



# Air Force Materiel Command

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## Changes in the Roles of Intelligence in the Acquisition Cycle

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# Overview

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- ISR for Acquisition
  - Intelligence Supportability Analysis
  - Predictive Threat Analysis
- Informing the Decision Tradespace  
(Why Early Intelligence Involvement Adds Value & Reduces Risk)
- Changes in the Roles of Intelligence in Acquisition
  - Earlier Involvement
  - Reassessing the Threat Support Approach
  - Intelligence Mission Data
  - S&T and S&TI Collaboration
  - Systems Engineering Integration
- AFMC Intelligence Points of Contact



# ISR for Acquisition

***ISR for Acquisition:*** Seeks early and pervasive integration of intelligence subject matter expertise, tools, training & cross-program analysis to...

- Support effective research, development, fielding, employment, sustainment and improvement of AF capabilities by identifying intelligence requirements
- Resolve/mitigate intelligence deficiencies, integrating intelligence, and provide needed intelligence mission data (IMD) and infrastructure in a timely and secure manner
- Ensure intelligence supportability analysis throughout the lifecycle for intelligence sensitive programs

Predictive  
Threat  
Analysis

Intelligence  
Supportability  
Analysis



# Intel Across AFMC

Research Laboratories

Life Cycle Management Center

Air Force Test Center

AF Sustainment Center

Nuclear Weapons Center

TOTAL INTEL IN COMMAND: 264  
Officers: 50 Enlisted: 53 Civilians: 161  
Actual Acq Intel Capacity: 161

WPAFB  
AFMC/A2  
AFLCMC/IN  
AFLCMC/INA  
AFRL/XP  
AFRL/RV  
AFLCMC/21 IS  
711 HPW

AFRL/RI

Hanscom AFB  
AFLCMC/INH

Hill AFB  
AFLCMC/INL

Edwards AFB  
AF Test Ctr  
412 TW/XP2

Arnold Eng Dev Ctr

Tinker AFB  
AFLCMC/INB

Robins AFB  
AFLCMC/ING

AFRL/RD

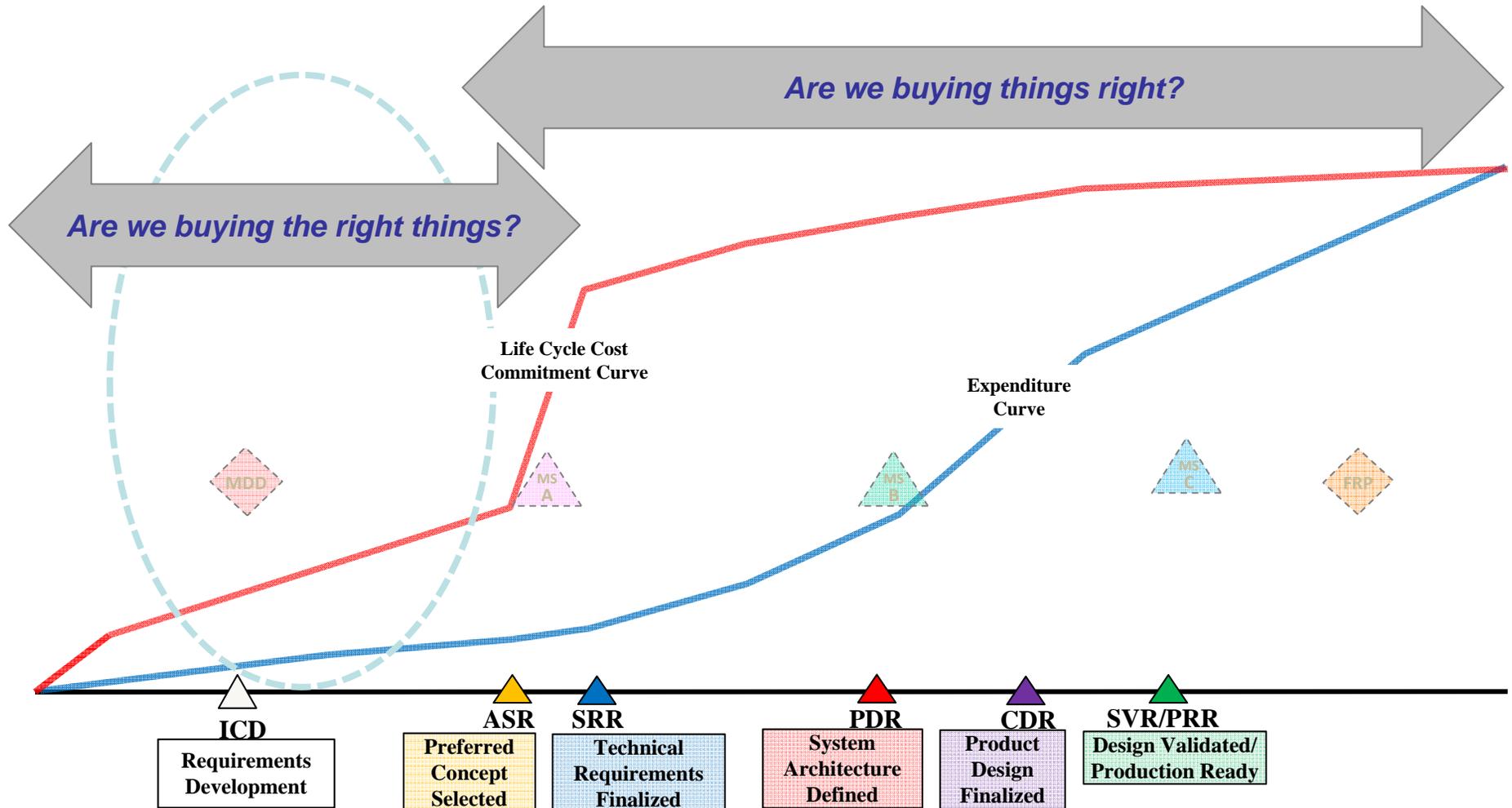
Kirtland AFB  
AFRL/RD  
NWC

Lackland AFB  
AFLCMC/HNCYI

Eglin AFB  
46 TW  
AFLCMC/INM



# Lifecycle Cost Commitment





# Driving Forces

## Few Intel Dependencies - Past



**Intel Data Provided to Operator; Little to No Integration**

Threat Assessments  
Countermeasures  
Pre-mission folders

Low-Fidelity ELINT Data  
Datum Models  
Paper Charts

## Many Intel Dependencies - Today

Scan Schedules Based on Current Threat Data  
ISR Analysts  
Signature Data

Single Integrated Intel/Information Database at Squadron Level  
Combined Intel/Ops Center to Maintain Database/Sensor Engineer Data



