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Sub-Compact Weapons

Christian Doyle, Joseph Hoffman, Ben McFarlin, and Adam Still

United States Military Academy

Corresponding author's Email: joseph.hoffman2@usma.edu

Author Note: First Class Cadets Doyle, Hoffman, McFarlin, and Still are seniors at the United States Military Academy (USMA). This report is their portion of their Systems Engineering capstone at USMA. The cadet team would like to thank our project client from the US Army Armaments Research, Development, and Engineering Center, Mrs. Dawn Casey and our capstone advisor, Dr. Christopher Morey.

Abstract: Project Manager Soldier Weapons (PM SW) develops, acquires, fields, and sustains new weapon systems for Soldier use. The Maneuver Center of Excellence (MCoE) at Fort Benning, Georgia, formally requested a subcompact weapon that provides “greater maneuverability in confined spaces [than an assault rifle] and provides more firepower than a pistol.” Product Manager Individual Weapons (PM IW), a part of PM SW, enlisted the support of our capstone team to provide a recommendation on the feasibility of equipping Soldiers with a commercial-off-the-shelf (COTS) weapon. In its effort to inform PM IW’s decision on COTS solutions, the team developed a value model, incorporating user objectives and employing commonly-accepted techniques for the base model and swing weight sensitivity analysis. The team also introduced a method for conducting sensitivity analysis on the value functions. The result of the effort, the model, will enable PM IW to make better-informed decisions while considering options.

Keywords: Subcompact Weapon, Soldier, Short Barrel Rifle, Submachine Gun, Personal Defense Weapon