

Futures and Concepts Center



Overview Brief

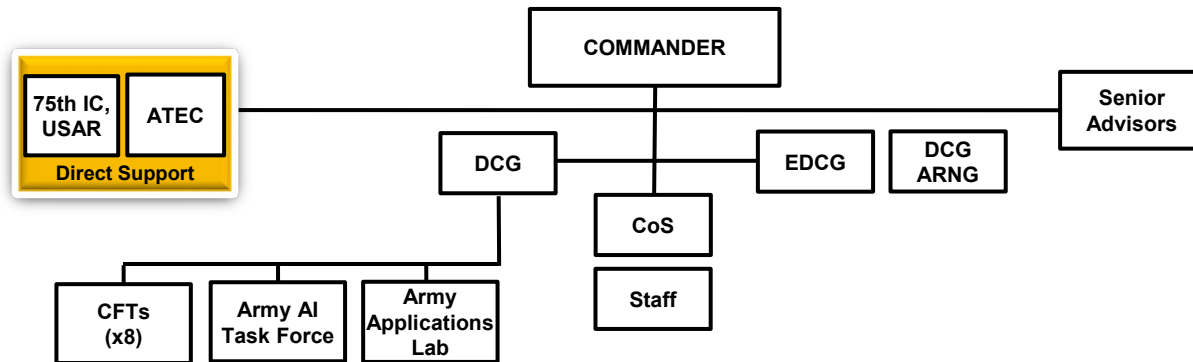


Futures and Concepts Center
as of 01 February 2022

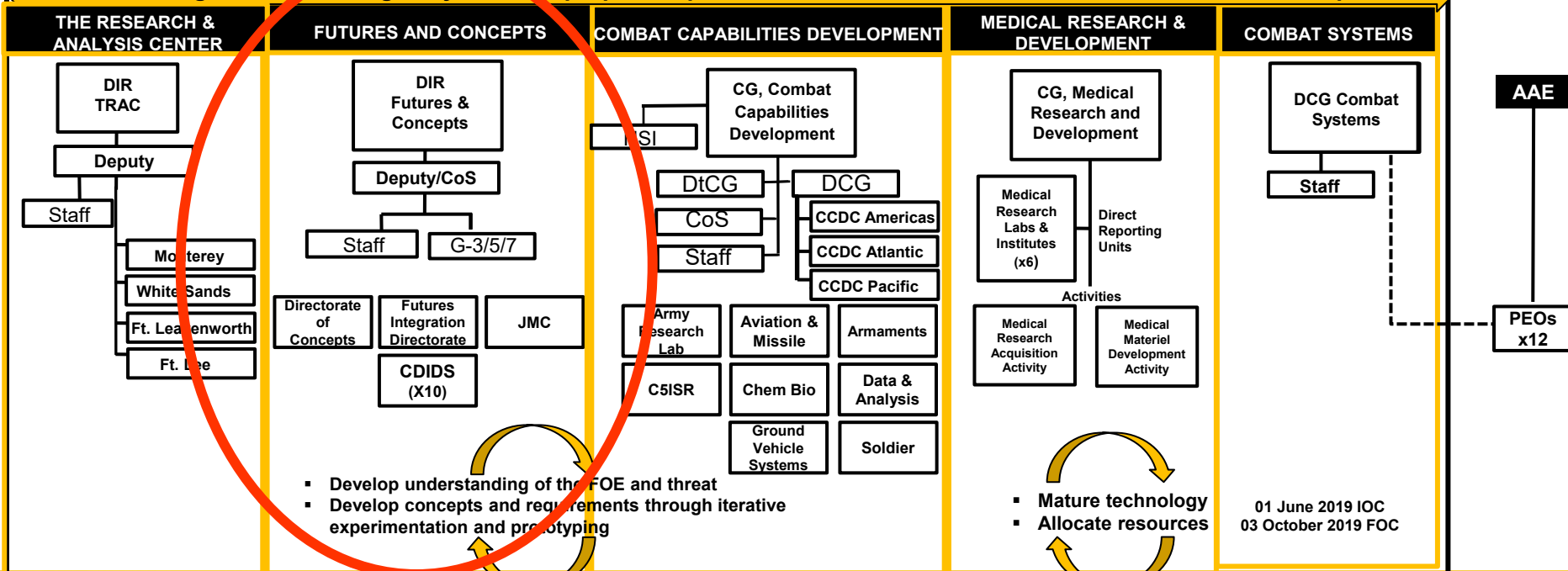


Army Futures Command Task Organization

Mission: Effective immediately, AFC leads a continuous transformation of Army modernization in order to provide future warfighters with the concepts, capabilities, and organizational structures they need to dominate a future battlefield.



