



AF Strategic Development Planning and Experimentation

**NDIA Systems Engineering
Conference
26 Oct 2016**

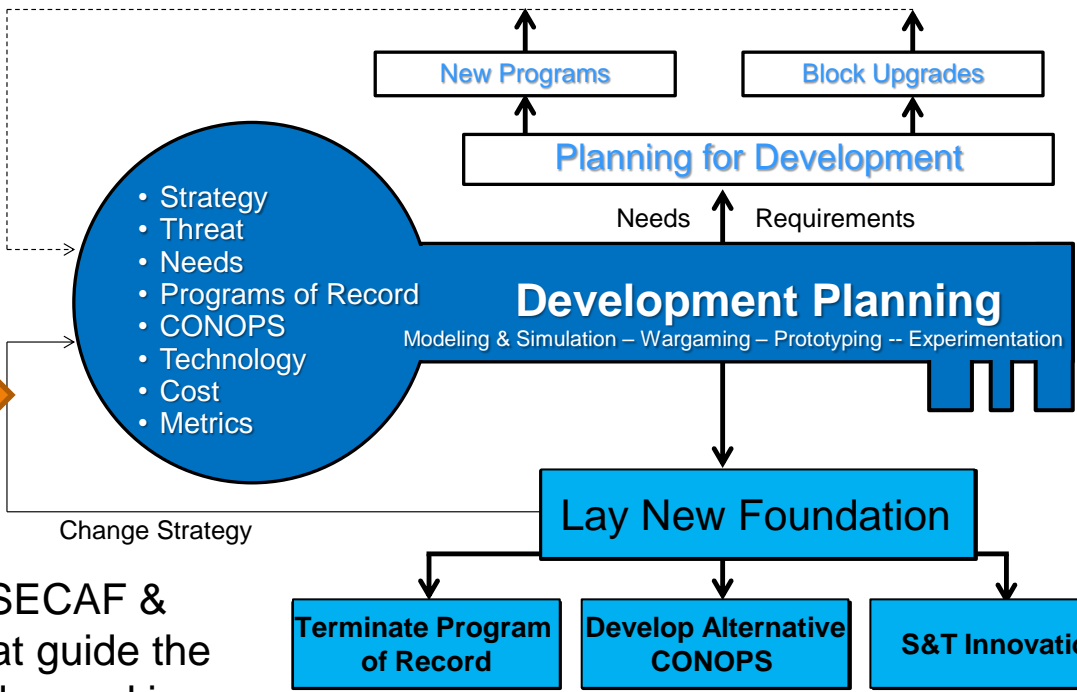
**Dr. Greg Spanjers, ST
SDPE Chief Scientist**



Development Planning: A Strategic Approach to Future Air Force Capabilities (AFSB, 2014)



2014 Air Force Studies Board report (NRC)



Current Gap-
Based Approach

New Strategies &
Opportunities

Development Planning:

“A key process to support the SECAF & CSAF in strategic decisions that guide the AF toward mission success today and in the future, within available funds and with acceptable risk”



Key AF Studies Board Findings*

- Lack of focused responsibility, capability, and funding for cross-core function analysis
- Implementation of DP as currently practiced is local, fragmented, and inconsistent
- Not effective at leveraging promising low-TRL technology
- Not effective at leveraging industry IR&D investments
- Little or no evidence that DP today addresses networked, integrated, and cyberspace operations
- Metrics do not currently provide an objective and actionable assessment of the effectiveness and efficiency of DP
- Lack the priority, policies, flexibility, and procedures in DP and end-to-end acquisition processes to address cyber security effectively

