SCIENTIFIC INFORMATION AT THE DESKTOP:
New Tools Enable Research

RL Scott, Director, Project and Program Development

Office of Scientific and Technical Information
U.S. Department of Energy

Oak Ridge National Laboratory

August 9, 2000

Office of Scientific and Technical Information
U.S. Department of Energy

"For science to rapidly advance at the frontiers, it must be open. And shared knowledge is the enabler of scientific progress."

U. S. Secretary of Energy Bill Richardson
Fermi Awards Presentation
Washington, D.C.
April 16, 1999

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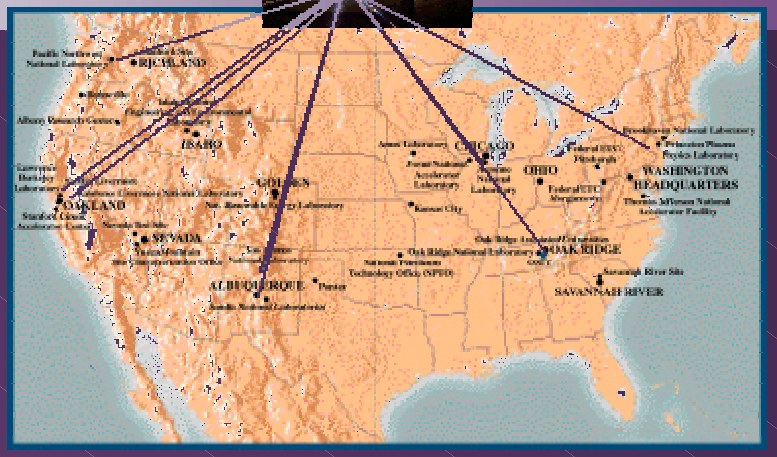
- Setting the stage
- OSTI Portfolio and Future Attractions
- Future Information Infrastructure for the Physical Sciences…towards a national library

Supporting the Science Mission



- The public invests $7 billion annually in DOE R&D
- Principal output from department's R&D is scientific and technical information (STI)
- Ensures overall stewardship and accessibility for unclassified STI
- Manages the world's most comprehensive collection of classified and sensitive energy-related information
- Operating Agent and the U.S. representative to the ETDE and INIS
- Oversees the Department's Technical Information Management Program

The Oak Ridger

i-7404 OAK RIDGE, TENNESSEE, THURSDAY, JANUARY 14, 1960 PRICE FIVE CENTS

AEC's Information Plant In Oak Ridge Is 'Associated Press Of Atom World'

☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆

MILE OF FILE — Above, R. F. Bernard, Jr., checks a reference in the more than a mile of film at the AEC's Technical Information Services division here. Below, the TISE plant, a converted warehouse along the Turnpike near Elza entrance. Photos by J. E. Westcott, official AEC photographer.

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OSTI Resource Portfolio

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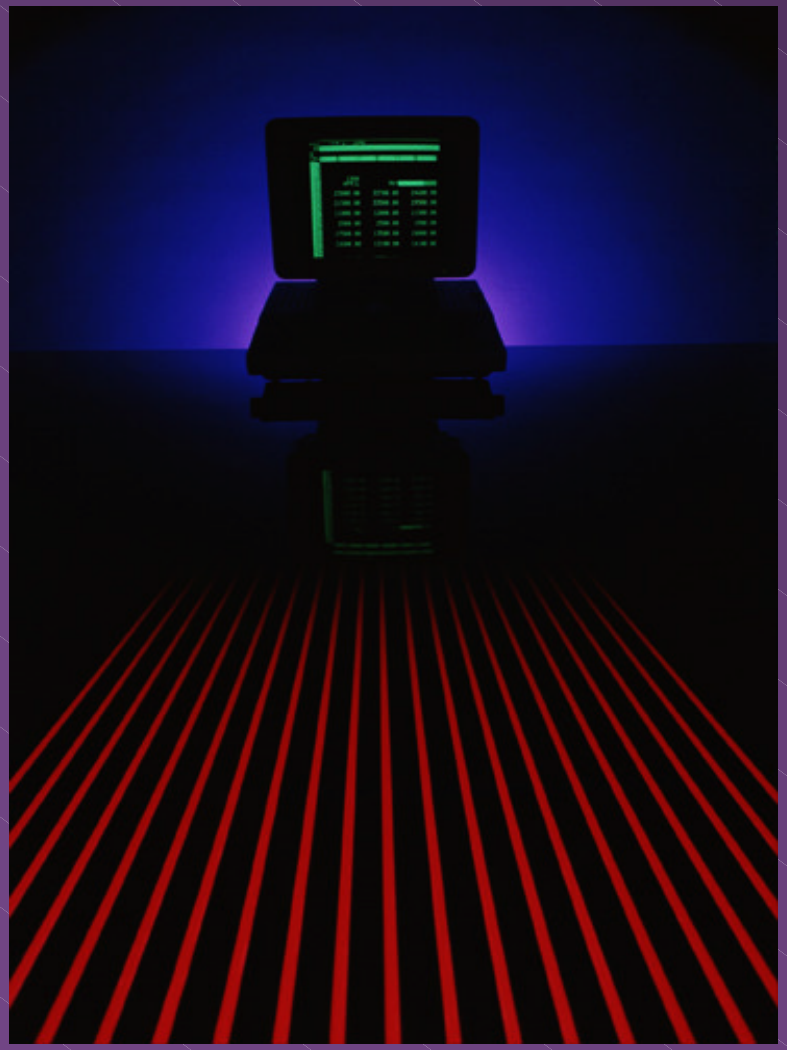