**Intel Data Provided to Operator and Integrated Into Weapon System**

Datum Models  
MIDB  
MEPED

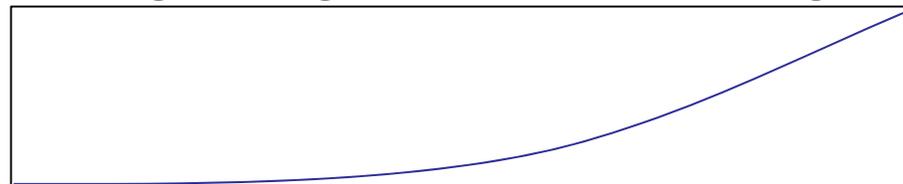
GI&S  
DPPDB

Threat Assessments  
Order of Battle  
Countermeasure Techniques  
Platforms Feed Intel

High-fidelity ELINT Parametric Data  
Emitter-to-Platform Fit Data  
Characteristic & Performance Data  
Specific Emitter Identification Data

## Increasing Intelligence Needs and Integration

**Low-Tech Platforms/Weapons**



**Smart Platforms/Weapons**



# ISR for Acquisition

## Perceptions

- Intel = Threat Data (STAR)
- Intel Cost = Free
- Responsibility = Intel Community
- Intel Community Rqmts = Known, understood, planned

## Reality

- Intel = Threat + Intel Mission Data + Supporting Infrastructure + Systems Engineering Integration
- Intel Cost = Money + Manpower
- Responsibility = PM with Intel Support
- Intel Community Rqmts = Driven by formal requirements & requests



# AFMC Intelligence

- Provide Early, Integrated, and Pervasive ISR Expertise in Support of Materiel Life-Cycle Management from Requirements Generation through Sustainment -- to Deliver War-Winning Capability
  - Four Centers Performing ISR Support to Acquisition Role for Command:
    - Life Cycle Management Center
    - Nuclear Weapons Center
    - Research Laboratory
    - Test Center

<u>Intel Requirements &amp; Assessments</u> Cross-Program Analysis Intelligence Supportability Analysis Intel Requirements Management Capability Planning Intelligence Health Assessments SAP Analysis Support	<u>Intel Unit Support</u> Acquisition Intel Training SCI Systems Management Special Security Office	<u>Intel Cost Analysis</u> Costing Analysis
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# Derived Intelligence Requirements

## Intel Products

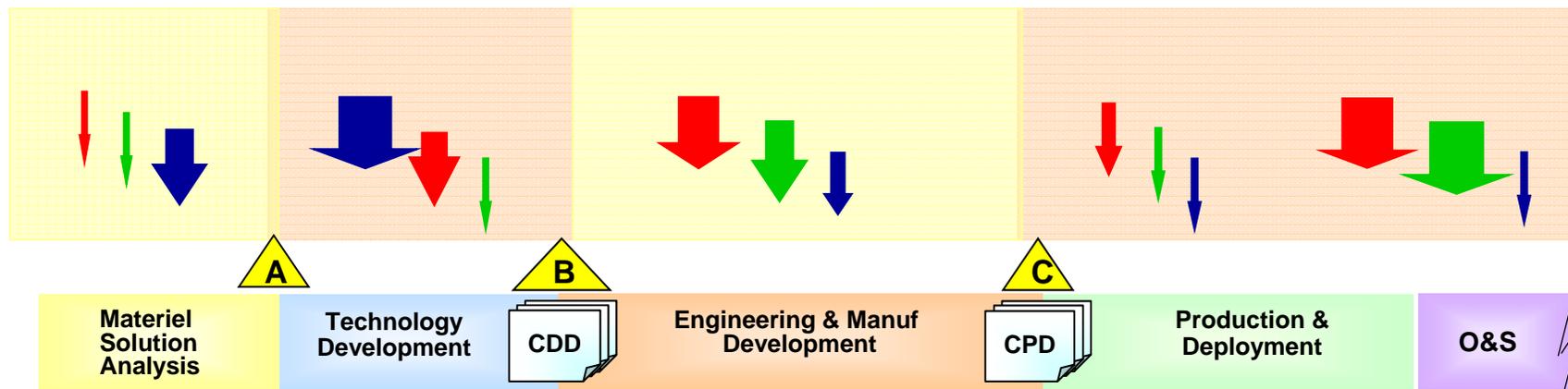
- Maps & Imagery
- Terrain & Vector Data
- Characteristics & Perf data
- Signature data
- Order of Battle
- Dynamic models
- CAD models
- Custom products
- Cooperative Targeting Data
- Threat Assessments
- Scenarios

## Infrastructure

- Manpower
- Clearances
- Training
- Procedures
- Facilities
- Computer Systems
- Connectivity
- Other