**Development Planning: A Strategic Approach to Future Air Force Capabilities, AFSB, 2014*

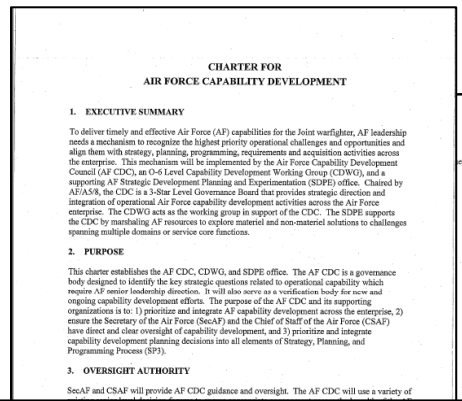


Charter for Air Force Capability Development

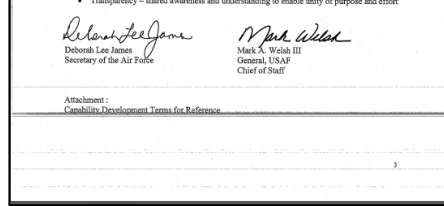
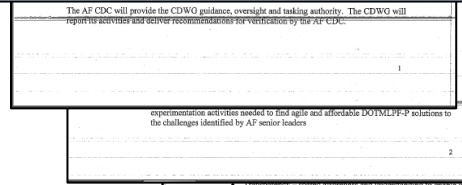
- *...AF leadership needs a mechanism to recognize the highest priority operational challenges and opportunities and align them with strategy, planning, programming, requirements and acquisition activities across the enterprise."*

- To implement this mechanism, the Charter establishes:
 1. AF Capability Development Council (CDC)
 2. AF Capability Development Working Group (CDWG)
 3. AF Strategic Development Planning and Experimentation Office (SDPE)

SECAF & CSAF provide guidance and oversight to the CDC



May 2016: Signed by SECAF & CSAF





Air Force Capability Development Construct

- **CDC - Capability Development Council**

- Identify Priority Challenges – Commission new ECCTs
- Drive CSAF approved ECCT Recommendations into SP3



AF/A5/8 Chair

- **CDWG – Capability Development Working Group**

- Working group to CDC
- Review and assess progress on Capability development



AF/A5R & SAF/AQR
Co-Chairs

- **SDPE - AF Strategic Development & Experimentation Office**

- Organize, Train and Equip ECCTs
- Oversee ECCT Flight Plans and COAs
- Run AF Experimentation



Director

- **Enterprise Capability Collaboration Team (ECCT)**

- Cross-AF team tiger teams focused on multi-domain challenges



AF SDPE Office

Strategic Development Planning and Experimentation

- **Support AF DP efforts & Conduct Expts to create better choices for the AF**

- Live exercises & Experiments
- Wargaming
- Modeling & Simulation
- Virtual & hardware prototyping

- **Stood up by AFMC/CC within AFRL (WPAFB)**

- Flexibility, Agility, Multi-domain perspective (Space, Air, Cyber)
- Reach across disciplines to foster relationships between Operational, S&T, Acquisition and Requirement communities

ROE / CONOPS

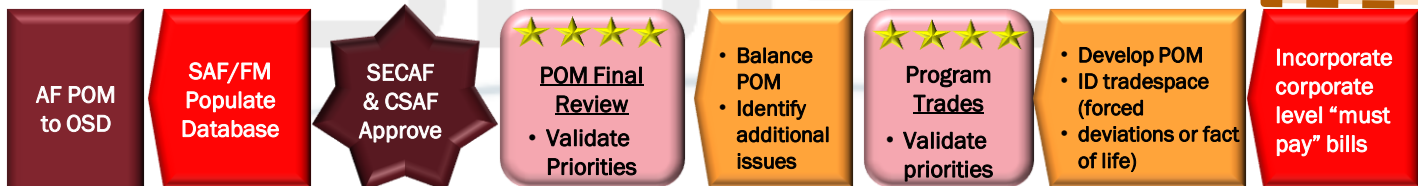
- Organize Train Equip from AFRL
- Direct report to AFMC/CC
- Work solely on CDC/CDWG efforts that are Tasked by the CSAF/SECAF
- Enduring, full-time to sustain Lessons Learned across ECCTS and Experiment Campaigns



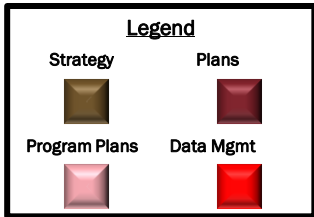
Strategy, Planning and Programming Process



Program Planning & Development (1-5 years)