Establishing and maintaining unity of effort, purpose & prioritization across the Future Force Modernization Enterprise





FCC Mission and Vision



Mission

FCC develops future concepts, requirements, and an integrated modernization pathway to increase lethality and overmatch to enable Soldiers and units to compete—and, if necessary—deploy, fight, and win future wars.

Vision

One Vision of the Future Army. Futures and Concepts Center provides the intellectual foundation and disciplined approach to design, develop, and field an MDO Army in 2028 and beyond.

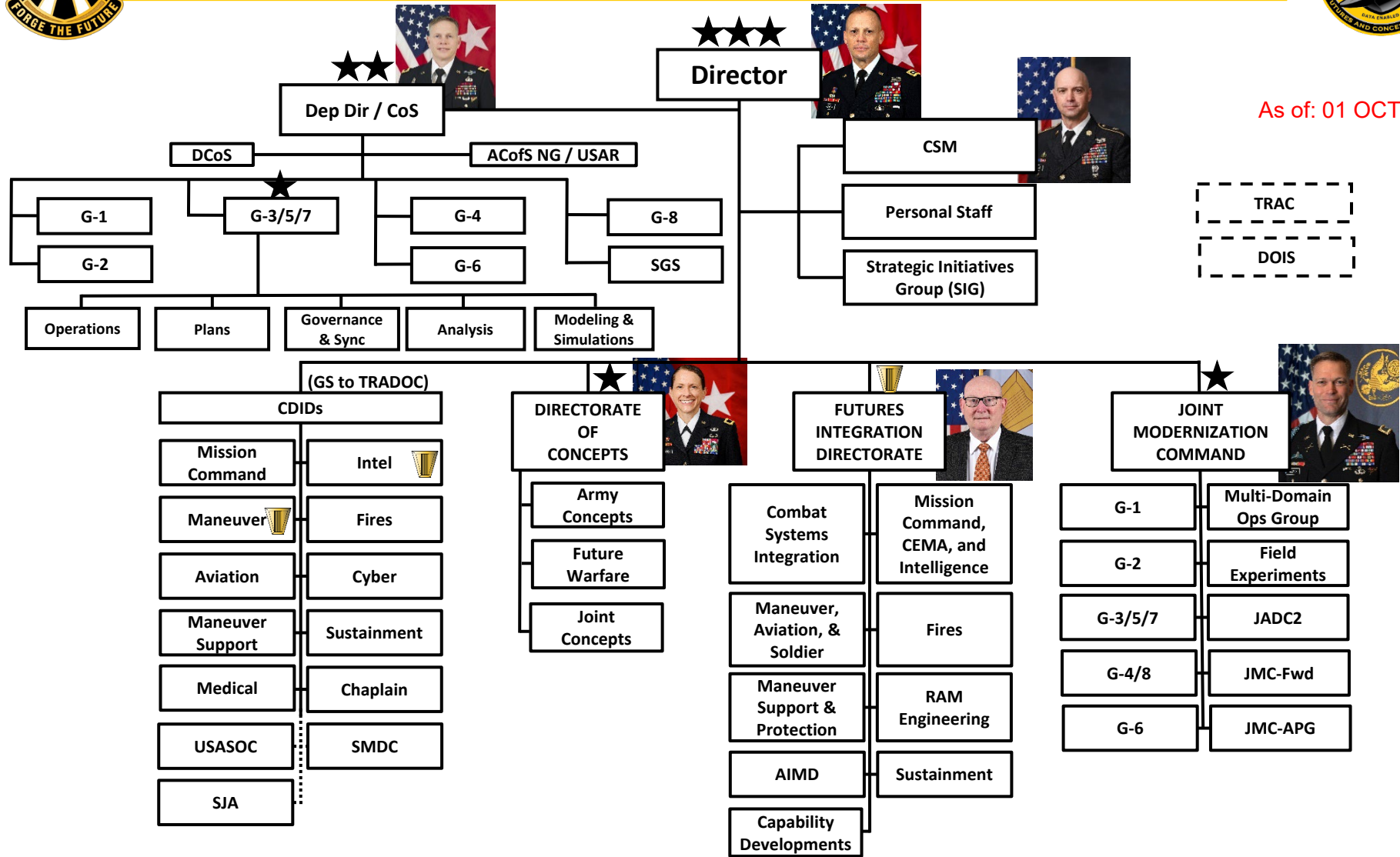




FCC Task Organization



As of: 01 OCT 21





FCC Unit Missions



CDIDs – Develop functional concepts, validate with battle lab experimentation, write equipment requirement documents

DoC – Develop the Army Concept; provide the foundation for the design and development of the Army's future force