- Report Literature (Gray Literature)
- Journal Literature
- Preprints

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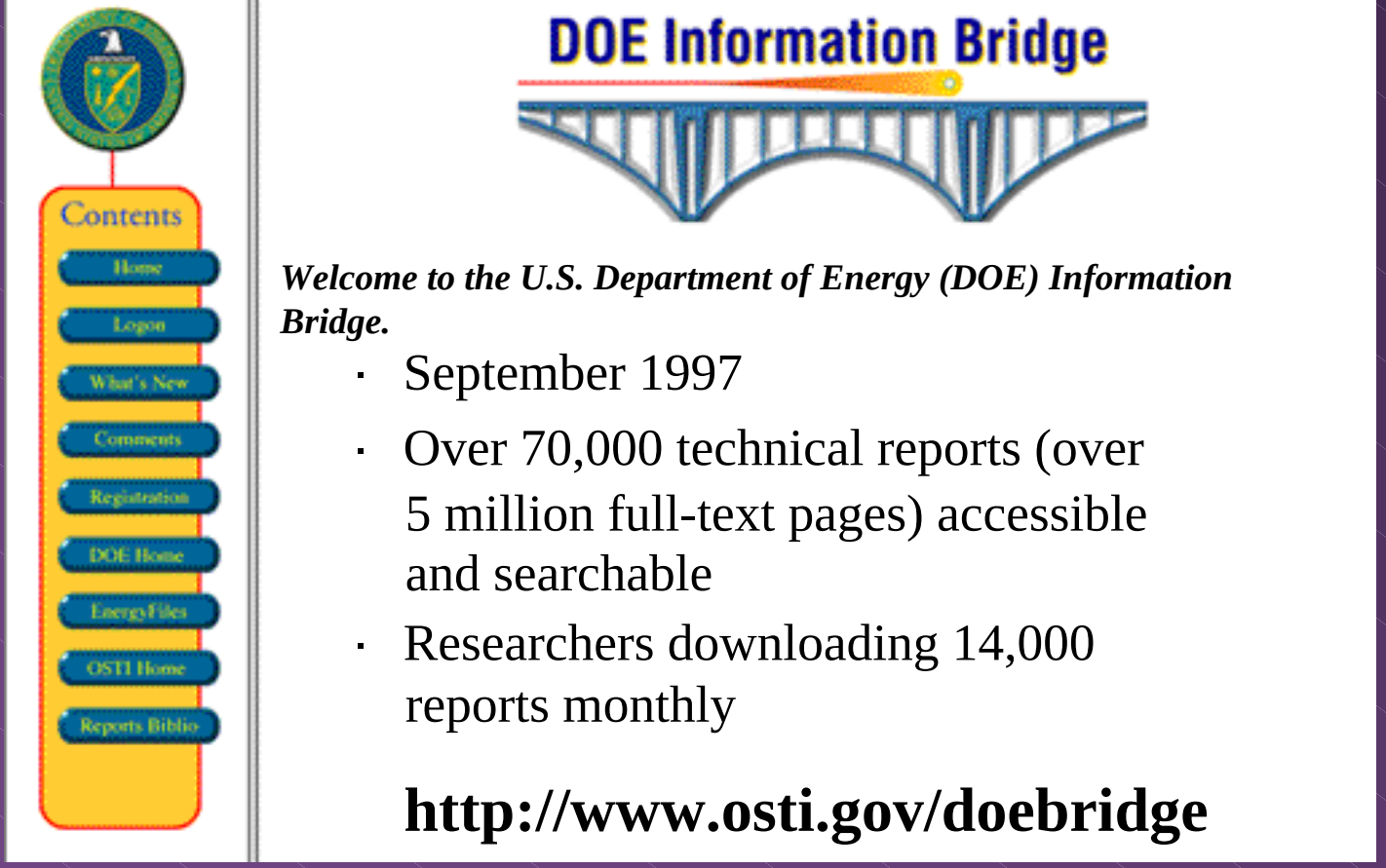

