

# AMSAA: EXCELLENCE IN ANALYSIS

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The U.S. Army Materiel Systems Analysis Activity (AMSAA) is the Army's center for systems performance, systems effectiveness, and logistics analyses. Its mission is to conduct responsive and high-quality materiel and logistics systems analyses to support decisionmaking for equipping and sustaining the U.S. Army. AMSAA has a clearly defined vision to be a world-class analytical organization that:

- Is committed to giving the soldier the decisive capability to win across the spectrum of future military operations;
- Provides the analytical expertise to help guide the Army in selecting, acquiring, fielding, and sustaining new technologies; and
- Develops the analytical workforce of the future.

As an element of the newly formed Research, Development and Engineering Command (RDECOM), AMSAA will play an integral role as the RDECOM focuses on "fielding technologies that sustain America's Army as the premier land force in the world."

## Measuring Performance

As the Army's center for system level performance and effectiveness, AMSAA has developed methodologies and models to characterize the

functionality of the full spectrum of Army materiel systems by accurately predicting critical performance variables, such as weapon accuracy, target acquisition, probability of inflicting catastrophic damage, and system reliability. AMSAA is responsible for the generation and/or certification of these performance and effectiveness measures and ensuring their standard use across major Army and joint studies.

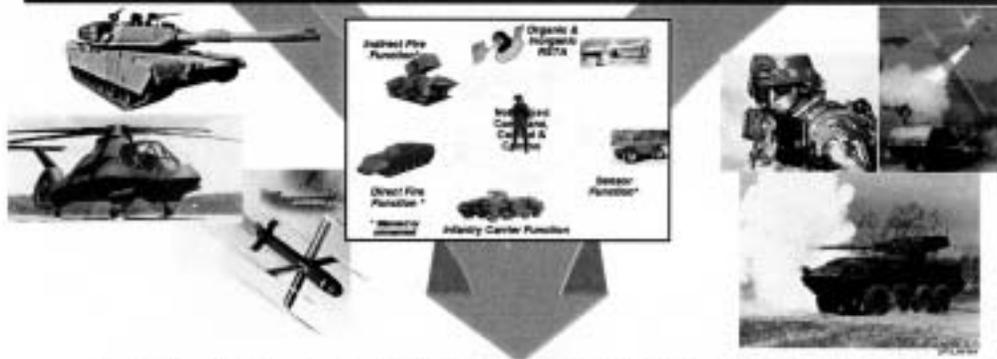
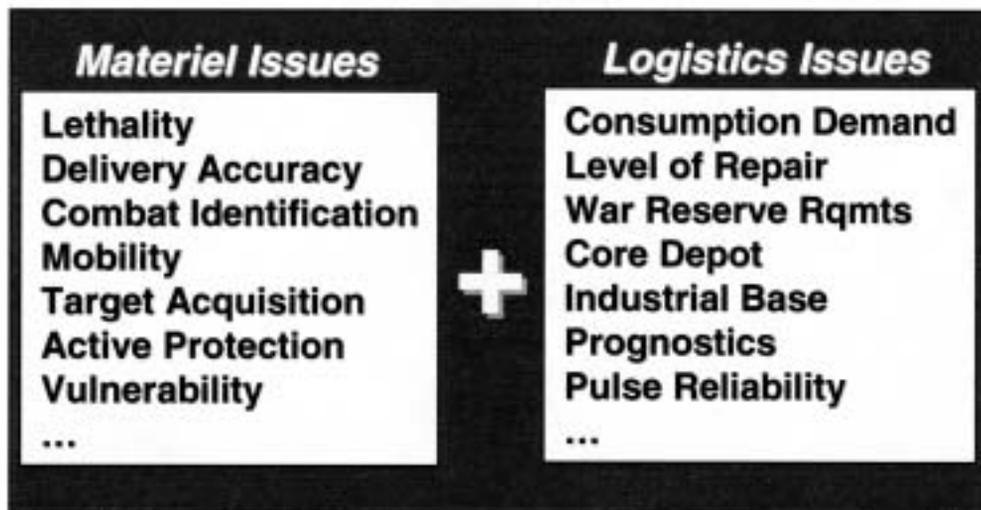
In addition to generating data, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and existing systems. AMSAA conducts and supports analyses of alternatives, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, and requirements analyses. These analyses are used by Army and DOD decisionmakers to support research, development, procurement, and logistics decisions with

the goal of providing quality equipment to soldiers.