## Acq Inputs

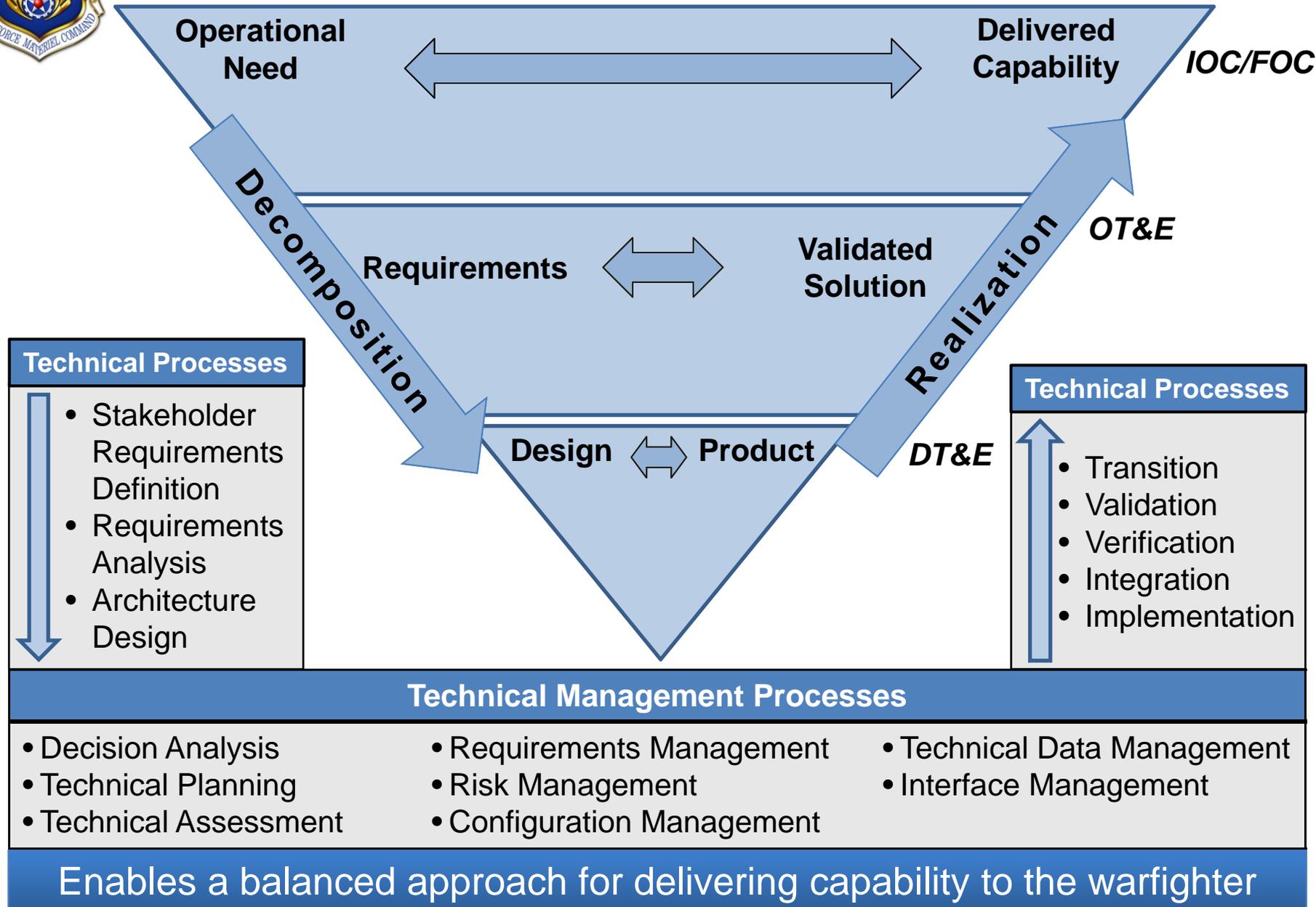
- ISR cost information
- ISR needs impacting schedule/ critical path
- Acq strategy
- System design
- Derived ISR Reqs
- ISR driven risk
- JCIDS inputs
- LCMP
- LMDP