Enhancements 2000/2001

http://www.osti.gov/doebridge

DOE Information Bridge

- Doubling content (legacy data)
- Persistent URL's
- Full text searching of remote sites
- Multiple downloading capabilities, date-range searching, reporting, search results by user-defined order…..and more!

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http://www.osti.gov/pubscience

- October 1999
- Compendium of journal literature in sciences related to DOE
- 33 publisher partners with over 1,400 journal titles
- 2.0 million searchable journal citations

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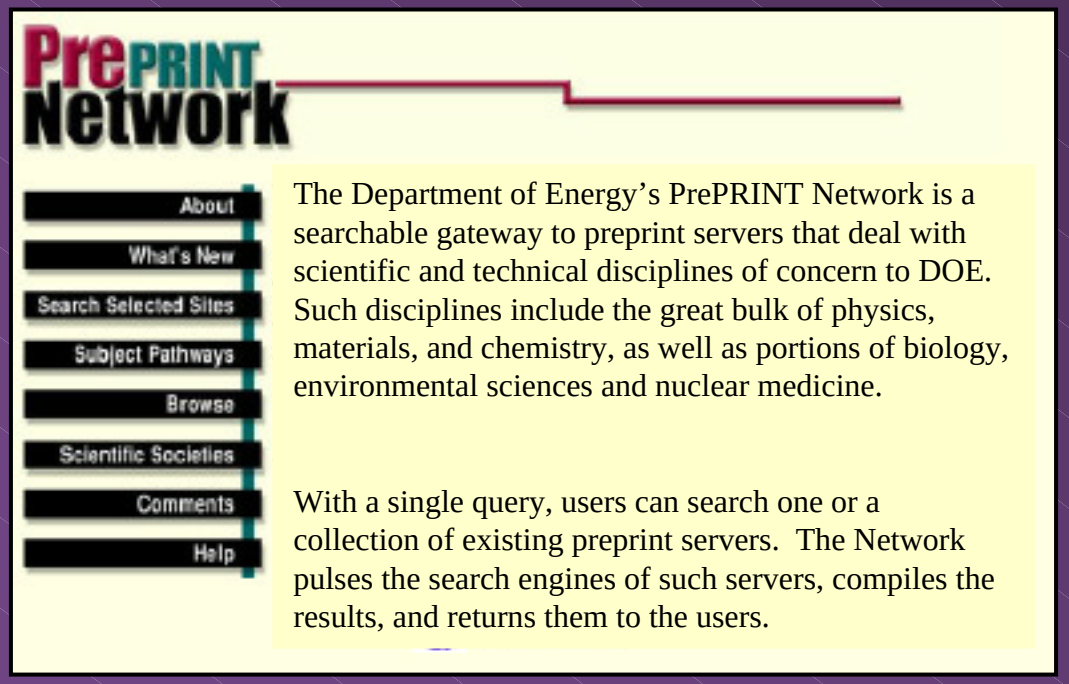
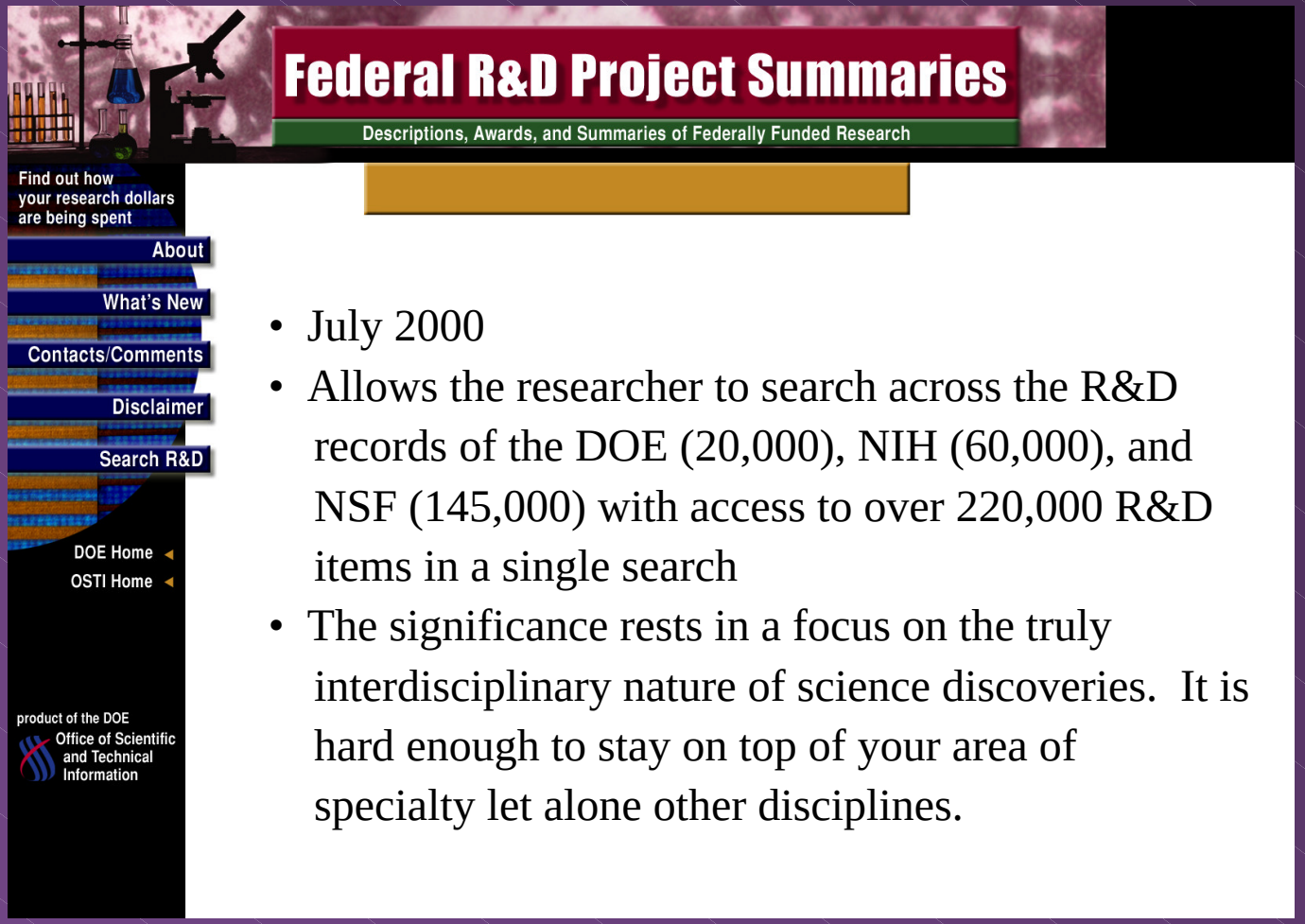
http://www.osti.gov/preprint