FID – Ensure Army requirements documents meet standards and are efficiently processed, conduct capabilities-based assessments, integrate concepts and DOTMLF-P solutions, synchronize materiel solution resources, develop operational architectures, develop reliability, availability, and maintainability requirements

G3/5/7/Experimentation – Conduct planning, governance and analysis in support of experiments and modernization exercises

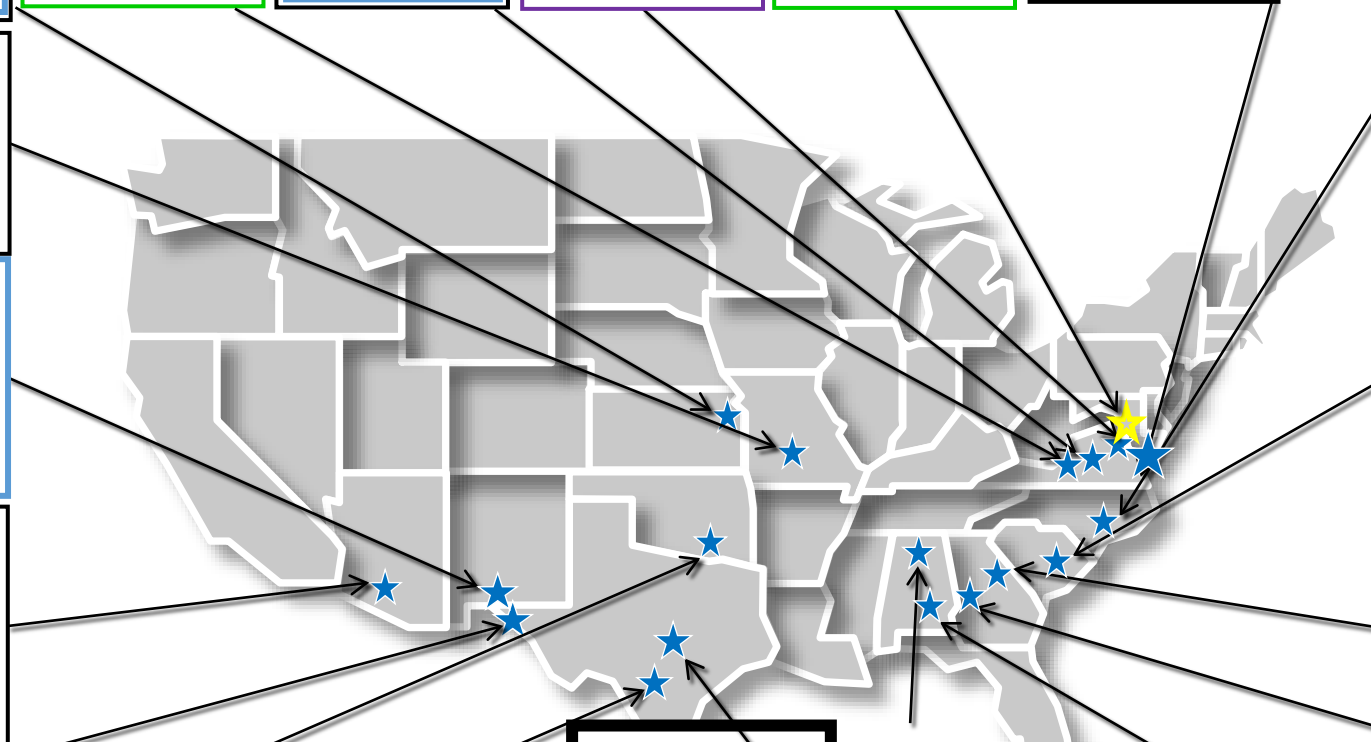
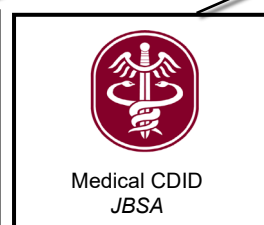
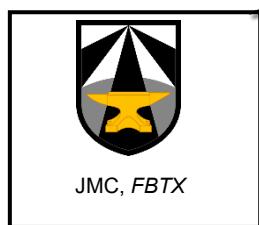
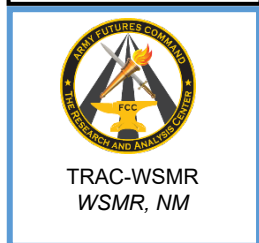
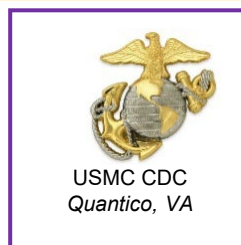
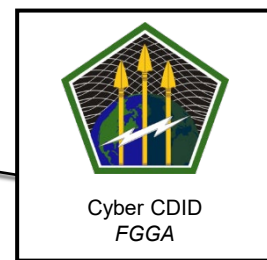
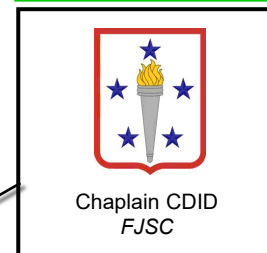
JMC – Conduct annual Joint Warfare Experiment (JWA) which is a live exercise in Europe / Pacific (rotates)), conduct simulation Experiment to inform modernization efforts of the Army's future force.



