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91st MORS Symposium
"Analytics as a Force Multiplier"

Wargaming the Future Army

Mr. Curt Hudson

Dr. Suzanne DeLong

Ms. Adwoa Gyekye

Agenda

- Background and Sponsor

- Scenario Planning and Development

- Introduction to Operational Wargame System

- Future Work

Background and Sponsor

- Army Futures Command (AFC), Futures and Concept Center (FCC) Sponsor

- Support to wargaming the Future Study Program (FSP) and the writing of the next Army Operating Concept

  This work is being done directly for a future Army concept and a direct sponsor

- Operational Wargaming System (OWS) with VASSAL game engine

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Military Scenario Planning Framework and Development Process

Use of Learning Demands
- Identify Army concept focus and requirements

Operational Employment
- Develop mission threads

Order of Battle/Force Structure
- Develop force structure COAs based on future capability workbooks and gap analyses

Use of Future Technology
- Define system technical characteristics

Military Scenario Planning Framework

Military Scenario Development

MITRE
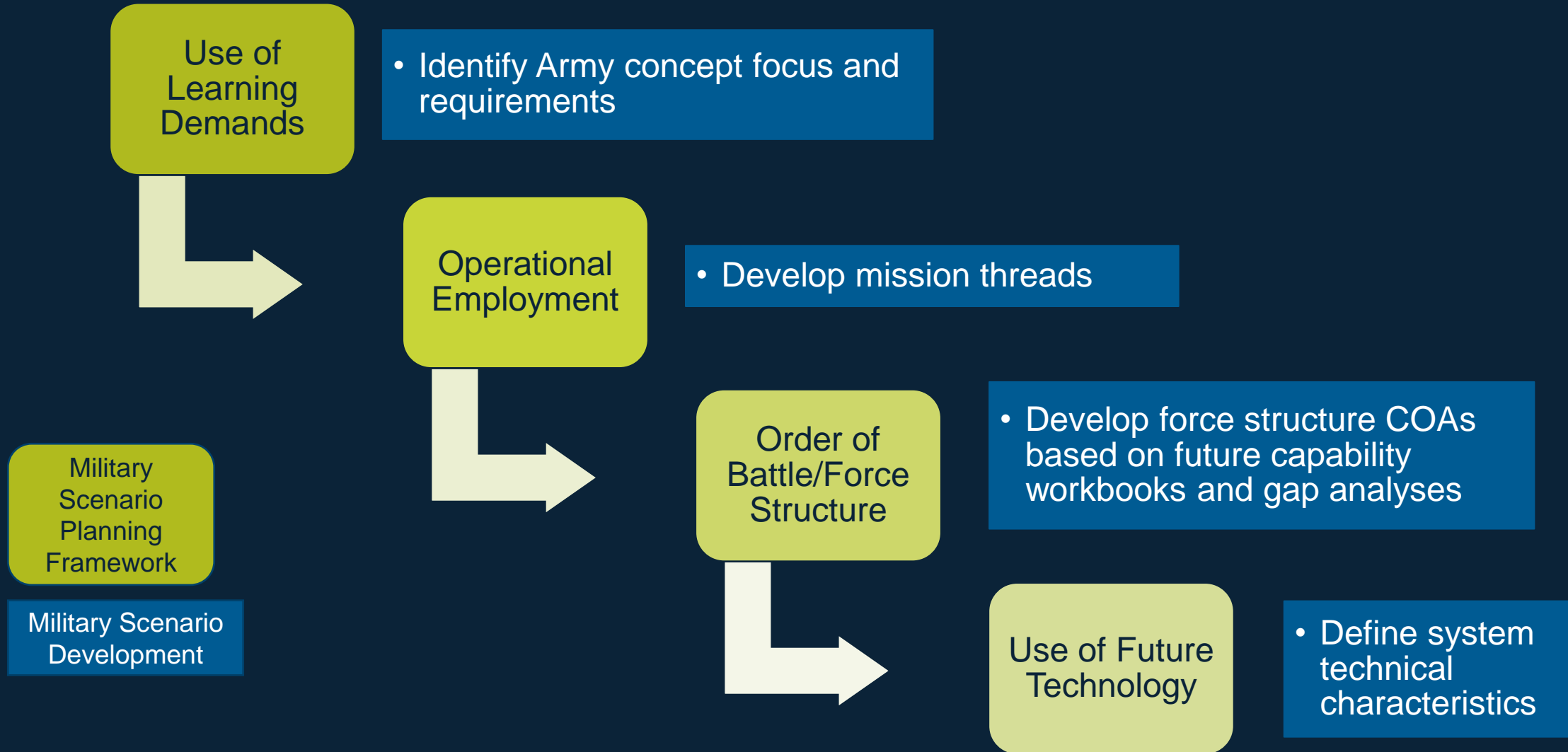
Introduction to Operational Wargame System (OWS)

