

Simulation and Systems Integration Branch ACT-540

The Simulation and Systems Integration Branch, ACT-540, is responsible for providing technical expertise and the necessary tools to support the validation of the Operational Concept for the National Airspace System (NAS) in 2005.

A validation process is being developed that will employ the use of modeling, rapid prototyping, and real-time human-in-the-loop simulation techniques to identify and validate operational requirements. Specifically, the process and infrastructure will be used for the decomposition of NAS requirements from the operational concept level down to the technical level in a way which ensures traceability of capabilities back to mission need. A requirement traceability matrix, identifying various alternative functional allocations to people, procedures, and machines will be developed. The criteria used will be based on maximizing human performance and reducing cost and risk. Ultimately, the information obtained from the validation activities will be used to make critical investment and implementation decisions.

MISSION

The mission is twofold: (1) create a synthetic, virtual representation of the future NAS, connecting separate subsystems and components and (2) systematically examine future operational concepts and technologies for the NAS. In doing so, issues of component integration and cross-component interaction are discovered that otherwise would not surface until much later in the development process.

ACCOMPLISHMENTS

Achieved through the work efforts of two interrelated tasks:

Simulation Experimentation Program – Supports the agency's research and development initiatives by investigating and evaluating procedures, transitional architectures, and integration issues through the use of real-time, human-in-the-loop simulation and prototyping techniques.

Laboratory Integration and Infrastructure Development – Supports the development of an efficient and effective analysis environment through the integration of modeling and simulation tools. Promotes the use of standards to facilitate interoperability and reuse.

For more information on Simulation and Systems Integration, contact:

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System Efficiency