FCC Modernization Partners



FFME Stakeholders
FCC/Subordinates
AFC
Joint





FCC Core Competencies & Priorities



Concepts.

1. Develop the AOC 2040
2. Execute the FSP 22 to assess and refine AOC 2040
3. Support and Advance Army priorities in the JWC (JCCL and other functional battles)
4. Concepts-S&T-Threat linkages AOC, FSP, Focused Excursions

Requirements.

1. Develop capabilities requirements for the Army 2030 and Army 2040 (inform SPAR and POM decisions)
2. Conduct the Functional Solutions Analysis of the INDOPACOM CBA
3. Review and prioritization of Capability Gaps across the AME
4. Complete the Army Operational Energy Strategy (AOES)
5. Establish priorities for requirements (facilitate Army Mod. Decisions)
6. Shape POM 24-28 S&T Priorities
7. Develop and institute the System of Systems Integration Readiness Assessment (SIRA) Process
8. Execute Phase II (Conflict) of the

INDOPACOM TBA

Experimentation.

1. PC 22-C/P/E refinement
2. JWA 22 (integrated w/WFX22-4)
3. Develop FY 23 Annual Experimentation Plan (refine experimentation linkages)
4. Initiate PC 23 planning
5. Conduct Initial Division Experiment (Feb)

Integration.

1. Prepare and deliver UQ 22 at summer SLRF
2. Synchronize/Integrate FCC Major activities (Refine BR/Knowledge Management/COP)
3. FCC FY 22 Annual Integrated Plan Order
4. Synchronize/Integrate FCC/CAC efforts (Shaping WayPoint/AimPoint)
5. FCC/CAC OPT Assessment (CDID/ACM merger-AFC/TC MOA)
6. Integrate M&S capabilities across the FCC efforts (FSP/Experimentation/assess the simulation architecture)
7. Operationalize and Maximize FORGE utilization across FCC as the main data analysis repository
8. Manage the development of an "O" Domain entry gate-like process



Futures and Concepts Center

Army Concept Framework 2040 Overview

***BG Stephanie Ahern
Director, Concepts
14 February 2022***

Controlled by: AFC
Controlled by: FCC, DoC
CUI Category: OPSEC
Limited Dissemination Control: FEDCON
POC: Christopher Stolz, 757-501-6303