OWS Core Idea

- A board game series covering contemporary and future conflict centering on plans and decisions at the high tactical to operational level of war across all domains

- The FCC version of OWS is more complex to promote the required level of realism for futures experimentation

- The OWS rule set governs outcomes but facilitators are expected to ensure player actions are faithfully represented in the game, are realistic, and are not game-isms

- Players can directly observe the cause and effect of their actions in real time based on known and understood rules

Design Fundamentals

- *Units:* FWD uses a relative combat power analysis to build capabilities into units, formations, and forces within specific experiments

- *Geography:* The game map depicts the physical terrain where combat operations take place and impacts how players execute operations. The system includes multiple map scales to account for game play at various levels.

- *Adjudication:* OWS uses a dice system to enable a universal adjudication method to resolve all outcomes.

  o The representation of attack capabilities via *dice* is an abstraction of multiple systems, technologies, and weaponry and intends to provide a gross assessment of combat power relative to the adversary.

(U) Representing Units in OWS

Blue Army HQ

Red Army HQ

Rocket Artillery BN

Future Army Drone Swarm Capability
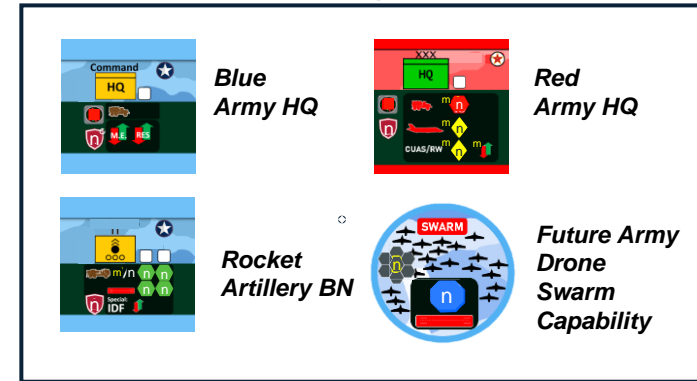
(U) Example OWS Map

Wargame Turn Sequence Rules

Each game executes a series of turns that represent a set time period during the game (ie 1x turn = 1x day). Each turn includes planning, all domains of combat operations, and assessment.

