

Air Force Sustainment Center

AFSC Innovation Center Strategy Update



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AFSC/EN



BLUF

Scene Setter:

- **AF leadership emphasis on modernizing sustainment capabilities**
- **LCMC/AFRL making decisions that influence the sustainment trade space**
- **AFSC leadership guidance to influence/lead AFMC sustainment innovation**



Outline

-
- **Timeline**
 - **AFSC IC strategy**
 - **Tinker Way Ahead**
 - **Robins Way Ahead**
 - **Hill Way Ahead**
 - **448th SCMW Perspective**
 - **Funding**



AFSC Innovation Timeline

- ***2 Apr: ALC strategies briefed to CCs***
- ***4-6 Apr: TD working group to develop AFSC strat***
- ***20 Apr: Final ALC drafts***
- ***4 May: AFSC IC strategy to AFSC/CC***
- ***May: LCMC/EZP site meetings at each ALC***
- ***May: AFSC/CC approves strategy***



Why AFSC Innovation Centers



Approximately 13,000 AFMC Scientists, Engineers and Technicians
Nearly 50% resides at AFSC Locations (6,332)

Problem:

Problem Solvers:

Sustainment Solutions:

Aging W/S
 No Tech Data
 Redesign: 4.6 yrs
 New Repair: 3.2 yrs
 Test/Qual: 2.1 yrs
 No part supply chain
 Time critical need
 Low quantity buys

REACT
 REARM
 RECLAIM

Collaboration with:

AFLCMC
 AFRL
 Academia
 Industry



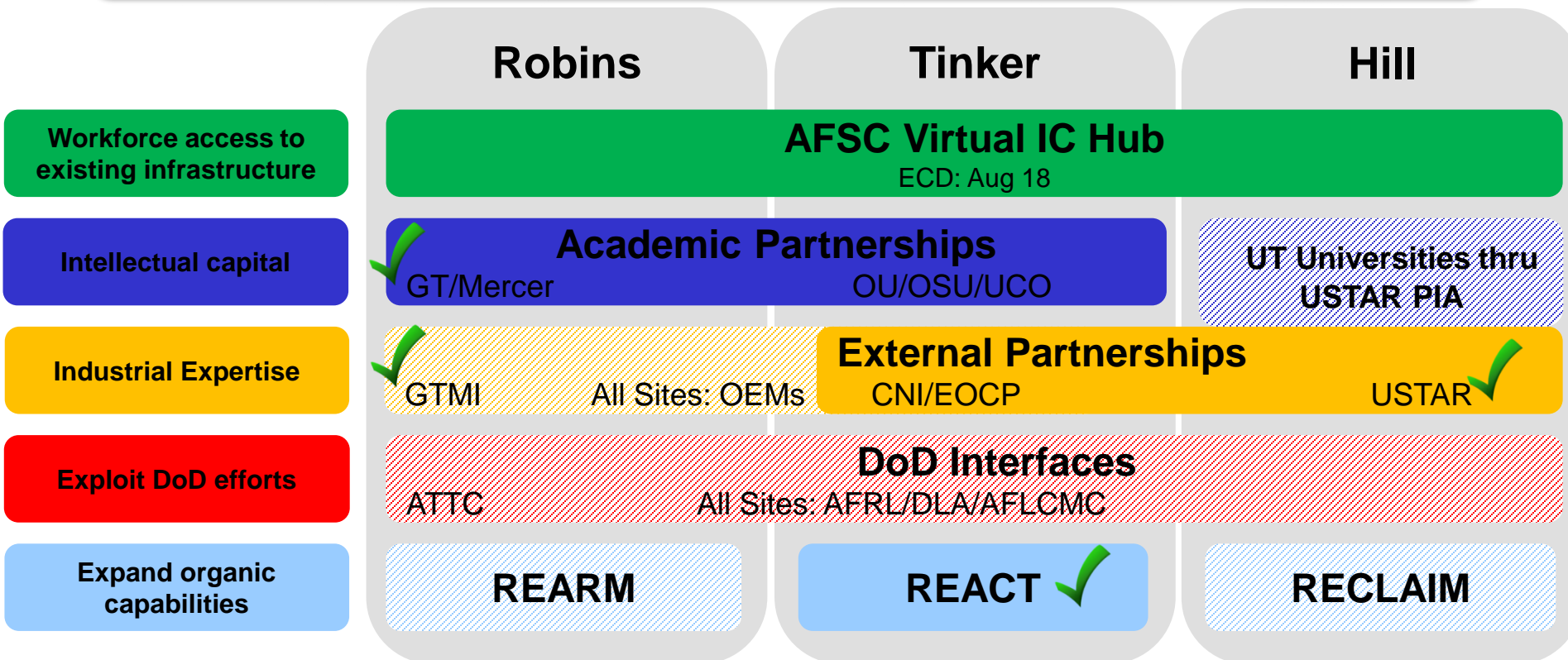
**Innovating at the point of need maximizes workforce collaboration
 and ensures the right solution at the right time to the right place**

