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# Modeling Human Factors for the Soldier Systems Enterprise Architecture

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**Author Note:** CDTs Henderson, Jefferson, Katz, and Markey are 4th year students in the Department of Systems Engineering at the United States Military Academy. Dr. Vikram Mittal, Assistant Professor in the Department of Systems Engineering, is the Capstone group's advisor and provided instrumental guidance and assistance to the cadet team in completing this project.

**Abstract:** The Soldier System Enterprise Architecture (SSEA) is a collaborative effort to standardize systems engineering practices in the Army. The reference architecture for SSEA is tied into a Distributive Modeling Framework (DMF) that allows for the analysis of human systems integration, human performance optimization, and materiel development. This study sets out to enhance the existing modeling framework by adding dimensions of human capabilities into existing models. In particular, movement models were analyzed and improved to account for Soldier load and fitness levels. Additionally, shooting models were enhanced to account for Soldier weapon, firing position, skill level, and exhaustion level. These model updates allow for better analysis of Soldier performance during a standard movement to contact mission. The models updated with human factor inputs were compared to existing models and demonstrated a higher degree of fidelity.

*Keywords:* Model, Human Performance, Soldier Load