STEP 1: PLANNING

STEP 2: CYBER / EMSO / SPACE / AI

STEP 3: NAVAL MOVEMENT

STEP 4: AIR MOVEMENT

STEP 5: ISR and SOF

STEP 6: AIR COMBAT

STEP 7: MULTI-DOMAIN STRIKES and NAVAL COMBAT

STEP 8: GROUND MOVEMENT AND COMBAT

STEP 9: SUSTAINMENT AND REGENERATION:
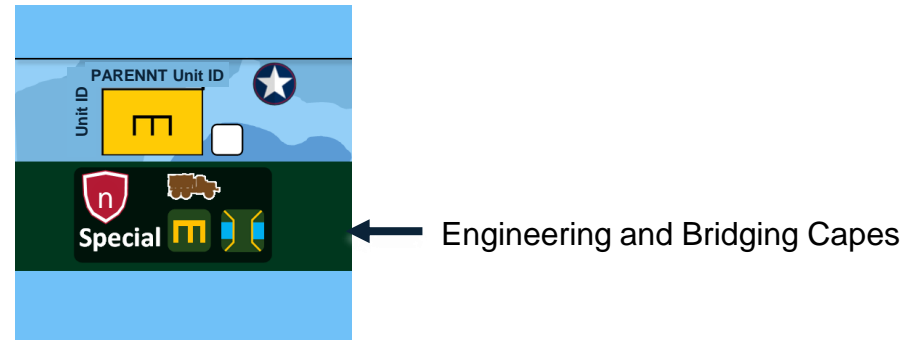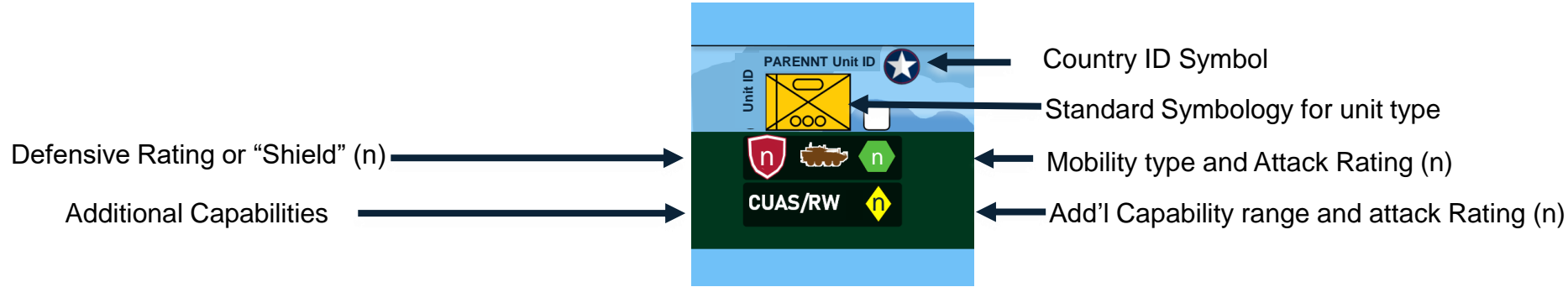
STEP 10: ASSESSMENT

OWS Modules

Domains

- Cyber
- Space
- Ground
- Maritime
- Air

Warfighting Functions

- Mission Command
- Movement and Maneuver
- Fires
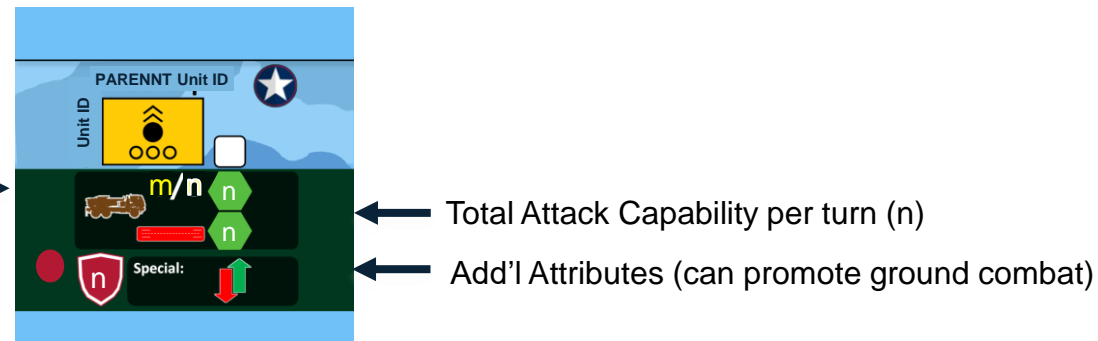- Protection
- Intel
- Sustainment

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ID Wargame Units: OWS Unit Representation

Country ID Symbol

Standard Symbology for unit type

Defensive Rating or "Shield" (n)

Mobility type and Attack Rating (n)

Additional Capabilities

Add'l Capability range and attack Rating (n)

Unit Types
Mech Unit, Tank Unit, Missile Unit, Support Unit, Artillery Unit, Infantry Unit

Engineering and Bridging Capes

- 1 turn = 24 hours
- Operational Map = 200nm/hex
- Tactical Map = 10 nm/hex
- Global map. Theater maps
- Unit scale Bn to Theater Army
- All domains/WfF

Attack Type & Range
Anti-Air Range, Land Attack Range, Anti-Sub Range, Anti-Ship Range
(0 = Same Hex as Token)

Attack Capabilities and range (land attack only) (m/n)

Total Attack Capability per turn (n)

Add'l Attributes (can promote ground combat)

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Future Work

- **Automated Adjudication with MITRE OWS modules and Vassal v 3.5.7**

- **Bridge Wargame to Simulation**
  - Instantiation of the interface protocol for any wargame and any simulation
  - This effort will focus on researching methods for migrating the output of a wargame into an appropriate level (entity-based or aggregate) simulation for conducting Monte Carlo-style experiments.

Wargame Alternatives OWS, COTS, Design your own Others?	Simulation Alternatives AFSIM, NGTS, OneSAF, VRForces, WARSIM Others?

- **Integrate other warfighting functional models into OWS**

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