

## **Soldier Load Effect Considerations for Materiel Acquisition**

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**Author Note:** Sean Murray, Albert Pattillo, Mahlon Robertson, and Taylor Ross are First Class Cadets at the United States Military Academy. These seniors are working on capstone under the advisement of Lieutenant Colonel Paul Evangelista. LTC Evangelista is currently serving as an academy professor in the Department of Systems Engineering and the Director of the Engineering Management Program at USMA.

**Abstract:** The Load Effects Assessment Program – Army (LEAP-A) is an obstacle course the Army plans to utilize for support of individual equipment decisions. The LEAP-A attempts to mimic the most salient and challenging combat tasks that impact Soldier performance and limitations. This study seeks to provide a measurement methodology for the LEAP-A. Shoot, move, and communicate summarize Soldier tactical tasks. Currently, the LEAP-A methodology fails to address Soldiers shooting or communicating. Lacking measurements for the latter two tasks limits the LEAP-A's effectiveness for acquisitions decisions. The recommended LEAP-A methodology includes measurements for shooting and communicating, as well as improved movement assessments with electromyography and heart rate sensors in a tactical environment. The recommended measurement methodology seeks to improve the use of the LEAP-A to support acquisitions decisions.

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