A Cost-Effectiveness Analysis of Camouflage Patterns on USMC Plate Carriers

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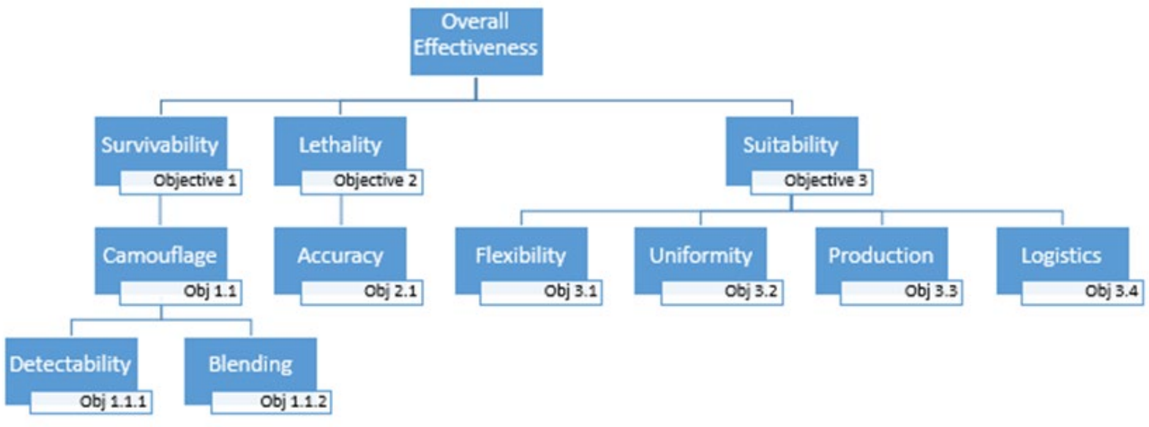
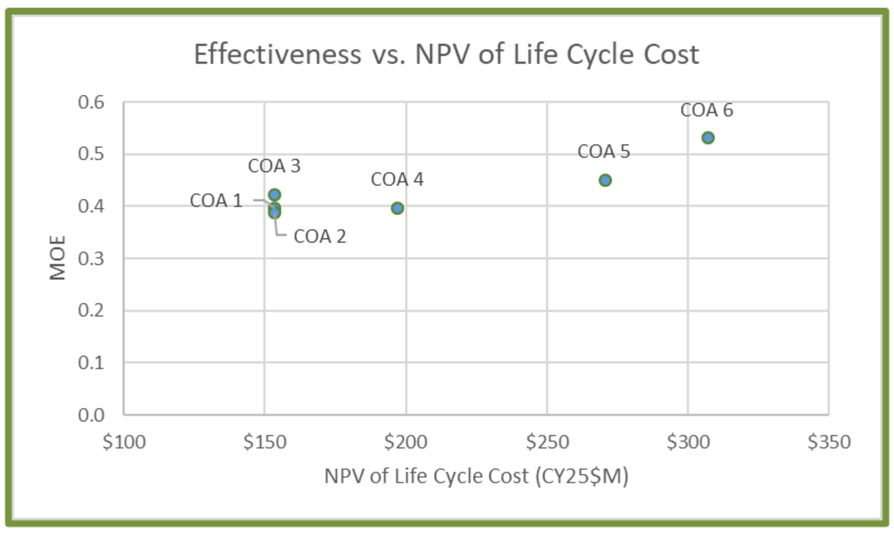
Abstract

Due to current and emerging technologies, signature management plays an increasingly important role in both force protection and operational success. Coyote brown infantry combat equipment (ICE) – specifically plate carriers – worn over Marine pattern (MARPAT) camouflage uniforms contributes to suboptimal signature management. This research provides analysis of six potential courses of action (COAs), including the status quo, the USMC could take to reduce the salience of plate carriers worn over MARPATs. Using a cost-effectiveness analysis (CEA) framework, this report quantifies the effectiveness of each COA and estimates the costs associated to provide individual measures of effectiveness (MOEs), effectiveness-cost ratios (ECRs), and marginal benefits and costs.

Current USMC Uniform and Plate Carrier Combinations



Objective Hierarchy for Camouflage Plate Carriers



Methods

- Camouflage testing results from the Army's Camouflage Uniform Improvement Project Phase IV provided relevant data.
- Literature review included related CEAs and camouflage research and analyses.
- An objective hierarchy was created using multi-objective decision making to establish appropriately weighted MOEs.
- Reasonable and credible cost estimates were formed using historical cost data, the Joint Inflation Calculator, NPV fundamentals, and USMC organizational practices.

Results & Impact

Marines wearing camouflage plate carriers that match their uniforms (COAs 3-6) will be more effective, as defined by this research, than Marines wearing coyote brown (COA 1) or OCP (COA 2) plate carriers.

COAs

1) Status Quo
2) OCP
3) Aligned with AO
4) Deployer Equipment Bundle
5) Prioritize Active Duty
6) Two Per Marine

Most Effective ↓ Least Effective	COA Comparison					
	COA	MOE	Marginal MOE	% Change	Cost (CY25$M)	Marginal Cost
	6	0.5304	0.1338	34%	307	153
	5	0.4504	0.0538	14%	271	117
	3	0.4232	0.0266	7%	153	0
	4	0.3968	0.0002	0%	197	44
	1	0.3966	0.0000	0%	153	0
	2	0.3875	-0.0091	-2%	153	0

Future Research

- Effectiveness and cost implications of fielding a full complement of ICE that matches both the woodland and desert variants of the Marine Corps Combat Utility Uniform.
- Robust analysis of the deployer equipment bundle concept for matching camouflage plate carriers.
- Viability of a three-family uniform concept for the Marine Corps.

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