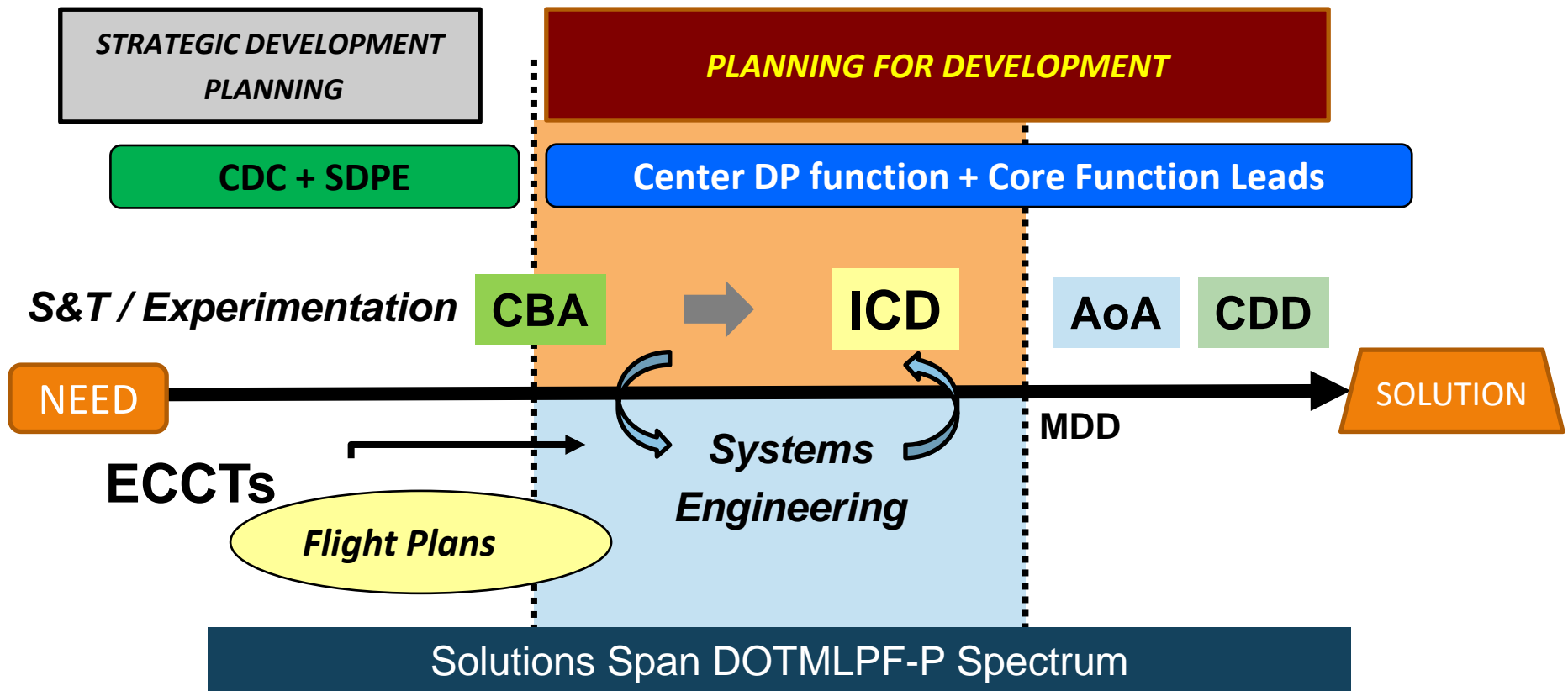


Program Defense





Evolving View of Development Planning

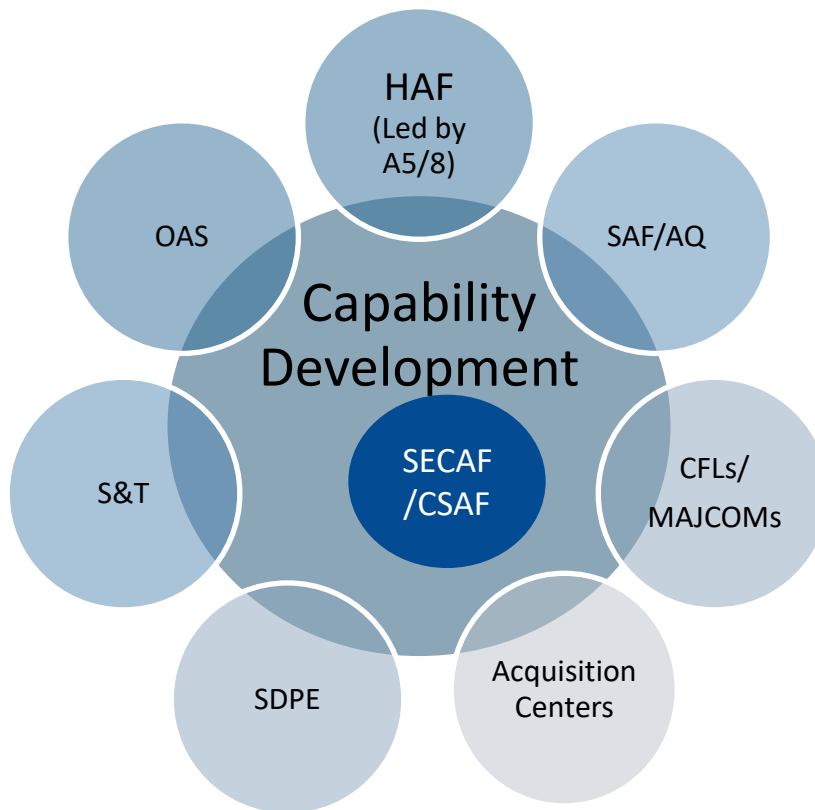




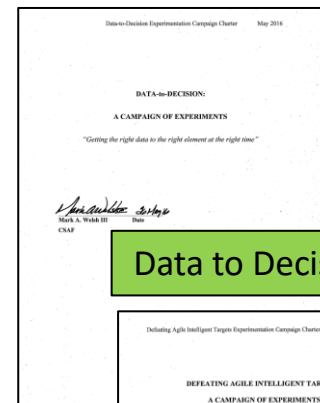
