

Virtual Laboratory for Technology: Some assembly still required

Col•lab•o•rate 1. To work together, esp. in joint intellectual efforts.

Webster's II New Riverside University Dictionary

The Virtual Laboratory for Technology, or VLT, is fundamentally changing the way engineering scientists and scholars work together to address the major technological challenges of fusion energy power. Its "virtual" nature pushes interconnection of fusion research facilities in the United States to foster and promote advances in fusion technology. Enabling technology research and development in partnership with plasma science is necessary to accelerate progress in the fusion energy development program.

The VLT is establishing a technological grid to eliminate barriers of space and time by introducing high performance research tools for scientific investigation.

The enabling technology program has been a collection of diverse, but inter-related activities among academia, industry, and laboratories. The VLT integrates their collective knowledge, experience, and resources.

Similar to most public and private organizations, a program advisory committee participates in the strategic planning and performance evaluation of the VLT. The advisory committee is composed of senior leaders from the broader U.S. fusion community.

Information technology is fueling innovation within the fusion energy science program. The VLT pushes the integration of advanced computing and communications technologies in the fusion energy science program. The Internet and the World Wide Web have revolutionized the methods by which scholars and researchers collaborate, by blurring the geographical distances that impede collaborations.



Real-time experiments across the Internet: Japan Atomic Energy Research Institute (JAERI) scientists observing and discussing real-time experimental data from the UCLA HiTeC Thermomechanical Facility.

The VLT links researchers among geographically diverse locations into one "virtual environment." The VLT exploits collaboration tools such as video teleconferencing with powerful computational and electronic devices that allow scientists and engineers across the country to easily share research results and participate in programmatic evaluations.

The VLT framework integrates distributed computational, information and experimental resources. It merges a number of program aspects that were traditionally independent – classical theoretical models with classical experimentalist activities. Computer simulations are now able to link the two together to address the other complex challenges associated with the development of fusion energy as a competitive energy source in the twenty-first century.