WHAT ARMY FUTURES COMMAND DOES

And how the Directorate of Concepts (DoC), FCC, supports this effort



DESCRIBE

THE FUTURE OPERATIONAL
ENVIRONMENT, THREATS
AND TECHNOLOGIES



DEVELOP & DELIVER

CONCEPTS AND
REQUIREMENTS



DEVELOP & DELIVER

FUTURE FORCE DESIGNS



SUPPORT THE
DELIVERY

MODERNIZATION
SOLUTIONS

"AFC leads the Army's Future Force Modernization Enterprise"

Ref: AGO 2018-10: 24 JUN 2018





DoC FY22 Lines of Effort



1. Army Concepts Division

- A. Identify opportunities for novel **emerging concepts** of near-term advancements
 - Support operationalization of MDO, to achieve the Army of 2030
 - Assess conceptual implications of emerging priorities (e.g., Arctic, MDTF, Info)
- B. Inform **concepts** with **technical** insights from experiments, threat analyses, and research
 - Develop concepts of employment for the Army of 2030 and 2040, refined via experimentation
- C. Develop **concepts** to transform how the **Future Force** could operate, equip, and organize
 - Develop and publish the 1st draft, Army of 2040 future operating concept (AOC 2040)

2. Future Warfare Division

- A. Design and implement the **Army's Future Study Program wargame** to assess and help refine development of the 1st draft of AOC 2040
- B. Integrate & analyze** modernization opportunities to support concept and capability development
- C. Identify **disruptive tech** and its application to warfare for the Army of 2050 (and 2040)

3. Joint Concepts Division

- A. Inform **Joint Concepts** with Army expertise, capabilities, and emerging concepts, including the Joint Warfighting Concept
- B. Integrate future Army solutions within priority OSD, Service, Multi-National, and **Joint Wargames**
- C. Inform** DoC on Joint Force & Service concepts and how Army capabilities perform in Joint wargames

4. Cross-Cutting Lines of Effort

- A. Implement **sustainable operations** across our **geographically-dispersed team** (Eustis and Austin)
- B. Leverage **S&T, threat, operational, and academic/PME** communities for concept efforts (longer and nearer term linkages)
- C. Support rigorous **experimentation** and **integrate findings** into future concepts
- D. Empower each DoC member to be a **thinker and writer**; inspire and incentivize all intellectual guns to help win this fight
- E. Make **routine and iterative touchpoints** the norm, both with leaders and partners



ENDSTATE:

Forward-focused Army concepts for the Army of 2040, and MDO-focused Army of 2030, which leverage emerging science and technologies in transformational ways to allow the Joint Force, working alongside allies and partners, to deter in competition & crisis, and win in future armed conflict against peer adversaries