Delivering combat power for America!



AFSC Innovation Ecosystem

5 elements executed across the ALCs maximize overall value and take advantage of unique opportunities



Solid color = 2017 approved strategy; faded color = updated strategy; ✓ = successfully executed

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AFSC Organic Innovation Center

Reverse Engineering and Critical Tooling



OKLAHOMA CITY AIR LOGISTICS COMPLEX

REACT



Reverse Engineering

- Data Development
- Dimensional Inspection
- CAD Generation
- Recreating Requirements

Advanced Manufacturing

- Metal & Polymer Additive
- Rapid Prototyping
- Tooling & Fixture
- Non-Flight Critical Components

Analysis

- Tooling Validation
- Finite Element
- Root Cause
- Data validation
- Fit Check

Re-engineering, Additive Manufacturing, Advanced Manufacturing supporting Air Logistics Complexes, Supply Chains, and SPOs



Tinker Way Ahead

Organic Capability

- **REACT Lab**
 - 50k sq ft facility expansion
 - Increase transformative capabilities
 - Metal Additive, Secondary Structures, Blade Repair
 - Establish Marketing Strategy

DoD Interfaces

- **Co-locate LCMC/EZP resources with REACT**

Academic Partnerships

- **Establish EPA with local Universities**
 - OU Innovation Hub; Rose State AM 101 course, others

External Partnerships

- **Pilot projects with NCMS to fund industry & academic projects**
 - Block chain for AM digital thread

External Partnerships

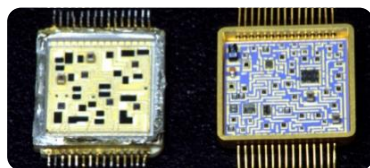
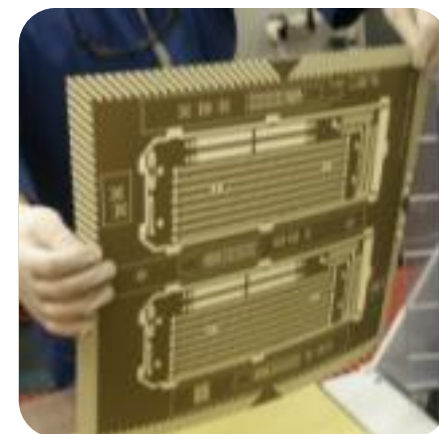
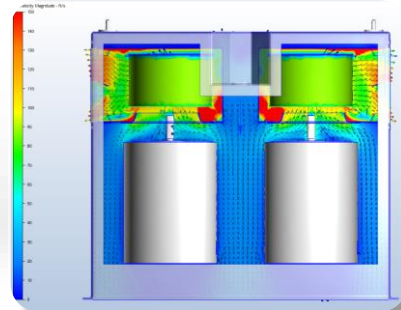
- **Develop relationships with industry, local government, DoD**
 - CNI, EOCP, State
 - GE, LMI, Boeing, NG, others
 - DLA, AFRL, AFLCMC

DoD Interfaces



AFSC Organic Innovation Center

Reverse Engineering, Avionics Redesign, and Manufacturing



WARNER ROBINS AIR LOGISTICS COMPLEX

REARM

Reverse Engineering

- Technical Data Development
- Test and Requirements Generation
- CAD Generation

Hybrid Manufacturing

- Integrated Circuits
- Hybrid Microelectronics
- RF Components
- PWB, CCA

Avionics Redesign

- Form/Fit/Function Redesign
- New System Development
- LRU, SRU

Enable continued operation of aging aircraft systems
Filling the gap between industry capability and USAF requirements



Robins Way Ahead

Organic Capability

- **REARM Lab**
 - 7200 sq ft Facility Expansion (ECD Jun 2020)
 - Expand/Modernize Electronics, Circuit Manufacturing Capability
 - Establish Marketing Strategy

Organic Capability

- **Robotics**
 - Corrosion control, manufacturing, Hazard Mitigation

Academic Partnerships

- **Expand / Establish agreements with academia/industry**
 - MERC, GTRI, Mercer, Lockheed Martin, UGA...

