A Cost Effectiveness Analysis of a Three-Pattern Family of Uniforms for the USMC

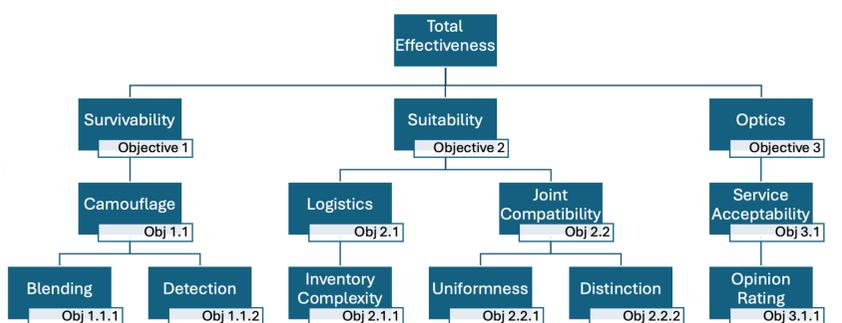NAVAL POSTGRADUATE SCHOOL

Abstract

The U.S. Marine Corps (USMC) currently has a two-pattern family for camouflage: woodland and desert. However, the USMC has no pattern for transitional environments that exist on a 21st century battlefield. This project provides a cost-effectiveness analysis to fielding a three-family pattern of camouflage to the USMC. In doing so, this research seeks to ensure the lethality, survivability, and effectiveness of Marines in the future fight. This project uses standard cost estimating and cost effectiveness practices to provide valuable insights to decision makers. It establishes an objective, logical evaluation model pitting warfighter effectiveness against cost in five courses of action. The results of this analysis find that any of the proposed courses of action result in increased effectiveness for the warfighter while costs vary above and below the status quo. This research paper is recommended for use in buying decision trade space for stakeholders when they consider numerous courses of action for future uniforms.

Methods

Objective Hierarchy to determine the effectiveness of a given camouflage uniform COA.

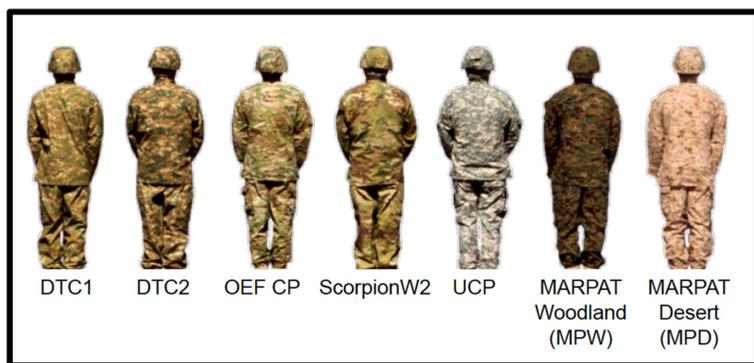Examples of camouflage uniforms. Source: Mortlock (2020).

Using standard cost effectiveness analysis methods, this project produces a model for evaluating cost and effectiveness ratings across five courses of action (COA). Each course of action is unique based on the distribution methods and the type of camouflage fielded.

After generating a cost amount and an effectiveness score for each COA, the results are displayed on a graph. This allows the decision maker to understand the array of different options.

Different methods of weighting the model's effectiveness and cost outcomes buy the decision maker trade space to understand detailed factors about of each COA.

Results & Impact

This project exhibits eight different outcomes based on four different weighting scenarios and two different cost assumptions. COA 4 dominates in Cost Effectiveness Ratio (CER) considerations, but each weighting provides slightly different variations of results. COA 3 and COA 5 are always closely related, indicating the importance of production quantity.
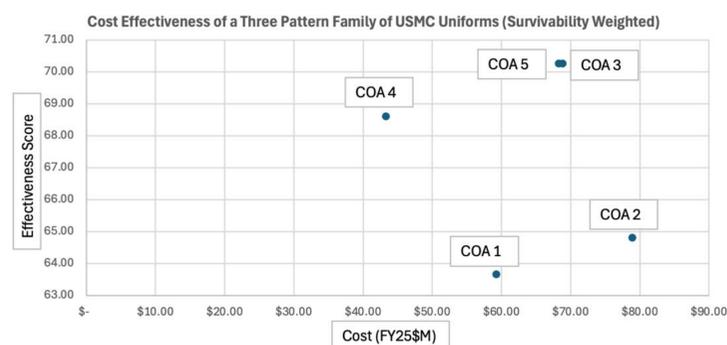
Future Research

Future research for this topic may include extending the application of a transitional pattern onto field gear used by Marines, such as the rucksacks, helmets, gloves, and boots. Additionally, future researchers should seek to pursue means of making the uniform average unit cost decrease by reducing the labor required per uniform or exploring certain methods of creating uniforms that maintain the same quality but take less time and waste less material.

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