP development/review process
- Program Manager responsible for SEP content
- Reviewed and updated annually
- PEO's Chief/Lead Systems Engineer reviews SEPs for ACAT III programs before approval



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AF Systems Safety and SE

DoD goal of 75% reduction to FY02 mishap rates

- **OSD established Defense Safety Oversight Council (DSOC) to direct efforts to achieve goal**
- **Mr. Schaeffer chairs one of 8 DSOC task forces -- Acquisition and Technology Programs -- focused on revitalizing System Safety in SE**
- **AF developing AFI to guide revitalization of SE, with strong emphasis on System Safety and OSS&E**

FY02 -- 1 military death every 16 hours, 168 active duty injuries every hour, and 1 aircraft destroyed every 5.2 days (\$1.8B loss)



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Growing AF Technical Leaders



- *Value and respect the individual needs of every AF scientist and engineer (S&E)*
- *Ensure the S&E career field supports all diverse workforce demands of every one of our customers*
- *Provide smart buyers and competent engineers to the acquisition corps*
- *Unify the technical workforce to provide enhanced development opportunities*

- **Providing personalized development guidance with each S&E career field member through out development teams (DT) and career guides**
- **Identifying critical disciplines within S&E field, assessing state-of-health, and appointing a Technical Leader to take action, advocate and mentor**
- **Matrix support provided to SAF acquisition career field office to ensure S&E equities in SPO sizing models, acquisition commander boards, etc.**
- **Developing criteria to unify tech workers/leaders across all career fields**

Linking Technical Leadership to Our AF Future!



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Summary

- Focusing SE policy to ensure strong **technical planning** and processes
- Leveraging Tech Advisor role to strengthen **technical execution** and credibility
- Growing **technical leaders** to ensure relevance in the future
- Synergizing technical people, programs, policy and processes to grow and strengthen the Air Force technical enterprise

Pursuing USAF Technical Excellence!



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BACKUP



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System Safety Revitalization Highlights

- **Apr 04 DoD Defense Safety Oversight Council Acquisition and Technology Programs Task Force**
- **Sep 04 USD (AT&L) System Safety policy memo**
- **Oct 04 NDIA SE Conference -- Senior Leader Panel**
- **Dec 04 NDIA SE Division System Safety Committee**
- **Mar 05 DSP Conf presentation on MIL-STD-882D**
- **Apr 05 DAU System Safety in SE course -- landmark**
- **Aug 05 Int'l System Safety Conference**
- **Oct 05 NDIA SE Conf -- first ever System Safety track**
- **Ongoing efforts include:**
 - **DAES Evaluation Criteria**
 - **Joint Programs Safety Board Certification Process**