Capability Development is Comprised Of Many Stakeholders...



2014 Air Force Studies Board report under NRC



Experiment Campaigns approved by CSAF

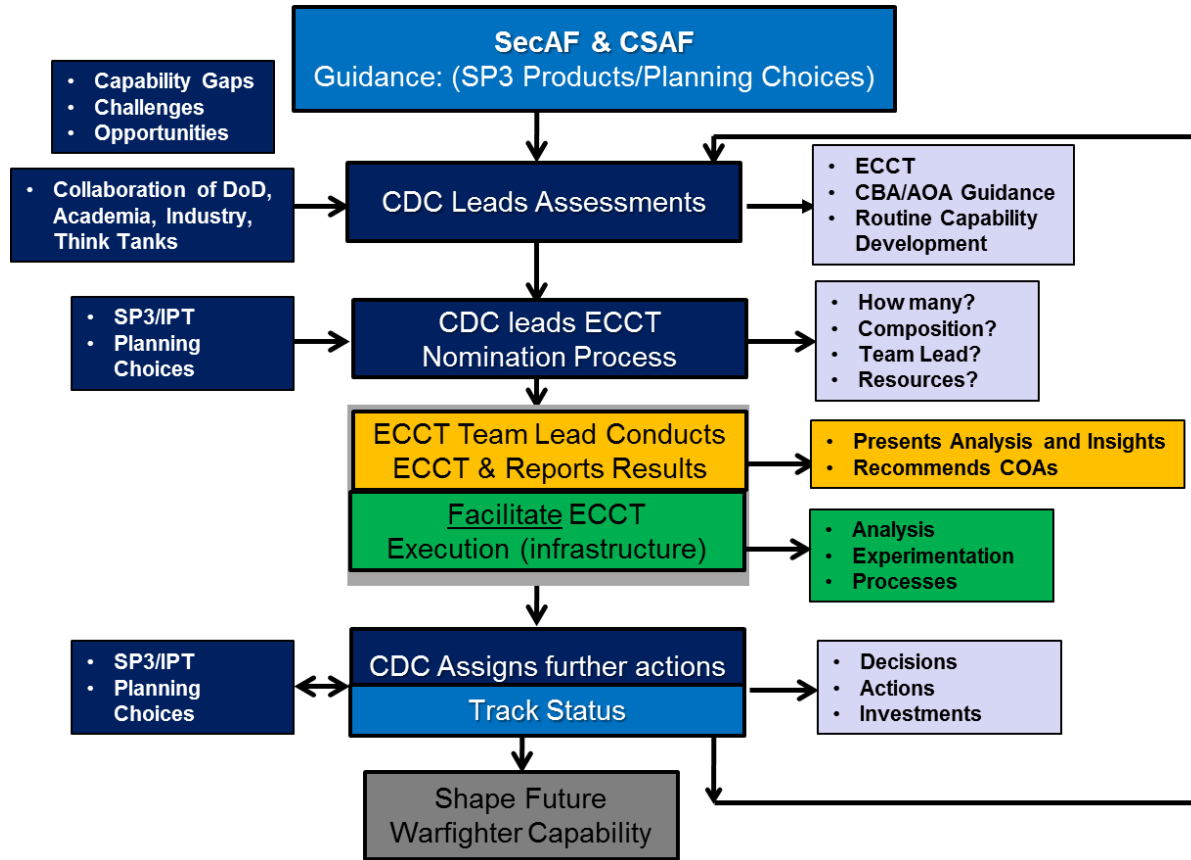


Data to Decisions (D2D)