# Systems Engineering

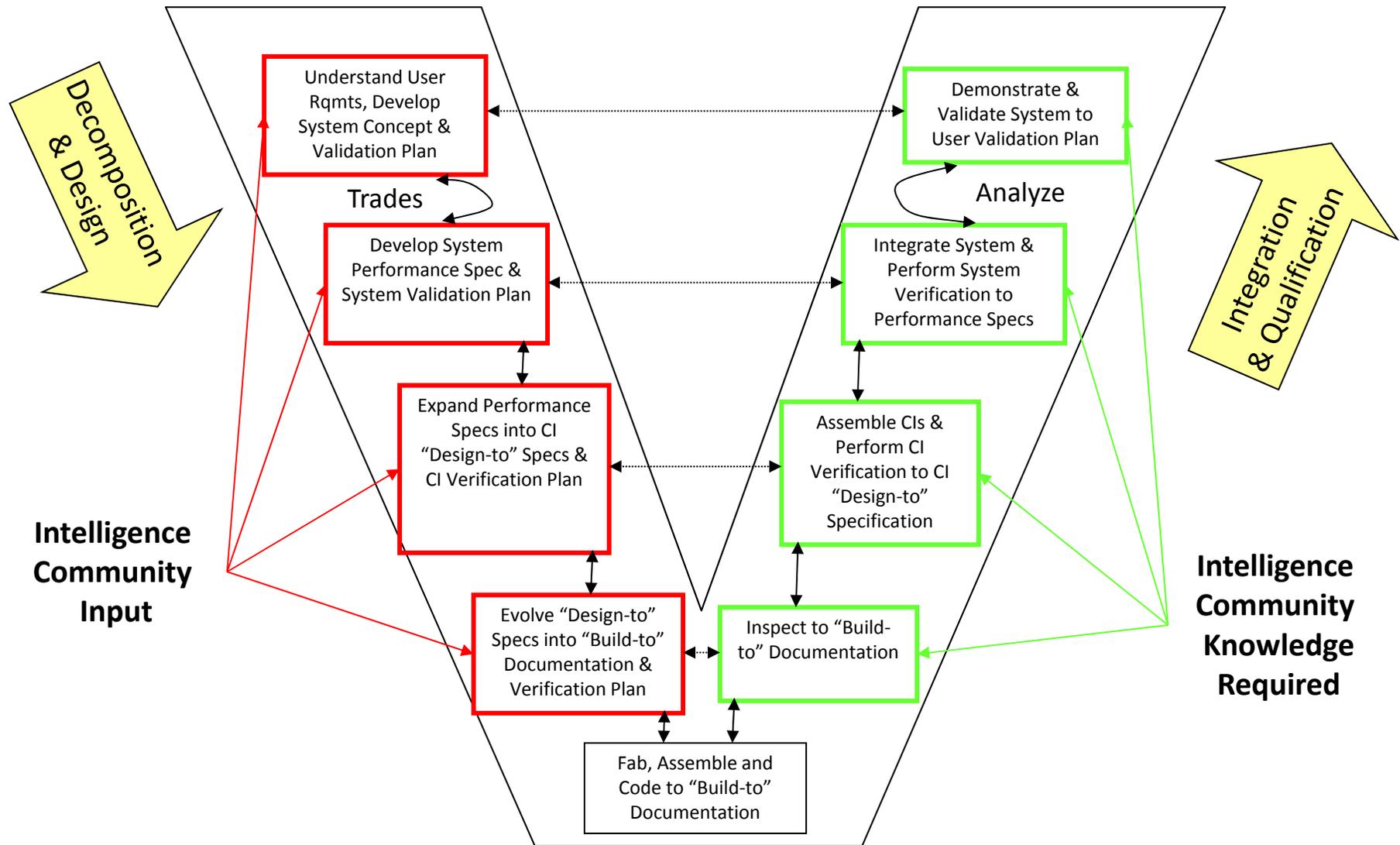
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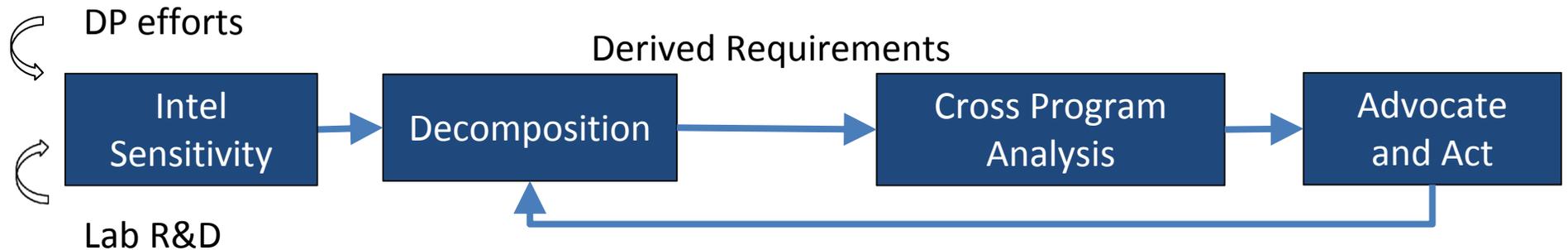


# Intel Systems Engineering Touch Points





# Intel Supportability Analysis Process



## Tools

Intel Sensitivity Survey/Tier Matrix	Requirements Analysis Workbooks	GLADIATOR AILCES COLISEUM	IHA POM input CFMP ISR-CART
Intel Supportability Working Group / Threat Working Group			



# Intel Sensitivity Survey

## Checklist :

- Require Intel Data?
- Produce Intel Data?

If Yes: how much data,  
when, how often, to what  
level of granularity?



### Fusion

- Sensor Tasking, Track Correlation
- Combat ID (CID)

### EW

- RWR, Geolocation, HGESM
- Emitter ID

### Distributed Aperture System (DAS)

- Missile Warning
- SA IRST

### Radar

- A/A, A/G, AESA, SAR
- Auto Target Recognition
- NCTR
- EA, ES, EP

### Mission Planning

- Route Planning
- OB/Threat Assessment
- Mission Data Load

### Development and Test

- Threat models and data

### Training

- Simulators
- Flight Training



# Deriving Intelligence Requirements

## RAW Example:

Will capability provide a precision missile? (hit designated target)

**Yes...**What makes the missile precise?

**Independent Seeker on missile**

What seeker sensor will be employed?

**Infrared (IR)**

What are the characteristics of the reference signatures?

What is the required fidelity of the ref signatures?

What is the volatility of the signatures... how much change to the target requires the signature to be updated?

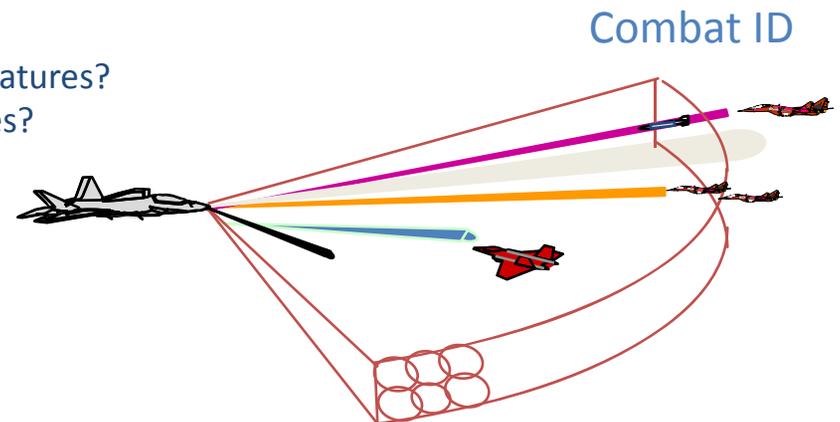
What is the concept of support for the signatures?