External Partnerships

External Partnerships

- **Expand relationship with GTMI**
 - Planned training workshop
 - Transition identified collaboration efforts to projects
 - Place AF engineers at GT facility

DoD Interfaces

- **Guide AFLCMC Advanced Technologies & Training Center (ATTC) strategy to meet ALC needs**



AFSC Organic Innovation Center

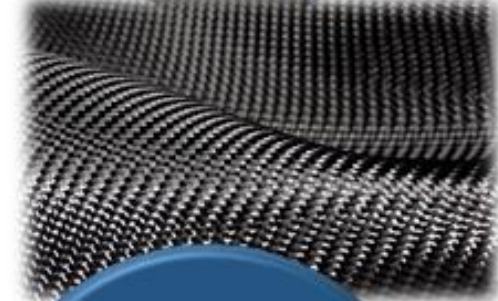
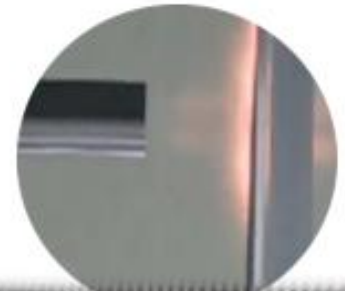
UNCLASSIFIED

Rapid Engineering of Composites, Low Observables, And Innovative Materials



OGDEN AIR LOGISTICS COMPLEX

RECLAIM



Rapid Engineering

- Technical Data Development
- Test and Requirements Generation
- Model-Based Maintenance

Manufacturing

- Robotics
- Laser Applications
- Depot Transformative Technologies

Innovative Materials

- Advanced Composites
- Low Observable Coatings
- Additive Materials and Processes

Enable continued operation of aging aircraft systems
Filling the gap between industry capability and USAF requirements



Hill Way Ahead

Organic Capability

- Identify transformative technology associated with RECLAIM
 - Low Observable Coatings, Composites, Additive Manufacturing and Repair, Directed Energy Applications
- Near & Long Term RECLAIM Capability Plan
 - Metal AM & Reverse Engineering -> LO & DE
- 60k sq ft Facility Expansion
 - Existing inside the fence, USTAR, Falcon Hill EUL

External Partnerships


- Establish Partnership Intermediary Agreement (PIA) with USTAR
 - Brick & Mortar location for Hill Innovation Partnerships
 - Locate AFSC/AFLCMC AM equipment at USTAR IC

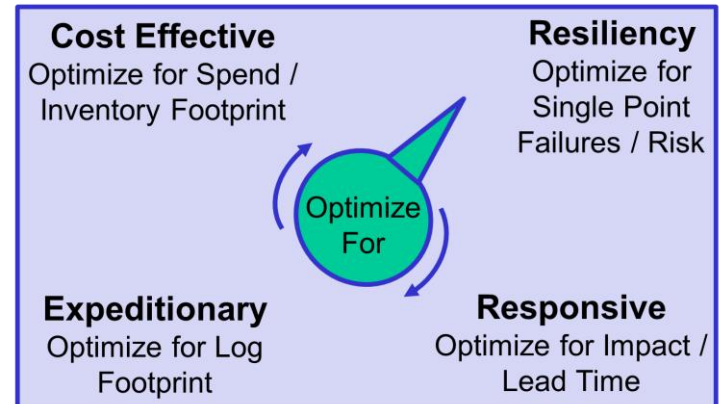
Academic Partnerships

- Establish EPAs/CRADAs supporting advanced manufacturing and industrial process engineering



448 SCMW Perspective

- **Proceeding to Invest in Concept by Placing Engineers in IC**
 - Determine skill, number, location, sourcing method (FY18Q4)
- **Improve Reactive Machine: Process by which SASPO/SEPO engage IC (complete FY18Q3)**
 - Input: No Bid Lists; F3 Availability/Reliability Tasks
 - Output: Rapid / Successful Prototype and Executable TDP
 - Traditional mfg / repair tech; or Alt Mfg / Additive Mfg
- **Establish Future Strategy for Innovation Requirements Methodology (complete FY19Q1)**
 - Input: Existing 448 SCMW Requirements Optimized for 
 - Output: 1-n parts families to eval for deeper eval for alternative mfg