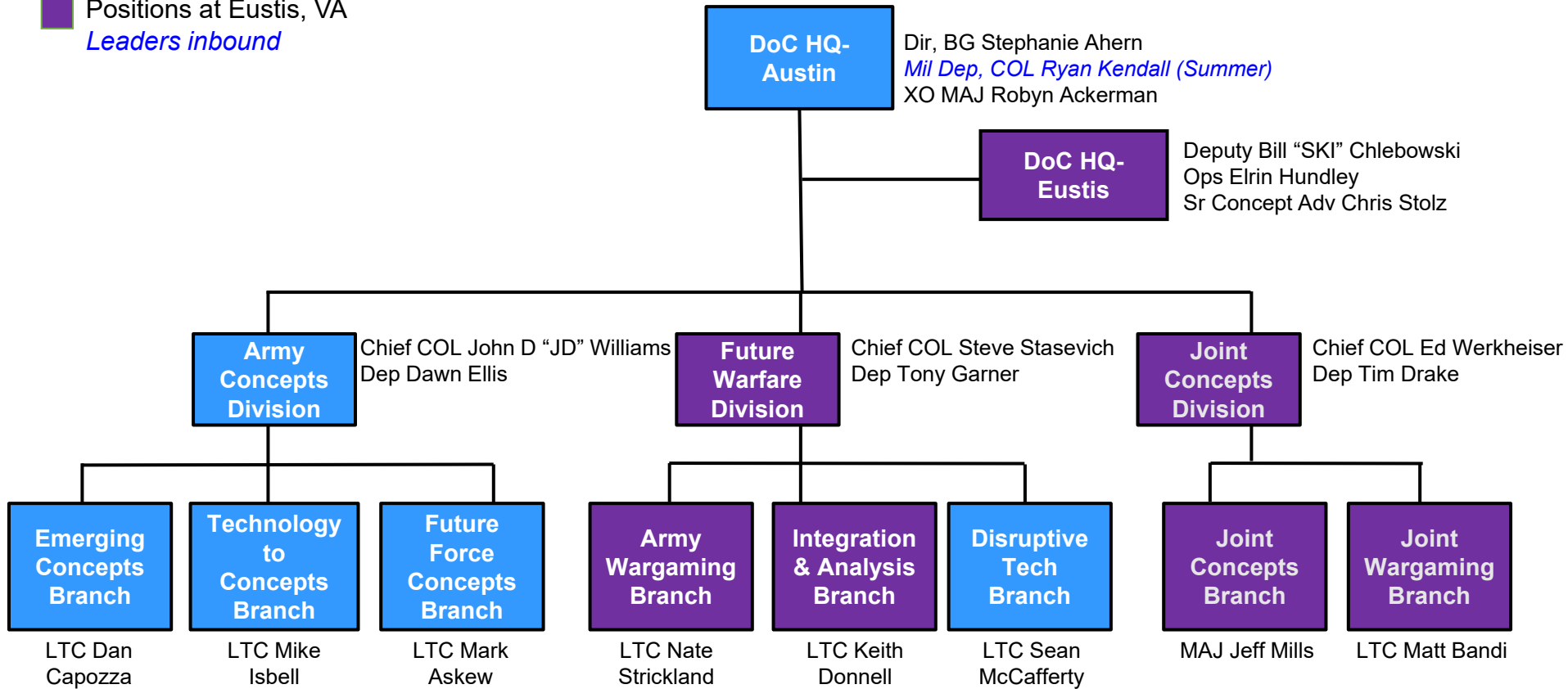


Directorate of Concepts (DoC) Structure



As of 27 Jan 2022

- Positions in Austin, TX
- Positions at Eustis, VA
- Leaders inbound*



DoC remains one directorate, split stationed between Fort Eustis, VA, and Austin, TX, allowing us to leverage the expertise and partnerships at and nearby both locations



Why the Army Needed the MDO (2028) Concept



As directed in the Jan 2018 NDS and building on experimentation since 2014, the Army's MDO Concept (Dec 2018) helps focus the Army on new operational challenges:

- Multiple layers of **stand-off**; the Joint Force will be challenged to get to the fight
- **All domains, EMS, and information environment are contested**; must fight for windows of opportunity
- **Multiple great power competitors** – interconnected economically with the United States, our allies, and partners – and additional regional and transnational threats
- **Fierce competition** for power and influence is ongoing; intent to win without fighting

Key foundations of Multi-Domain Operations (2028), published Dec 2018

CALIBRATED FORCE POSTURE



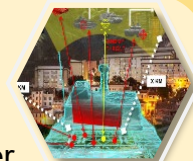
- Forward presence force and capabilities
- Dynamic and expeditionary capacity
- National level capabilities, authorities

MULTI-DOMAIN FORMATIONS



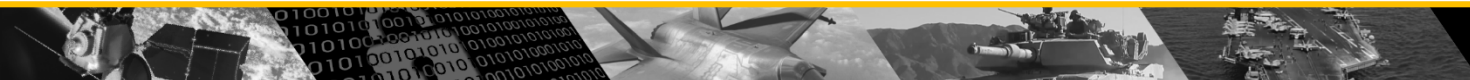
- Maneuver across domains in contested, congested environments
- Cross-domain fires and effects
- Maximize human potential
- Echelons above brigade formations

CONVERGENCE



- Any sensor, best shooter, right command and control node, in near-real time
- Integrated with Joint and multi-national partners

The Army of 2030 aims to operationalize MDO across DOTMLPF-P, helping Army Forces provide the Joint Force with decisive land power for these operational and strategic challenges in 2030 and beyond.