Who produces the signatures?

Who maintains the signatures?

What systems must access the signatures?

What is the format of the signatures?



**\*Example: Hit "Red" Aircraft with missile**

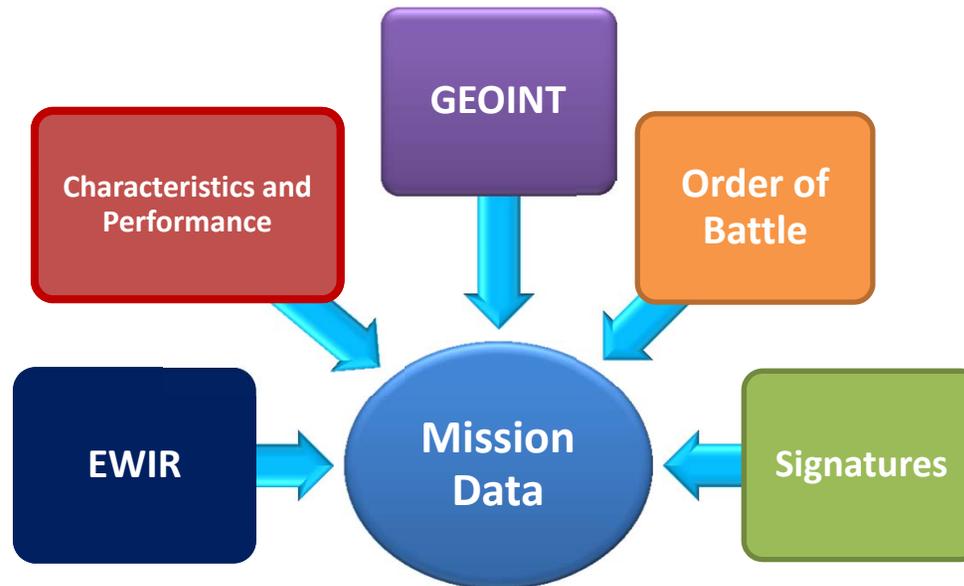
Required by AFI 63-101, Apr '09

"2.19.20. Ensure timely, complete, sufficient, and accurate intelligence analysis, information, and support is provided to and integrated within the acquisition process.."



# Intelligence Mission Data

Red and Gray Data that enables mission capabilities



Examples		
Signatures		Radar/IR Cross Section
Electronic Warfare Integrated Reprogramming (EWIR)		Pulse Width/Frequency
Order of Battle		Unit ID, Equipment
Geospatial Intelligence (GEOINT)		Digital Charts, Elevation Data
Characteristics and Performance		Speed, Acceleration, Wing Span



# ISA Benefits

- More than the traditional threat assessment
  - Analyst ensures PM understands Intel data required, specialized training needed, and has access to current and future threat information associated with program
  - Allows analyst to gain understanding of a system's operational characteristics and recognize how it interfaces with IC
- Realistic Cost Estimates
  - Intel support integrated into life cycle cost
  - Early identification of Intel supportability needs/deficiencies
  - Early identification of deficiency mitigation strategies
- Schedule
  - Align Intelligence production with program Integrated Master Schedule
  - Identify and resolve schedule conflicts involving Intel
- Performance
  - Ensures system is built to overcome threat and is mission capable throughout lifecycle
  - Build Intel support structure to maximize performance/ensure survivability
  - Field integrated capability with first increment

***Early ID of Intel requirements can reduce/manage risk by influencing system design***



# Changes in the Roles of ISR in Acquisition

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- Earlier Involvement
- Regulatory Changes
  - DoD 5000.02
    - STAR at MS A
  - DoD 5250.02
    - Intelligence Mission Data
- Long-range Threat Prediction
- S&T and S&TI Collaboration
- Systems Engineering Integration



# AFMC Intelligence POCs

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  - Col Pete Bailey – AFLCMC/IN
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  - Email: [Peter.Bailey@wpafb.af.mil](mailto:Peter.Bailey@wpafb.af.mil)
- AF Nuclear Weapons Center
  - Steven Myers - AFNWC/XZ2
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  - Email: [Steven.Myers@kirtland.af.mil](mailto:Steven.Myers@kirtland.af.mil)
- AF Test Center
  - Bill StLouis – AFTC 412 TW/XP2
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  - Email: [William.Stlouis@edwards.af.mil](mailto:William.Stlouis@edwards.af.mil)
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  - Email: [Ellen.Noble1@wpafb.af.mil](mailto:Ellen.Noble1@wpafb.af.mil)