Each Alt. Method or AM Machine is a new viable supply chain...
We're strengthening the industrial base for sustainment



Air Force Sustainment Center





Backup



AFSC Innovation Enterprise Vision

(___ = *updated*)

Centers where govt, industry, & academia can collaborate to innovatively solve problems

- Advance state-of-the-art in agile manufacturing technology
- Enable partnerships to generate rapid, innovative solutions
- Develop organic agile manufacturing capabilities
- Develop organic workforce that thinks innovatively and has skills to leverage agile manufacturing technology for rapid solutions

Solutions That Span Spectrum of Innovation

Innovating with
Mature Technology

Pushing boundaries
of S&T

Short Term

Spectrum of Innovation

Long Term

- Polymer Printers
- Metal Printers (Tooling)

- Sand Casting Printers
- Metal Printers for A/C worthy Parts

- Exotic materials and Processes

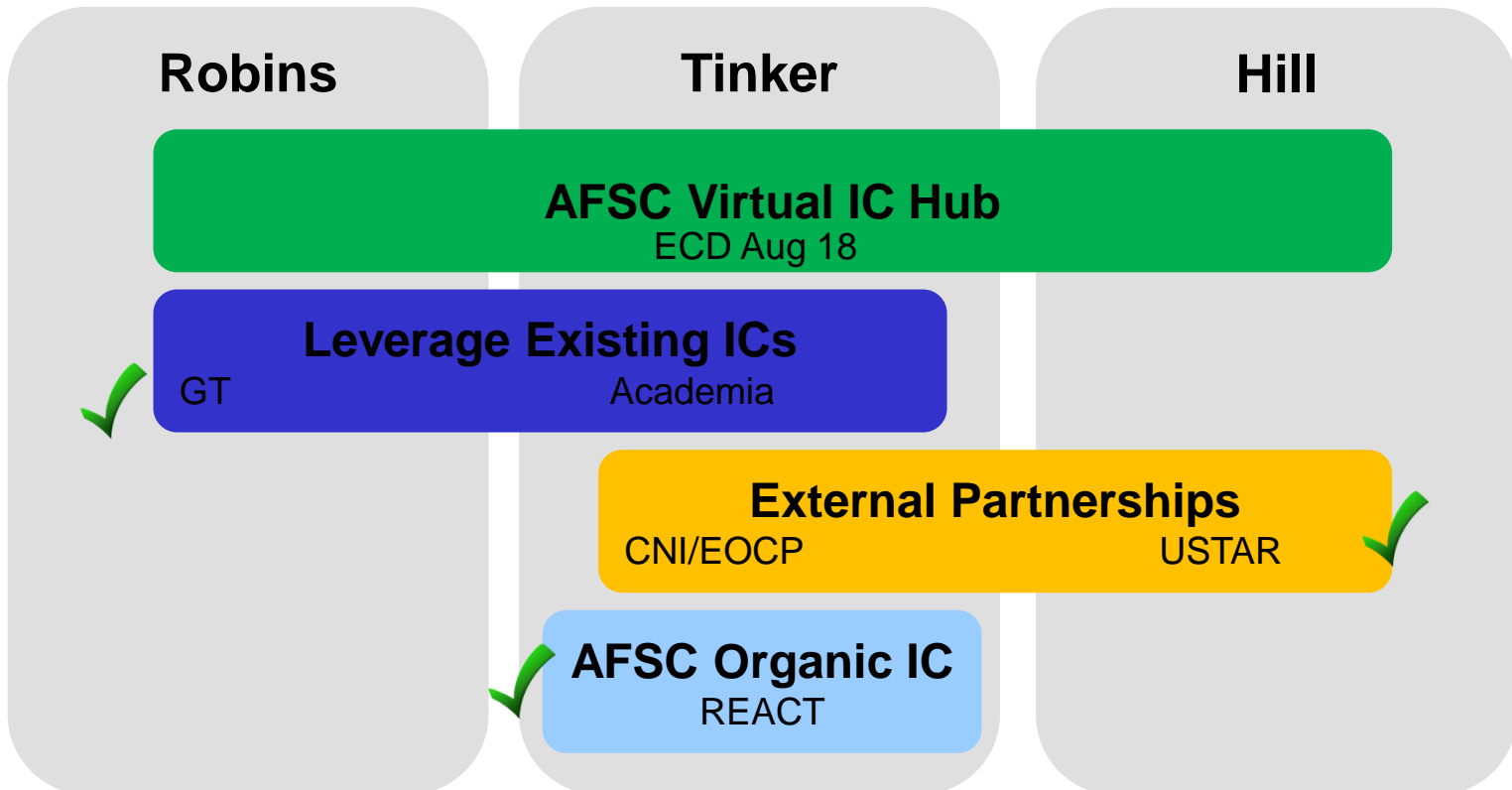
Creating an Innovation Minded Workforce

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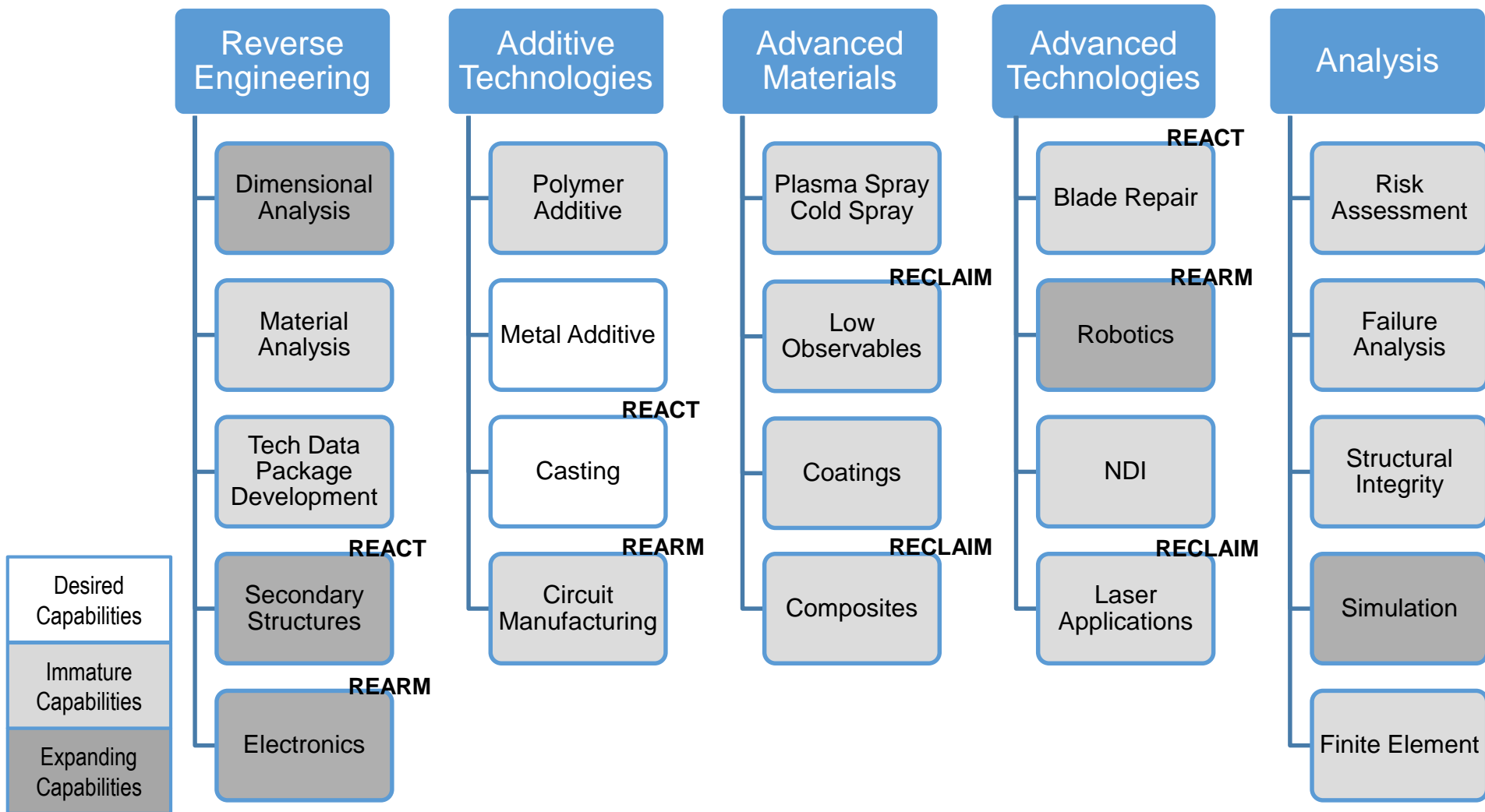
FY17 AFSC Innovation Strategy