## Analytical Complexity

As the technical complexity of materiel systems increases and focus is placed on system-of-systems concepts, the analytical workload increases and makes systems performance and effectiveness analyses more difficult to conduct. AMSAA has aggressively pursued improvements to analytical tools and processes to conduct or support analyses addressing organizational and operational concepts, materiel requirements, materiel solutions, affordability, and investment priorities of the Stryker Brigade, Future Combat Systems, and Objective Force. Examples of efforts initiated are sensor/data fusion methodology, nonlethal weapons system performance methodology, system level active protection model, dismounted infantry modeling in military

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***Integrated capabilities analyzing materiel and logistics issues across the full spectrum of materiel***

<b>Command &amp; Control</b>	<b>Digitization</b>
<b>Target Acquisition</b>	<b>Wide Area Surveillance</b>
<b>Dismounted Infantry</b>	<b>Mechanized Infantry</b>
<b>Armor</b>	<b>Artillery</b>
<b>Aviation</b>	<b>Air Defense</b>

***AMSAA has critical integrated analysis capabilities.***

operations in urban terrain, and system-of-systems methodology development.

As a result of its materiel system analysis mission, AMSAA is the Chair of the Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME), which develops munitions effectiveness information (Joint Munitions Effectiveness Manuals or JMEMs) for operational commanders, weapon system designers,

logisticians, and DOD targeteers, weaponeers, and planners. JMEMs are the sole source for joint Service authenticated non-nuclear weapons effectiveness data for DOD. JTCG/ME ensures standardization and improvement of the databases and methodologies in target vulnerability, delivery accuracy, weapons characteristics, and determination of non-nuclear weapons effects.

**Logistics Analysis**

AMSAA's logistics analysis expertise encompasses the range of Army needs, from the development and refinement of new logistics models to the analysis of innovative or modified logistics concepts. AMSAA conducts in-depth inventory analyses at all echelons of the Army support structure including inventory analysis, situational analysis to determine root causes of supply chain problems, and

*The electronic and mechanical Physics of Failure Program pioneered the development of design and analysis tools to predict reliability and minimize potential redesign at the component level.*

optimization management models. In-house models and methodologies are used to support acquisition logistics requirements, such as determining initial provisioning packages meeting readiness performance goals at the least possible cost, determining optimal mix of contractor and organic maintenance support, recommending cost-effective levels of repair for subsystems and components of new systems, and analyzing current levels of repair to determine if changes are warranted. Also, AMSAA is heavily engaged in the Army planning process for sustaining our forces across the full range of operations by developing Supply Class IX spare part requirements addressing the inventory augmentation for Army units that deploy. Requirements are computed to achieve readiness targets based on unit demand history and expected increases in operational tempo.

AMSAA is the Army's executive agent for the Sample Data Collection and Field Exercise Data Collection programs providing quantitative and qualitative operational maintenance, manpower, reliability, and logistical support data for fielded materiel systems. These data are the foundation of critical information provided to warfighting units and many of the logistics analyses being conducted for senior Army leadership. AMSAA plays a critical role in logistics trans-

formation initiatives, such as Logistics Modernization Program, National Maintenance Program, and Single Stock Fund. AMSAA develops and analyzes inventory decision support systems, conducts cost benefit analyses of supply chain operations, and evaluates new forecasting techniques. AMSAA's support is integral to realizing significant logistics improvements, including increased flexibility, responsiveness to the customer, reduction in the generation of excess, and providing the best mix of supplies in a timely manner.

#### **Reliability And Maintainability**

AMSAA uses its expertise in reliability, availability, and maintainability to develop methodologies and conduct a range of analyses across the Army. AMSAA serves as the Army's Executive Agent for reliability and maintainability standardization improvement by developing and implementing related acquisition excellence initiatives. AMSAA develops and applies reliability engineering approaches that assess the reliability of Army materiel and recommends ways to reduce life-cycle costs. The electronic and mechanical Physics of Failure (PoF) Program pioneered the development of design and analysis tools to predict reliability and minimize potential redesign at the component level. PoF is based on the fundamental principle that it

is not only important to understand, prior to "system build," how things work, but equally important to understand how things can fail in their intended operational environments. These types of detailed analyses are critical in the design of systems that have led to extended failure-free periods for Army systems, thereby reducing the logistics footprint and decreasing the time required to deploy Army equipment.

The interdependent core analytical capabilities of AMSAA are unique in both breadth and depth across the life cycle of Army materiel. AMSAA is a key independent and objective "analytical arm" of Army leadership. It provides critical information as acquisition, logistics, and technology decisions are made—ensuring that soldiers get the right equipment to win across the spectrum of all future military operations.

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