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# Backup Slides

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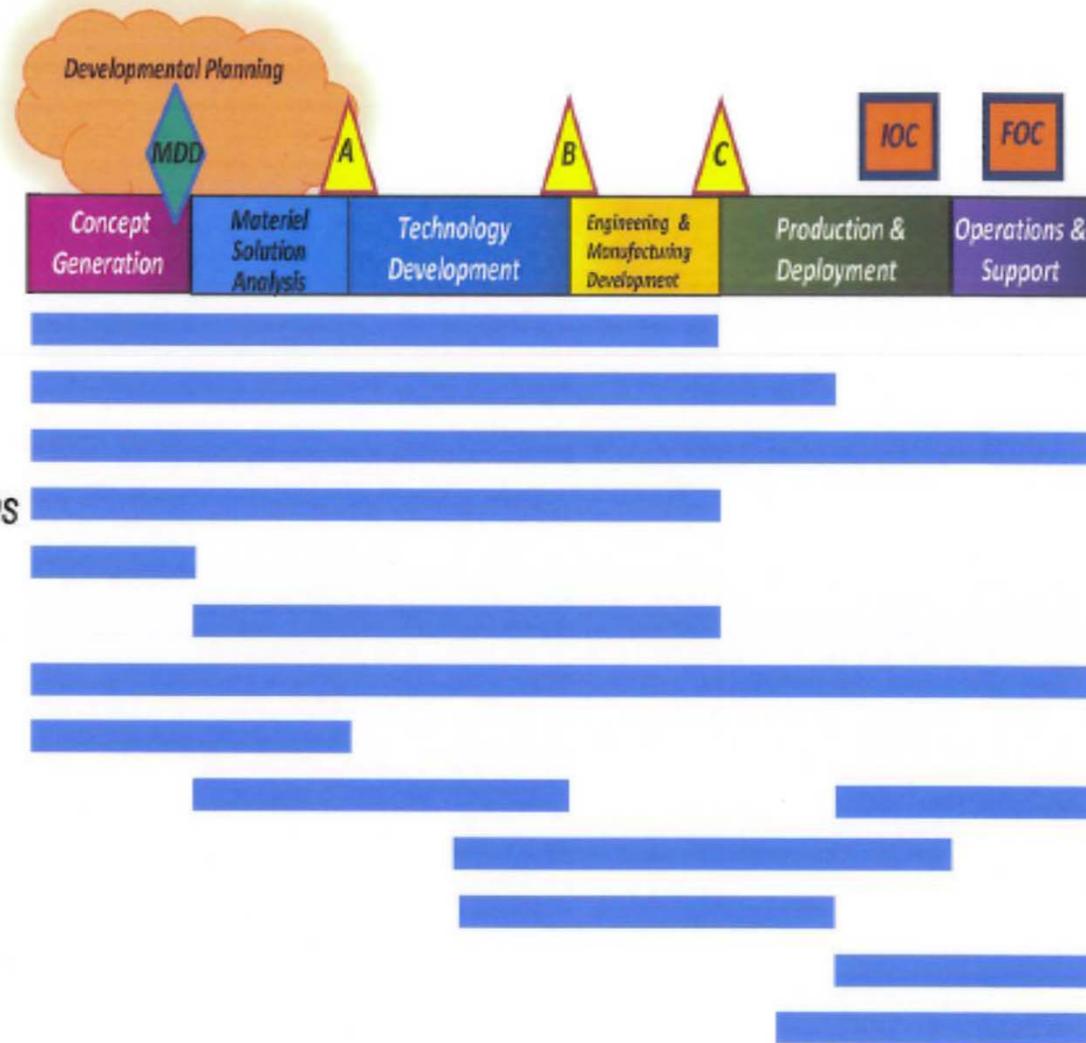
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# Required Threat Support