4 Distinct levers executed across the ALCs maximize overall value and take advantage of unique opportunities





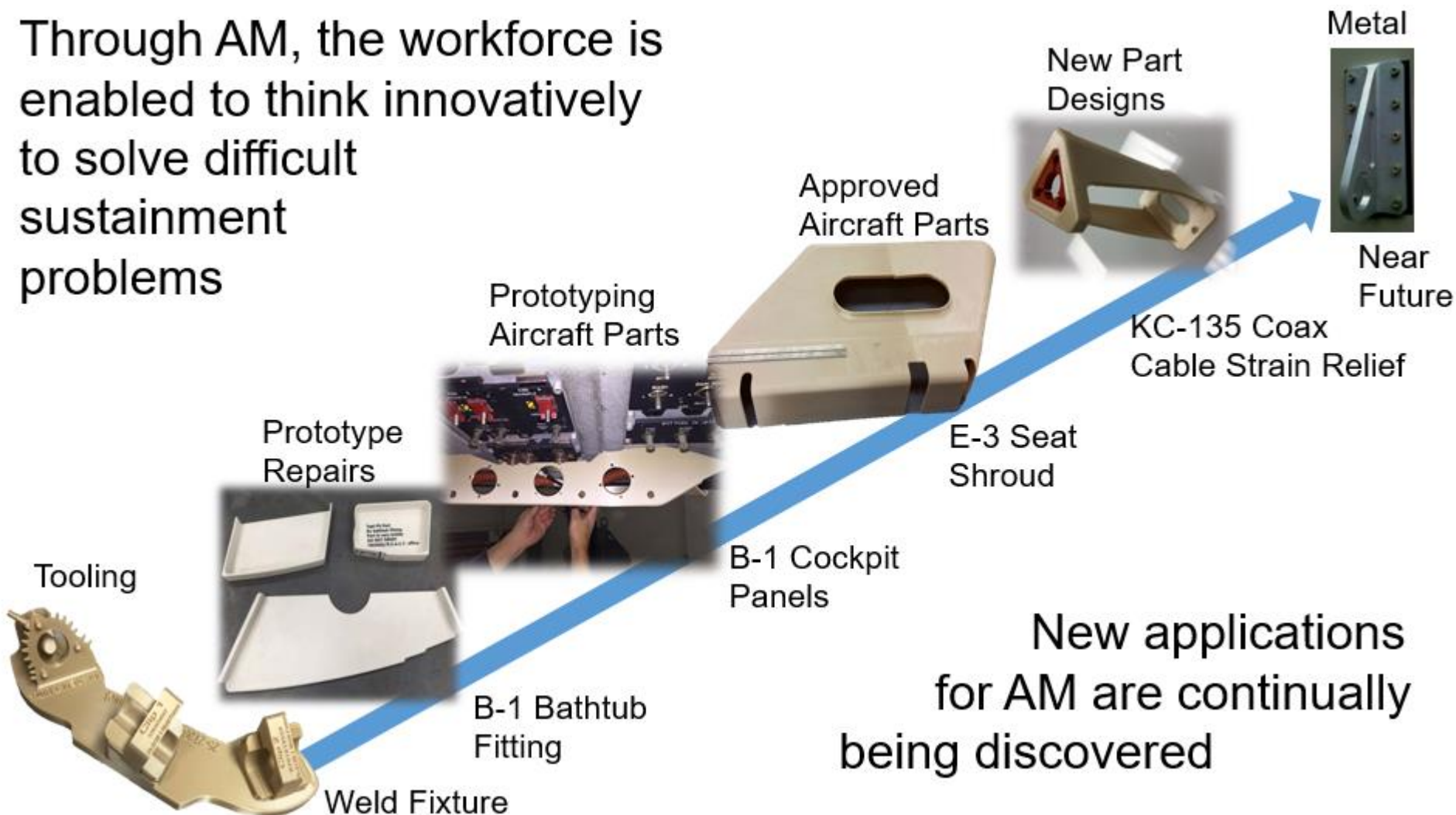
AFSC Innovation Ecosystem Capability Map





