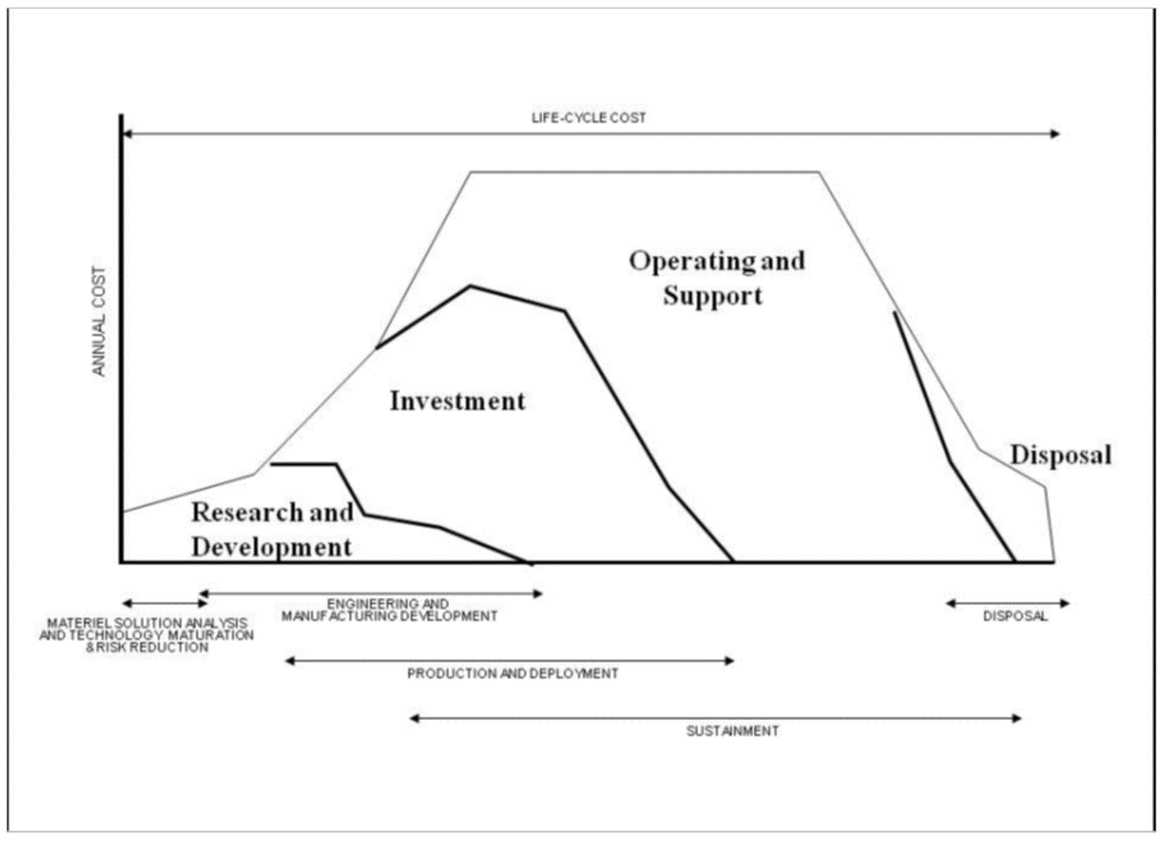
The Marine Corps Unmanned Aerial Vehicle Squadron of the Future: A Manpower Estimate

Naval Postgraduate School

Abstract

The U.S. Marine Corps has articulated its desire to procure an L-class ship capable, Group 4 or 5 UAS. The MAGTF Unmanned Aerial System Expeditionary, MUX, is envisioned to address multiple gaps in Marine aviation. The MUX will be a persistent, long-range UAS configurable for a multitude of missions. Because of the complexity of the system, the MUX will likely affect the manning requirements of the Marine Unmanned Aerial Vehicle Squadron (VMU). The goal of this research is to estimate the likely changes to the VMU's manpower requirements, as a part of O&S costs, and monetize that difference.



Life-Cyce Cost Categories

Methods

For this work, the manpower costs that are analyzed were the unit-level manpower costs. Using OSD's *Cost Assessment and Program Evaluation* this work uses the cost element structure, and various assumptions, to estimate the requirements for operations, maintenance, and other unit-level personnel. Unit-level intermediate maintenance level costs are analyzed as well.

There are three main ways to perform a cost estimate, a) analogy, b) parametric, and c) engineering build-up. This work uses the analogy methodology. It uses, however, more than one historical system/program to make a manpower estimate for the requirements of the MUX.

The MUX's sub-systems are estimated to require as much maintenance as manned systems. The number of maintainers per assigned aircraft currently serving in the MEU ACE are used as the estimate for the MUX.

Results

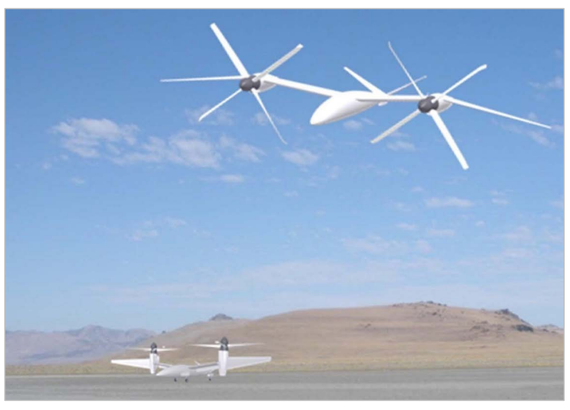
The VMU of today has 274 personnel listed on its Table of Organization. The VMU of the Future is estimated to require 19 additional squadron Marines, and 19 intermediate-level maintenance Marines to perform its required mission.

Using the "Military Composite Standard Pay and Reimbursement Rates, DON, for FY17" as published by the OUSD-Comptroller, the additional Marines increases the manpower cost of the VMU by $1.23 to $3.63 (FY17M).

RQ-21 Blackjack

Bell V-247 Vigilant. Artist depiction.

DARPA's TERN. Artist depiction.



Karem VTOL X-Plane Concept

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