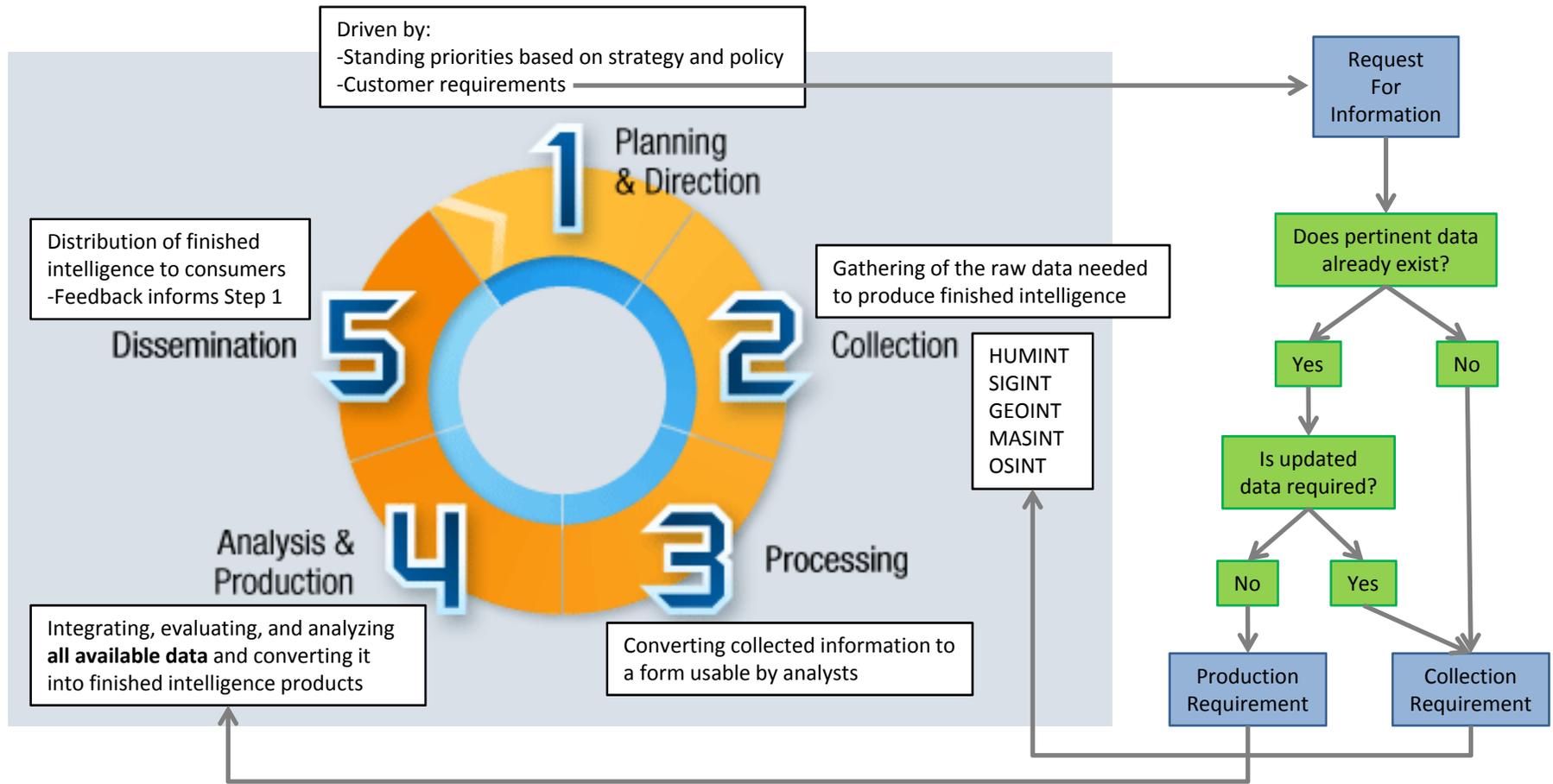
## INTEL NEEDS

- Defense Planning Scenarios
- Threat Laydowns (wartime)
- Narrative Threat Descriptions
- Foreign Technological Projections
- "Concept Crushers"
- Critical Intelligence Parameters
- Threat CONOPS
- Top-level M&S data/models
- Analytic level M&S data/models
- High-Fidelity M&S data/models
- Preliminary IMD Data
- Operational IMD Data
- Threat VV&A Support





# The Intelligence Cycle

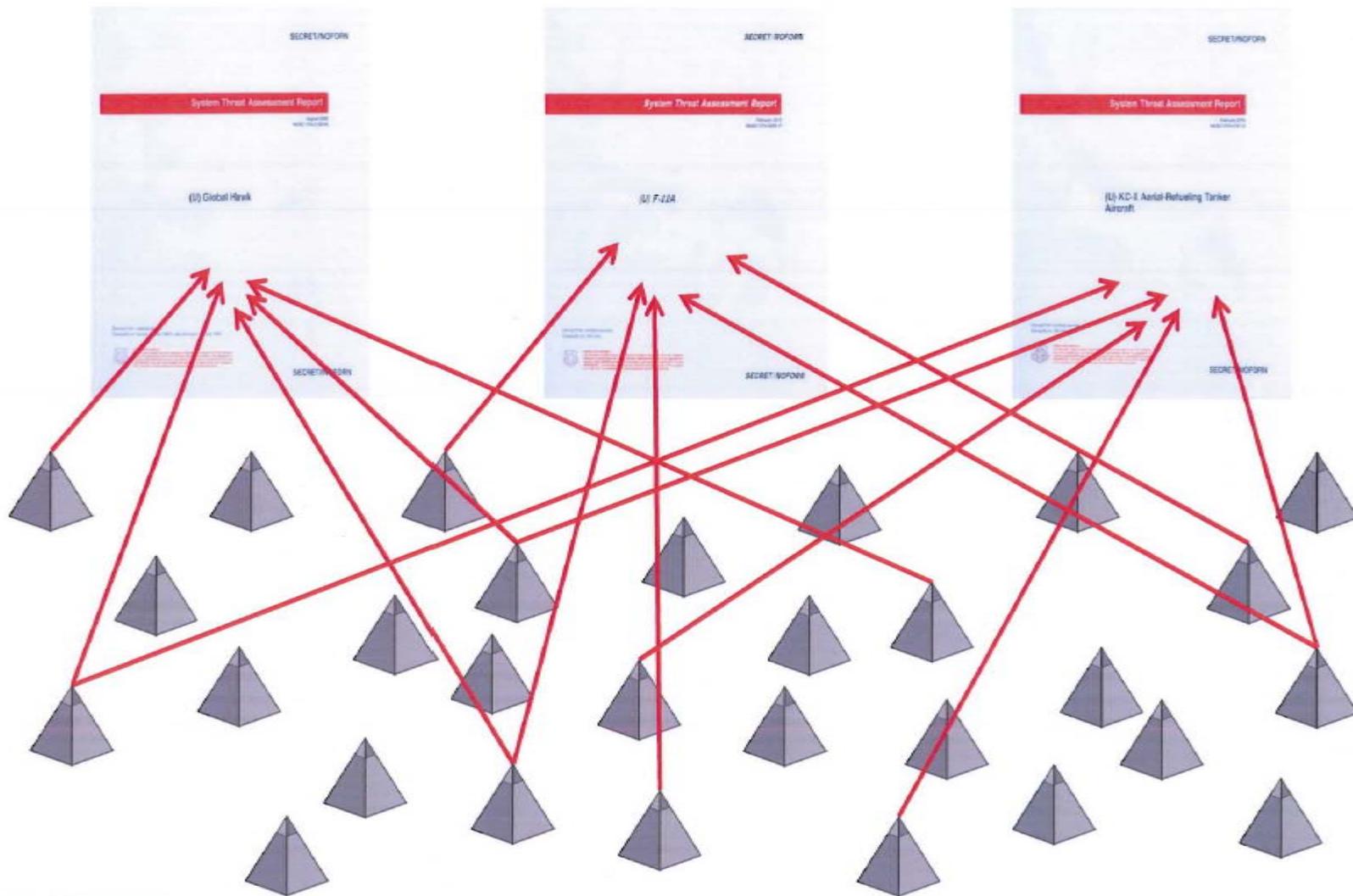


Intelligence Community production is requirements-driven.  
-Collection is based on standing priorities and customer requests.  
-Acquisition program-specific requirements must be identified and planned for separately.