Defeat of Agile Intelligent Targets (DAIT)

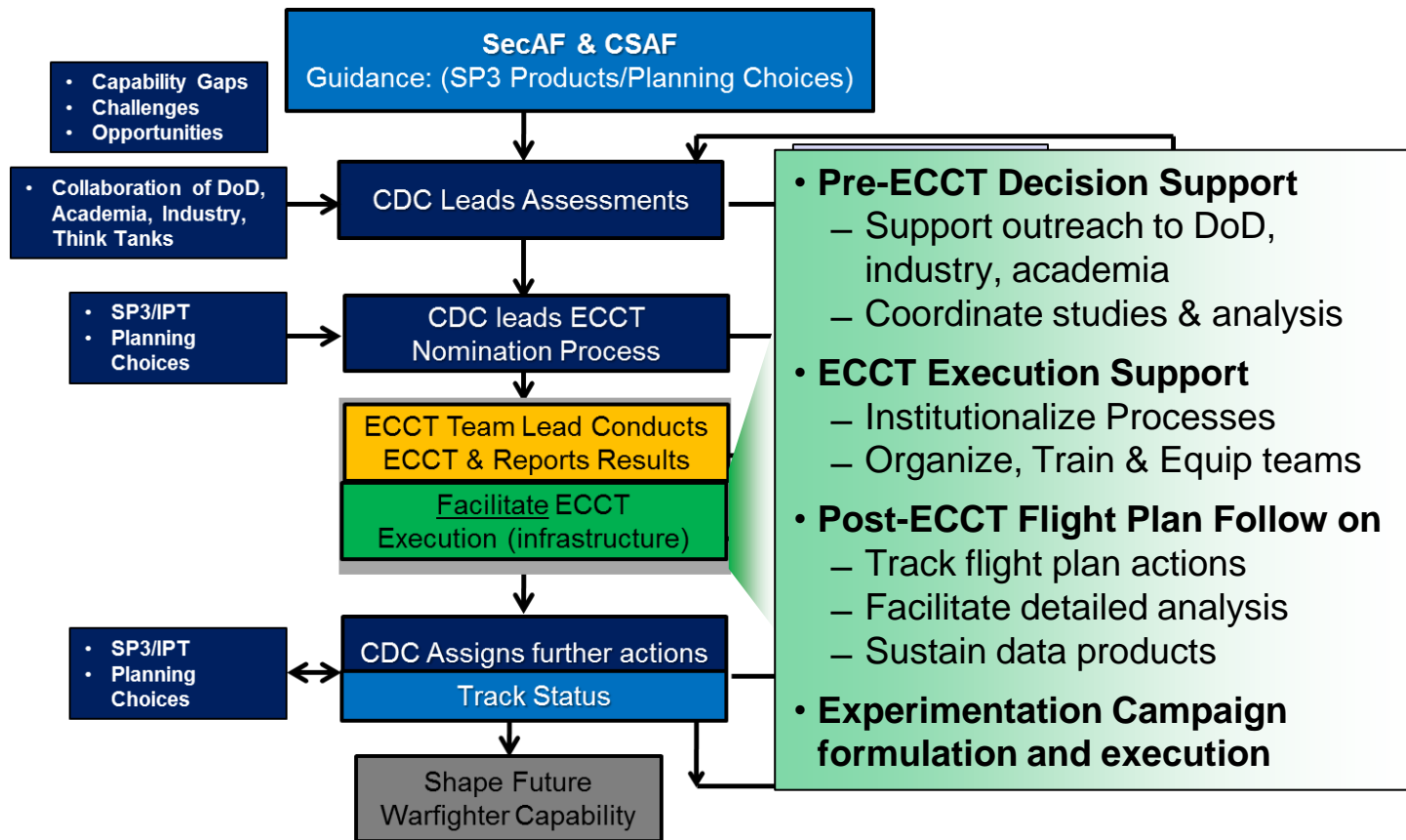


CDC ECCT Information Flow





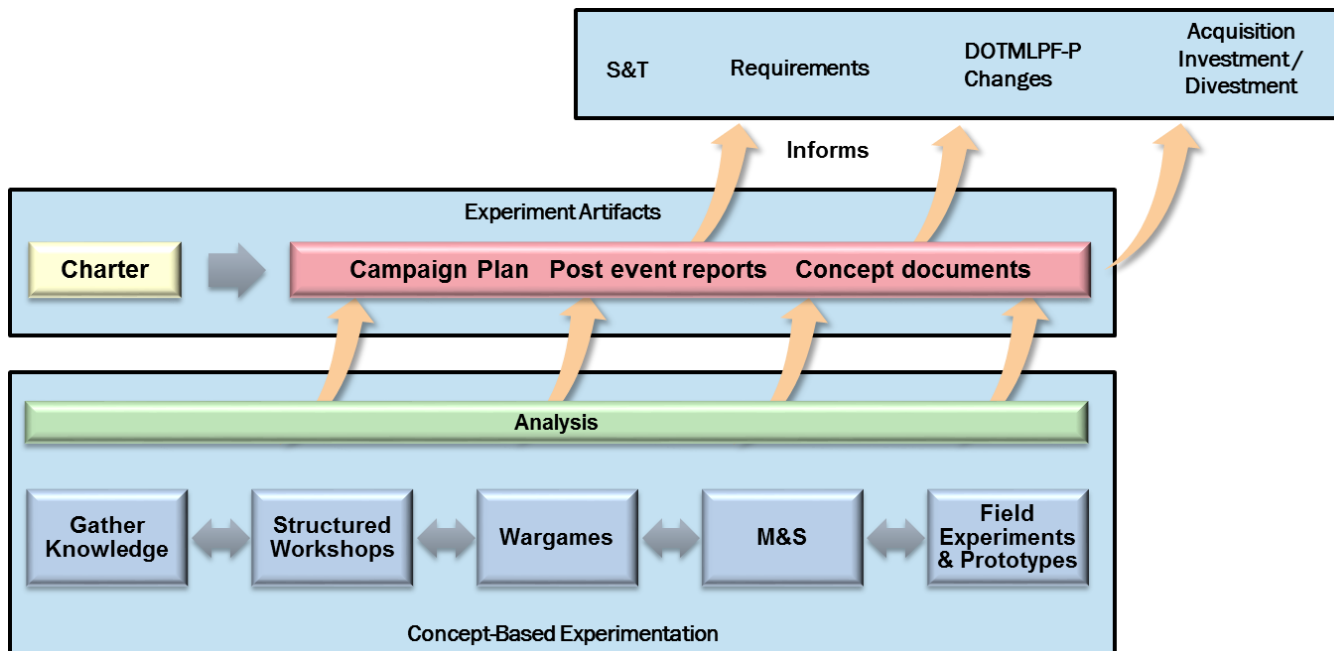
CDC ECCT Information Flow





Experimentation Campaigns: Process and Deliverables

- Methodical and systematic application of workshops, wargaming, simulation, and field experimentation.
- Inform requirements processes and capability development activities.
- Addressing a complex operational problem or pursue a strategic opportunity whose resolution is highly uncertain.





Plan for extensive use of Analytics in DP

The relatively low cost of M&S allows testing of a broader range of concepts at lower cost

AFSIM is expected to be a Core M&S Tool for SDPE

- Virtual exploration of concepts with Humans-in-the-Loop
- Allows for simulation creation from **subsurface to space**
- Multi-Resolution modeling: parametric to full 6-DOF
- Analytical framework that can execute a single simulation utilizing the traditional Engagement to Mission Level model approach or combine all the capabilities

