

Science.

Technology.

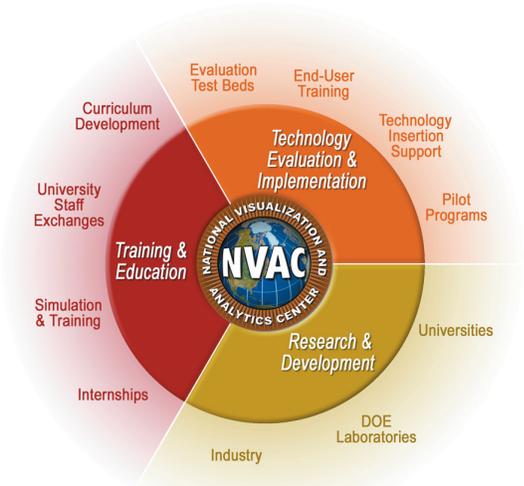
Innovation.

National Visualization and Analytics Center

The National Visualization and Analytics Center, established in 2004 by the Department of Homeland Security, will play a pivotal role in countering future terrorist attacks in the U.S. and around the globe.

The Center, led by Pacific Northwest National Laboratory, will develop a national agenda to define the directions and priorities for future research and development programs focused on visual analytics tools. A blue ribbon panel composed of leaders from academia, industry and government will set the national agenda on visual analytics.

Visual analytics tools, which are capable of creating images from complex multidimensional data, will enable analysts to effectively fuse and analyze the enormous, dynamic and complex information streams containing structured and unstructured text documents, measurements, images and video data. Analysts can use these high-impact, practical tools to more effectively identify signs of terrorist attacks in their earliest stages and ultimately thwart terrorist plots before they occur.



**Pacific Northwest
National Laboratory**

Operated by Battelle for the
U.S. Department of Energy



A National Resource

The Center will provide the strategic direction, scientific leadership, education and coordination needed to discover, develop and implement innovative visual information analysis methods. In support of the Department of Homeland Security's missions, the Center will emphasize the following activities:

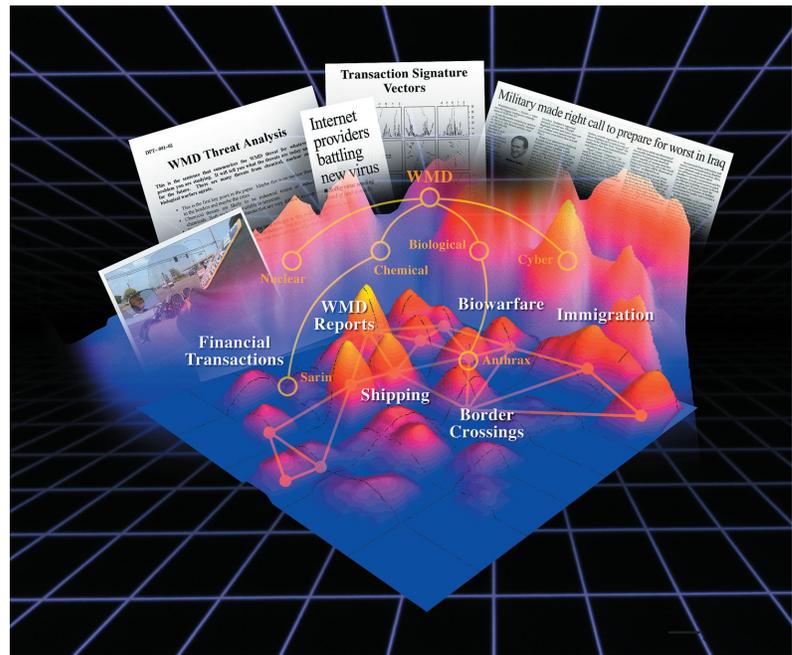
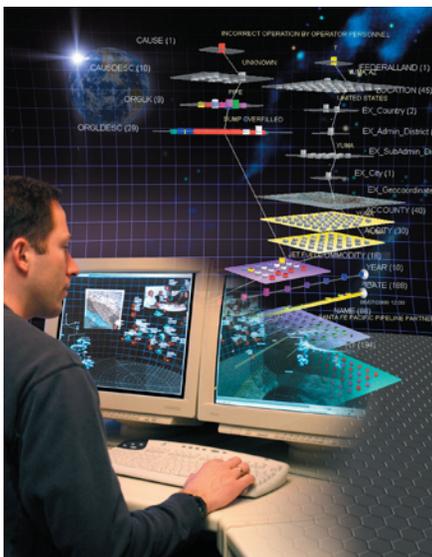
- **Research and development:** conduct R&D in visual analytics technologies with an emphasis on proactive, predictive analysis to provide early warning of potential terrorist activities.
- **Education:** provide educational and hands-on opportunities for learning about the analytical environment to the next generation of scientists and engineers, and engage with university faculties in areas including curriculum development.

- **Evaluation and implementation:** establish test beds to evaluate new methods and support the adoption of new tools and methods in an effort to speed the transfer of new technologies to analysts.
- **Integration:** coordinate R&D programs across funding agencies and research institutions to effectively execute the national R&D agenda for visual analytics.

Innovative Leadership

PNNL is nationally and internationally recognized for scientific leadership and has a long history of high-impact contributions in information visualization and analysis for homeland security, intelligence and defense. The Center will capitalize on research conducted over the past 10 years by PNNL that has focused on providing innovative visual analytics tools to the intelligence community.

PNNL has extensive experience with the analytical challenges of the intelligence community. Its researchers have worked alongside analysts to bring fundamentally new analytical capabilities into their working environment. Interaction with analysts is critical not only to help them learn the mechanics of operating the new tools but also to help them adjust their analytical process to take maximum advantage of their new capabilities.



PNNL also has developed innovative tools such as the *ARCH Model for Analysis and Information Discovery*, an adaptive, flexible information acquisition and analysis method that couples human analysts with a knowledge management system in an interactive dialogue. The ARCH model provides an ideal framework for a visual analytics environment because it supports the unique needs of the analyst from information acquisition through discovery and analysis.

Educational Opportunities

Education and training are critical to preparing individuals to serve national needs in multiple agencies, roles and functions. The Center will concentrate on developing meaningful educational activities and providing hands-on experiences to students. Students will have the opportunity to learn about the analytical environment through simulated decision making and the use of threat data scenarios. They also will have the opportunity to work directly with NVAC scientists as interns and in classroom and laboratory settings.

Seeking Partnerships

The NVAC is seeking collaborators for research and development projects and integrated demonstrations. The Center will operate through partnerships with national, regional and local governments, academia, national laboratories and industry. To achieve the goals of a sustained flow of advanced, high-impact technologies and talents, the national Center will establish and collaborate with regional visual analytics centers that will provide a regional focus and presence. Key areas of collaboration will include research technology development, curriculum development, training research faculty and staff, faculty and student exchanges, education, and test and evaluation. A call for regional centers will be announced in late 2004 or early 2005.

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