AFSC AM Journey

Through AM, the workforce is enabled to think innovatively to solve difficult sustainment problems



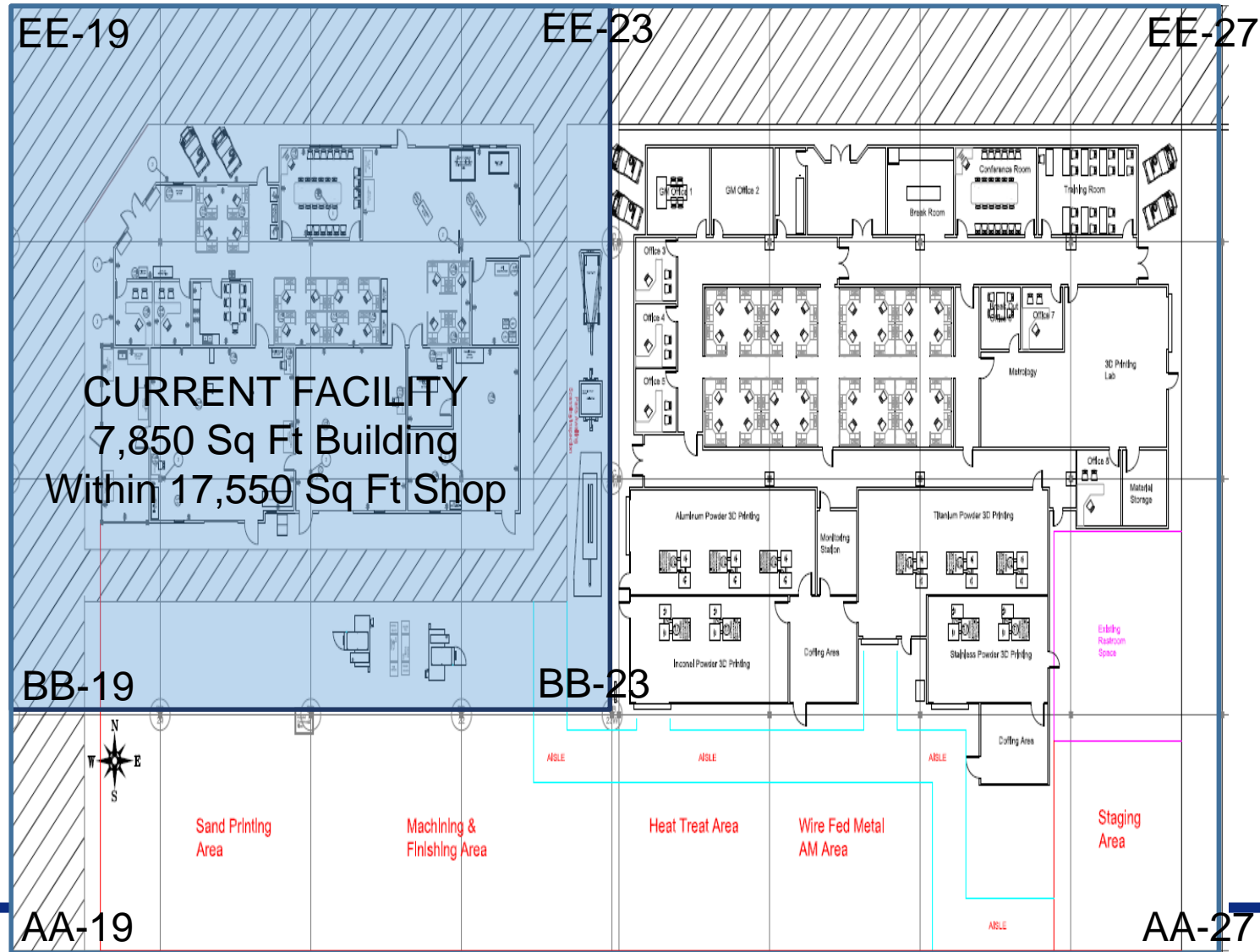
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REACT Facility Phase 2

Additional 15,550 Sq Ft Building Within 32,350 Sq Ft Shop

Future Total 23,400 Sq Ft Buildings Within 49,900 Sq Ft Shop





Future REARM Facilities

■ New Reverse Engineering Lab

■ 7200 sq.ft