Current Status

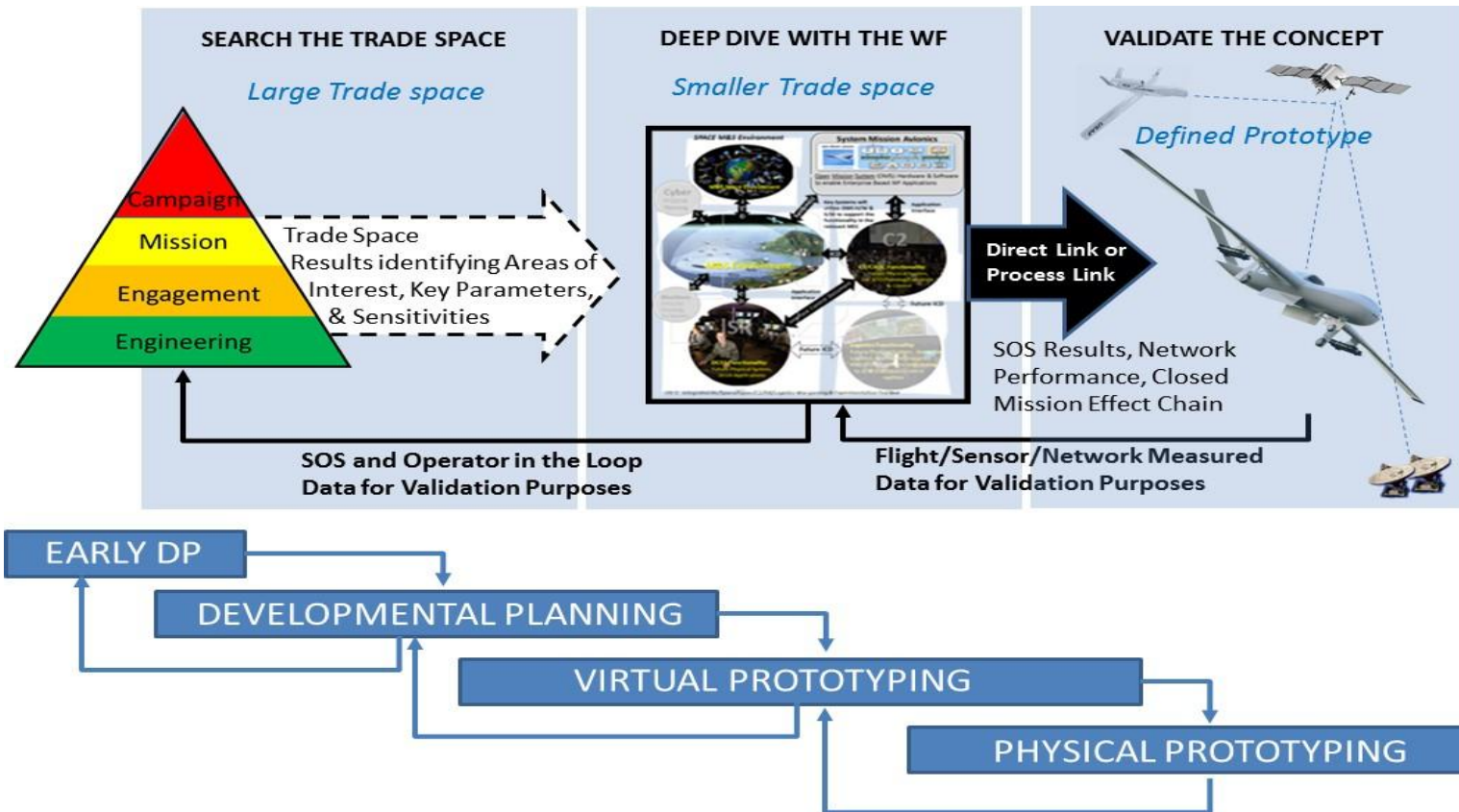
- Originally developed by Boeing
- Now managed by AFRL, available to gov't & industry at no cost
- Being adopted broadly in DoD, Industry and the S&T community

AFSIM rapidly becoming an Air Force standard – AFRL, A9, AFLCMC, AU, AFIT, Boeing, Lockheed, Northrop, General Atomics, Rand, GTRI, JHU, ...





Producing a Prototype from a Concept





Examples of Current SDPE Activities

Air Superiority 2030 ECCT (AS2030)

Defeating Agile Intelligence Targets (DAIT)

Data To Decisions (D2D)

Directed Energy (DE) Flight Plan



Planned Industry Engagements

- **SDPE Technology Interchange Meeting (TIM)**
 - **Date: February 6-10, 2017**
 - **Location: Fort Belvoir, VA (TBD)**
- **FedBizOpps**
 - **Announcement Coming Soon**
 - **<https://www.fbo.gov/>**
- **Defense Innovation Market Place**
 - **<http://www.defenseinnovationmarketplace.mil/>**
- **DTIC E-mail Address**
 - **dtic.belvoir.ecm.list.dev-plan-and-exp@mail.mil**