



Pacific Northwest National Laboratory

Engined Systems

The Engined Systems Group utilizes the systems engineering approach to analyze, characterize, and present information to decision-makers at all levels of the organization to optimize problem solving and action.

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System Requirements Assessment

Complex systems have a diverse set of requirements. Clearly defined system requirements provide the client with a common high-level, technical basis for making project decisions. A System Requirements Assessment can provide a project manager with insights as to “open” system requirements and strategies to address them. It is necessary to develop a process to establish clear roles, responsibilities, and authorities regarding technical requirements versus management of those requirements, and to create a communications plan for addressing system requirement issues and decision making.

System Requirements Assessments give critical information to:

- Clarify gaps in existing system requirements
- Create visual links between system requirements and functions
- Provide understandable linkages between other system requirements and requirements documentation.

Examples of Our Work

Counter-Drug Interoperability Training Program. This program will develop and implement a computer simulation-based interoperability training system that can improve multiagency operation planning and execution. The simulation system capabilities and training infrastructure will then be extended to provide capabilities for:

- Analysis and promulgation of lessons learned
- Mission rehearsal
- Operations research and technology assessment.



Teaming with Fluor Hanford, Inc. (prime) and General Dynamics Corporation, PNNL is providing technical support in requirements development, technology management, program development, and client/user interface. The current operational requirements document was developed based on intensive PNNL staff interaction with field agencies conducting drug interdiction activities along the southwest border. From those findings, an exercise-driver simulation was developed to create interoperability scenarios for training. The National Counterdrug Center is envisioned to become a principal law enforcement agency resource for training, information, and research that will reduce the effects of the existing barriers to cross-agency communication and cooperation.

Holographic Imaging Radar and Measurement System (HIRMS). PNNL is providing requirements management and project integration expertise to:

- Develop a HIRMS for use at the Aberdeen Test Center and within the continental United States, including:
 - Ka- and W-Band imaging/measurements
 - Ultra-high resolution calibrated 3-D volumetric images
 - Motion compensation and data uncertainty/analysis
 - System transportability
 - Maximum 65–degrees look-down angle
 - Capability to scan large objects.
- Test, document, and deliver system to Aberdeen Test Center.

