Session 2

Hilton Alexandria Mark Center
11 July 2019
Second Session Agenda (Open)

11:30 - 11:40: Introduction
11:40 - 11:50: MUX Overview & Acquisition Strategy
11:50 - 12:00: MBSE & CBT&E Approach
12:00 - 12:10: Prize Challenges Approach
12:10 - 1:00: Questions & Answers

* • MUX - Marine Air / Ground Task Force Unmanned Aerial System, Expeditionary
  • Model Based Systems Engineering
  • Capability Based Test & Evaluation
## Introduction

<table>
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<tr>
<th>Organization</th>
<th>Representatives</th>
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<tr>
<td>HQMC Aviation</td>
<td>COL James Frey, MAJ Michael Kempf</td>
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<td>Aviation Expeditionary Enablers (APX)</td>
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<tr>
<td>Aviation Combat Element/Maritime Expeditionary Warfare Division (ACE/MExW), Unmanned Air Systems (UAS) Branch</td>
<td>COL Kurt Schiller, MAJ Chase Thompson</td>
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<td>PMA266 Navy &amp; Marine Corps Multi-Mission Tactical Unmanned Air Systems</td>
<td>CAPT Eric Soderberg, Marci Spiotta</td>
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MUX Capabilities provide a system of long range, long endurance, survivable, and sea-based utility platforms that conduct scalable multi-functional C4ISR, electromagnetic spectrum operations, persistent fires capabilities as well as high risk transportation of logistics.
Notional MUX Roadmap

FY19 FY20 FY21 FY22 FY23 FY24 FY25 FY26
1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q

Leverage Current Service UAS Data

USMC

Land based Comms, ISR, SigInt, EW and Weapons – TTPs, CONOPS, DOTMLPF

USN

Ship based Comms, ISR, ASW RADAR, Link-16 – TTPs, CONOPS, DOTMLPF

Optimize Solutions

Prize Challenge Phase #1

Payloads
- Payload – Comms
- Payload – EW
- Payload – ISR
- Payload – AEW
- Architecture
- Modularity

SIMEX

Requirements Clarification Memo

Prize Challenge Phase #2

Air Frame
- Aircraft
- Power Plants

DoN Seeking Innovation & Speed to Deploy

Mature/Prototype Technology

KP1
MBSE Validation Initiate Production

Prototype Kt Award

KP2
Simulation Lab Testing

Ground Testing Integrate Payload

KP3
Right Testing Lab Testing

KP4

Deploy Minimal Viable Product

Decision Point
Knowledge Point
Info Transfer

DoN Seeking Innovation & Speed to Deploy

NAVAIR Public Release 2018-468. Distribution Statement A - "Approved for public release; distribution is unlimited"
MBSE & CBT&E Approach

• Objective is to field capability faster and cheaper.

• Model-Based Systems Engineering (MBSE) has proven to:
  – Shorten development time.
  – Provide greater clarity on requirements and interfaces.
  – Enhance collaboration.
  – Provide digital thread continuity.
  – Enable real-time change promulgation.

• Capabilities Based Test & Evaluation (CBT&E) will:
  – Provide a mission focus.
  – Enable verification earlier in the development cycle.
  – Identify design flaws earlier.
Prize Challenges Approach

• Objectives of the prize challenges approach:
  – Identify Payload Adaptor that: (2QFY20 Submittals)
    • Standardize physical container designs
    • Facilitates rapid loading and unloading
  – Identify Architecture that: (2QFY20 Submittals)
    • Supports current and future bandwidth requirements for Payloads & Avionics
    • Complies with Modular Open System Architecture (MOSA)
    • Inform Program Requirements
  – Identify Aircraft Approaches that: (4QFY21 Submittals)
    • Meet MUX requirements for Payloads and Architecture
    • Provide Minimal Viable Product (MVP) Prototypes in FY26 based on OPTEVFOR Quick Reaction Assessment (QRA) and NAVAIR Flight Clearance (FC)

Challenge Sequence Builds on Previous Effort
Starter Model Overview

• The model is replacing paper document-based specifications.

• Payload capability requirements are provided via the starter model (Cameo Enterprise Architecture V19.0.)
  • Table 1 provides a starter model requirements map.
  • Table 2 provides the framework for participant-provided information (design and capability).

• Performance parameters will be extracted from the model to evaluate designs.
“For **technical questions** related to MBSE processes, model descriptions, or evaluation criteria, please send an email to **MUX_Prize_Challe.fct@navy.mil** with “[identify specific prize challenge] Technical Question” in the subject line.

For **website application questions**, please send an email to **MUX_Prize_Challe.fct@navy.mil** with “[identify specific prize challenge] Application Question” in the subject line.

**The Government will post all questions and responses on [http://www.navair.navy.mil/muxchallenge](http://www.navair.navy.mil/muxchallenge).** Contestants should expect that their questions and the Government’s responses will be made available to all those accessing the website.”