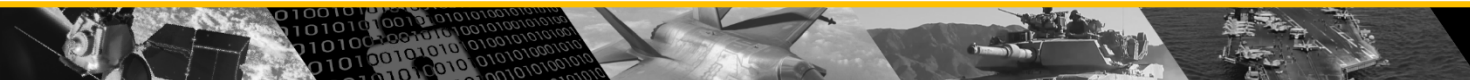
Why the MDO Concept is Not Sufficient for 2040



As the *Future Operational Environment 2035-2050* makes clear, the potential for intensifying military threats and rapidly-changing technology make a new kind of land warfare probable:

- Maturing **disruptive technologies** (e.g., AI, autonomy, robotics, underpinned by data and the network) could impact how we fight, equip, and organize ... and what humans must do in warfare
- Maturing **sustainment methods** (e.g., using alternative fuels, semiautonomous and autonomous deliveries, advanced manufacturing, synthetic biology, etc.) could also impact our speed, endurance, tooth-to-tail ratios, etc.
- Forces must be able to **hide** and achieve surprise, including when in plain sight
- **Regionally- and globally-distributed, contested, and publicized information activities** in which data and ideas, moving at machine speed, will impact the tempo and character of competition, crisis, and conflict

These challenges build from those identified in MDO. As we operationalize MDO, we are also developing and will experiment on a new, 2040 operational-level concept of warfare.





Army of 2040: AFC CG's FY21 Task to DoC/FCC



Military Problem: In 2040, how will Army Forces, as a part of a Joint and multi-national force, employ decisive land power and all-domain effects in support of Combatant Commanders, during armed conflict against a peer adversary? Army forces must also be able to help overcome strategic standoff and achieve recurring requisite overmatch, while minimizing the risk of concentration of forces during armed conflict, as both the supported and a supporting Service, while conducting operations at machine-enabled speeds.

FY21 Task: Building from *FOE 2035-2050* and S&T insights, write a short (5 page) description of how the U.S. Army forces could fight, be equipped, and be organized, as the start of the Army's next operating concept and its experimentation. Incorporate the at-scale use of AI, robotics, autonomy, and other disruptive technologies, which by 2035-2040 will likely drive battlefield changes.



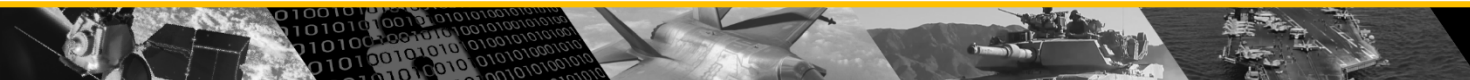


Army Concept Framework (ACF) 2040



- **Army Operating Concept (AOC):** Describes how Army 2040 forces could operate to accomplish operational level objectives and identifies top-level concept required capabilities and associated science and technology priorities.
- **Cross-Functional Annex (CFA):** Describes how Army 2040 forces could operate to overcome key cross-function operational challenges identified during concept development or experimentation. Multi-CDID IPTs will complete CFAs.
 - Decision Advantage (Fires and Intel CDIDs, co-leads)
 - Protection and Deception (Maneuver Support and Cyber CDIDs, co-leads)
 - Sustained Operations (Maneuver and Sustainment CDIDs, co-leads)
 - Maximize Human Potential (AFC/MRDC and TRADOC/CAC, co-leads)
- **Functional Appraisalment (FA):** Describes future tasks and methods within a war-fighting function that Army 2040 forces could execute in support of the AOC and CFAs. The FA includes more specific CRCs. CDIDs will complete FAs as required.
- **Future Capability Workbook (FCW):** Describes specific Army 2040 organizations (generally brigade-sized or above); comprised of an narrative and diagram outline. The narrative describes how the formation will accomplish identified tasks and be organized to accomplish those tasks. The workbook depicts the formation for experimentation and subsequent analysis. FCWs are resource informed, not constrained. *[Future Capability Workbooks replace current FCC O&O Concepts and BDP Book 2 CapSets.]* Development of FCWs will take place in two phases:
 - Phase 1 (Army 2030): CDIDs will update existing Capabilities Sets and Capability Enabler Sets to establish the Army 2030 baseline to facilitate experimentation in FY22.
 - Phase 2 (Army 2040): CDIDs will complete development of FCW drafts based off of unit experiment data in FY22 to provide capabilities for experimentation in the Army 2040 timeframe.