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# Threat Modules



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# Threat Products

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- ITEA
  - Capability-specific
  - Current + 15 years
- CTA
  - Categories of warfare
  - Current + 20 years
- STAR
  - System-specific
  - IOC + 10 years
- Threat Roadmap
  - Evolutionary long-range prediction



# DoDD 5250.01

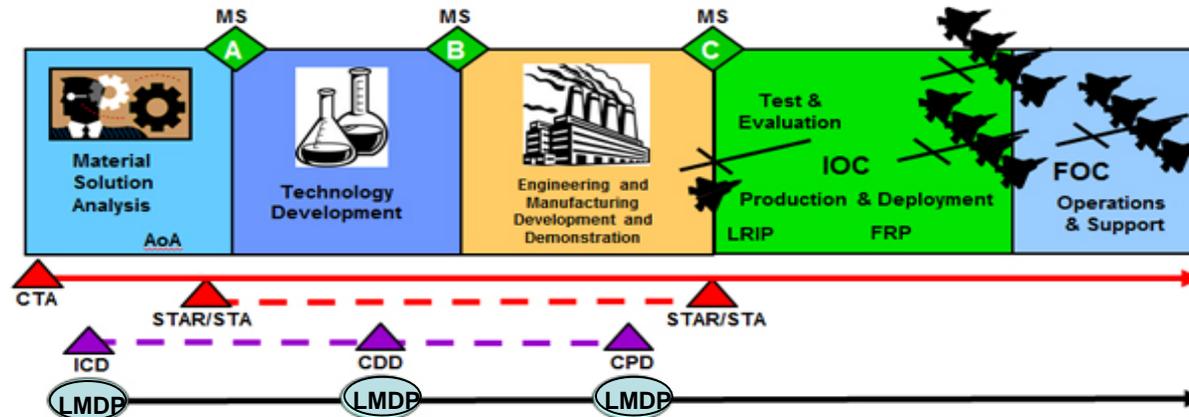
- **IMD management will be centralized**
  - Creates new IMD Center (DIA organization to centrally manage IMD), new 1-star level oversight board, and new 3-star level senior steering group – quarterly reporting requirements
  - IMD production resourcing implications to programs (TBD)
  - IMD approvals will be at the DoD level, not at the MDA or AF level (e.g. Non-DoD produced IMD requires DoD waiver & requires reuse rights, standard formats/architecture)
  - IMD plans will be high-interest to AFROC/JROC, DABs, IMDOB, IMDSSG, and other senior forums involving OUSD(I), OUSD(AT&L), and the Joint Staff
- **All IMD sensitive programs and requirements required to be identified EARLY in the acquisition lifecycle (impact on decisions is optimum)**
- **Life Cycle Mission Data Plan (LMDP) or update required from PM at every major milestone**
  - IMD requirements, assessments, gaps, shortfall cost estimates, collaboration opportunities, recommended COAs for development and resourcing of IMD

**ACQUISITION INTELLIGENCE PARTNERSHIP CRITICAL FOR SUCCESS**



# DoDI 5000.02

## Lifecycle Intelligence Analysis Requirements

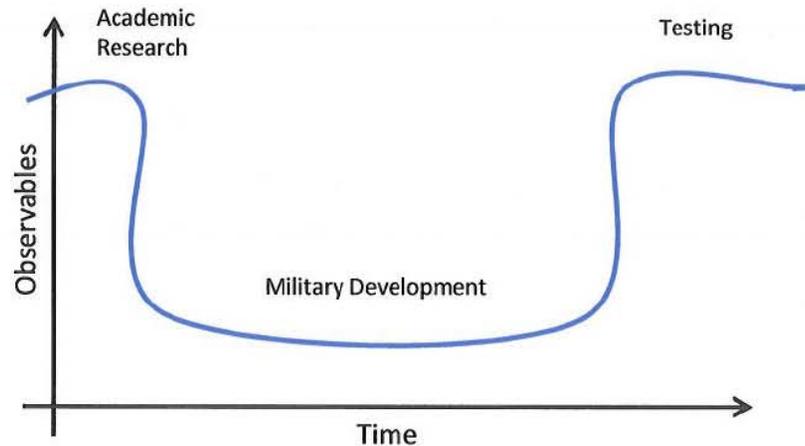


- **“STAR” now required for all programs at MS-A**
  - ACAT 1: System specific
  - < ACAT 1: Non-system specific (CAPSTONE-like)
  - Will require negotiations with DIA/OUSD(I)/HAF
- **LMDP required beginning at MS-A**
  - Required at all major milestones
  - AF Implementation TBD (desire use existing acq docs)
  - Some new content in LMDP, then transferred to SEP

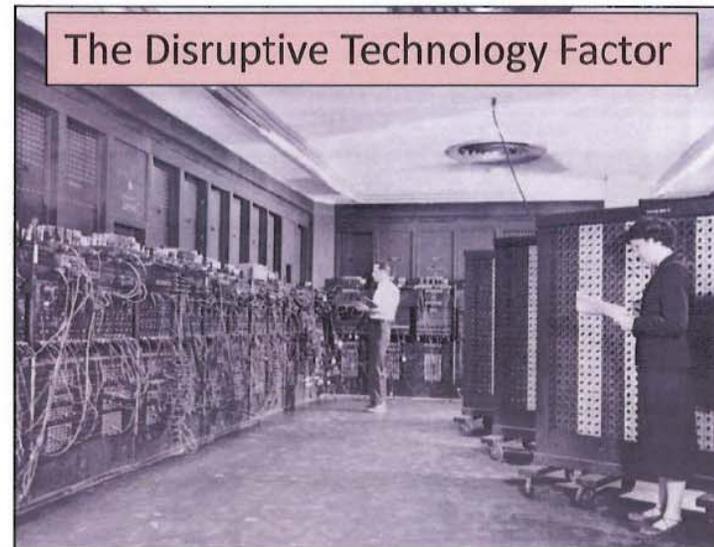


# Long-range Prediction Challenges

- Traditional Intelligence: What does the battlespace look like right now?
- S&TI: What threat systems exist now through the next 10 years?
- Early Acquisition: What will the threat environment be in 25 years?



What's different for longer range predictions  
Observables  
Collection sources & methods  
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Analytical Approaches  
Analysts



"Where a calculator like ENIAC today is equipped with 18,000 vacuum tubes and weighs 30 tons, computers in the future may have only 1,000 vacuum tubes and perhaps weigh only 1.5 tons."  
-Popular Mechanics, 1949



# Acq-Intel in the AFMC Enterprise