ACF 2040 will develop, and review at least annually, a consolidated list of S&T priorities from a concept lens for Army 2040





Army of 2040: Major Planned Outcomes, FY21-24



ACF 2040: The Army Concept Framework for the Army of 2040, which includes the AOC and its supporting documents

FY21	<ul style="list-style-type: none"> – 5-page Framework Narrative (core ideas), building from <i>FOE 2035-2050</i>
FY22	<ul style="list-style-type: none"> – A first version, Army Operating Concept (AOC) 2040 – (annual) Concepts' Priority S&T Needs for the Army of 2040
FY23	<ul style="list-style-type: none"> – ACF 2040 Cross-Functional Annexes (CFA): decision advantage, sustained operations, protection and deception, maximizing human potential – ACF 2040 CDID/COE-specific functional appraisements, as needed – ACF 2040 Functional Capability Workbooks (FCW), for experimentation (includes capability sets, organizational order of battle; in FORGE) – (refined) Concepts' Priority S&T Needs for the Army of 2040 – <u>Inform</u> Project Convergence 2023 use cases
FY24	<ul style="list-style-type: none"> – An updated version, AOC 2040 – (refined) Concepts' Priority S&T Needs for the Army of 2040 – <u>Shape</u> Project Convergence 2024 use cases

FCC's Future Study Program (FSP) and DEVCOM-FCC's Focused Excursions (FE) are the key experiments used to assess and refine how the Army of 2040 could operate, be equipped, and be organized; and the associated concepts' priority S&T needs





Future Study Program: Refining What & How We Wargame



Each of the Future Study Program (FSP) events in FY21 and FY22 are unique pilots, cumulatively developing, assessing, and refining the AOC 2040 and our ability to wargame

FY21 Events

- In FSP1, U.S. and int'l SMEs served as panelists for almost 400 virtual participants, exploring **defense & non-defense factors** that would likely shape **future warfare**
- In FSP2, **four teams** with members from across the Army + SAMS identified **Solarium-style** new ways **Army forces** could help Joint Forces overcome operational challenges against a peer adversary in 2035-40, using offense, defense, and crisis-to-conflict vignettes
- In FSP3, **S&T and concept co-leads**, with threat SMEs, used the FSP2 vignettes to identify **integrated tech solutions** that could complete cross-cutting operational problems in new ways
- In FSP4, we integrated these potential concept and tech solutions, and expected threats, to begin **testing key hypotheses** from the emerging 2035-and-beyond framework narrative

FY22 Events

- In FSP1 (Feb), we will **assess** the **v0.3 AOC 2040** using two new **wargame pilots** on **decision advantage** and **sustainment**, and a **protection wargame**; and partnering with MC-CDID for Army of 2030 efforts on division as the unit of action.
- In FSP2 (Apr), we will **assess** the **v0.5 AOC 2040** with Army Forces in **distinct supported** and **supporting** roles.
- In FSP3 (Jul), we will **assess** the **v0.7 AOC 2040** with Army Forces in **simultaneous supported** and **supporting** roles, and conduct S&T-concept deep dives for the AOC and its S&T priorities.
- In Feb, May, & Jun, DEVCOM will host ICW FCC **Focused Excursions** on the Internet of Battlefield Things, Synthetic Biology, and TBD, to advance needed S&T concept solutions for Army of 2040



We are developing the Army Concept Framework (ACF) 2040 and conducting its experimentation using an Ignite approach: integrating threat, science, tech, concept, and operational (to include law of armed conflict) communities from the beginning, to more quickly and effectively inform what "could be"

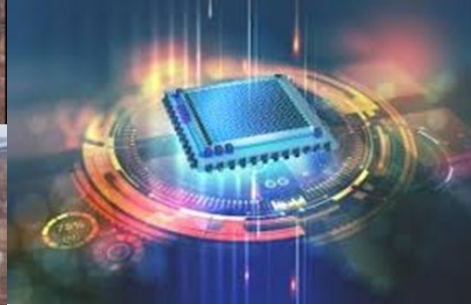
ACF Research Areas



Network with a Robust Data Fabric



Energetics



Quantum Technologies



Power Generation



Energy Storage



Artificial Intelligence



Robotics and Autonomy



Synthetic Biology



Adaptive Manufacturing



The next break through...





Discussion