- January 31, 2000
- A searchable gateway to over 1,500 worldwide preprint sources and approximately 340,000 preprints



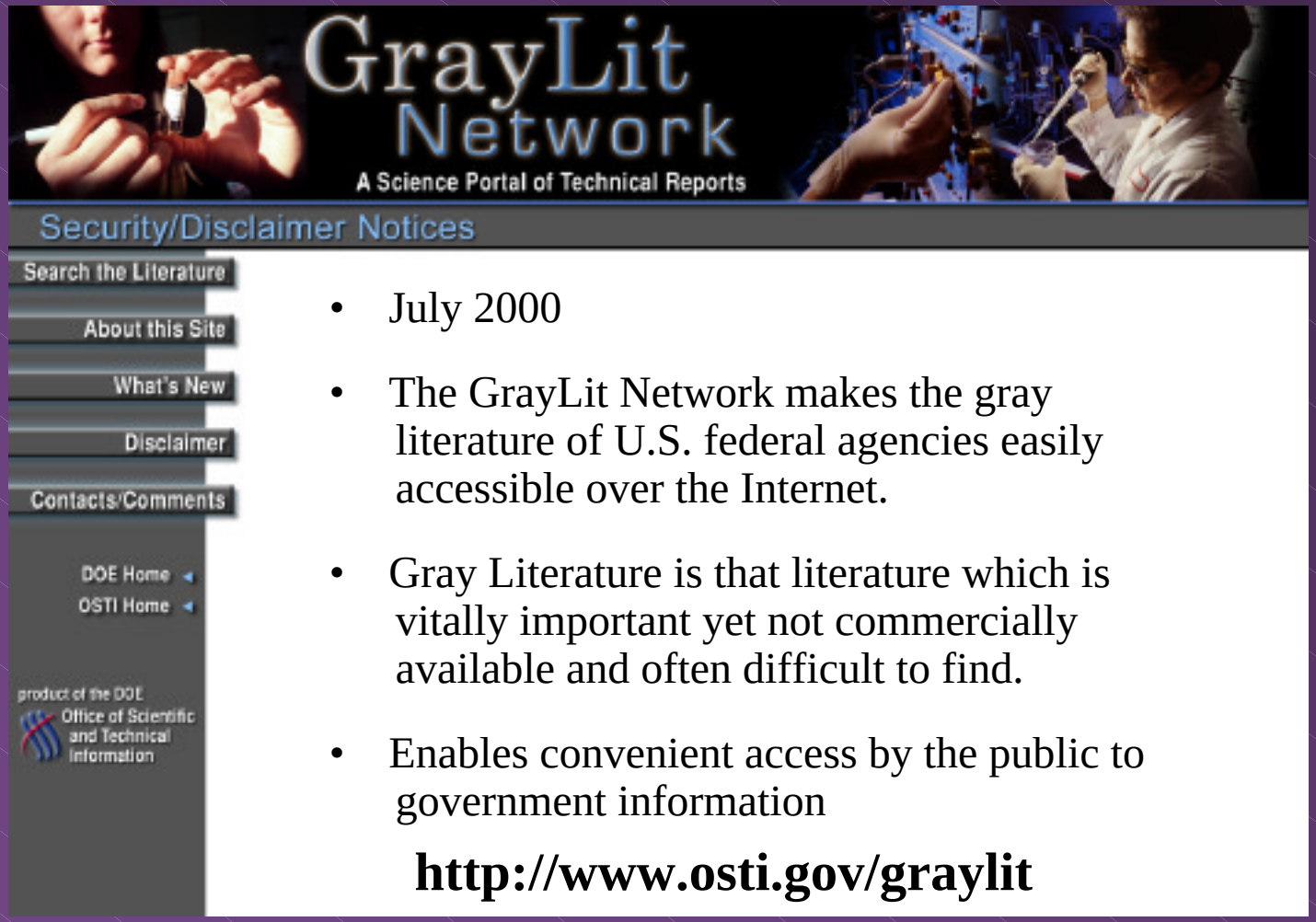
Federally Funded Research



- July 2000
- Allows the researcher to search across the R&D records of the DOE (20,000), NIH (60,000), and NSF (145,000) with access to over 220,000 R&D items in a single search
- The significance rests in a focus on the truly interdisciplinary nature of science discoveries. It is hard enough to stay on top of your area of specialty let alone other disciplines.

http://www.osti.gov/fedrnd/

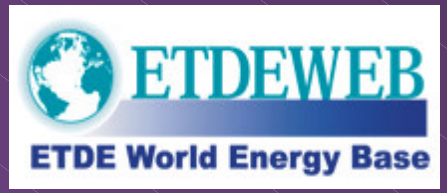
Technical Reports



- July 2000
- The GrayLit Network makes the gray literature of U.S. federal agencies easily accessible over the Internet.
- Gray Literature is that literature which is vitally important yet not commercially available and often difficult to find.
- Enables convenient access by the public to government information

http://www.osti.gov/graylit

Additional Products for Specific Interests



ETDE World Energy Base – a product of the Energy Technology Data Exchange (ETDE), includes world-wide information on the environmental impact of energy R&D; energy policy; nuclear, coal, hydrocarbon, and renewable energy technologies.
http://www.etde.org/etdeweb/

EnergyFiles – Virtual Library Collection of Energy Science and Technology - an expanding collection of energy related scientific and technical information (STI) available through connected worldwide energy resources.
http://www.osti.gov/EnergyFiles/

OpenNet – includes references to all documents declassified and made publicly available after October 1, 1994.
http://www.osti.gov/opennet/

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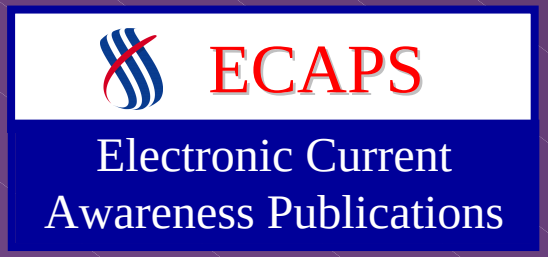
Doe R&D Accomplishments – Outcomes of past DOE and DOE contractor R&D accomplishments which have had significant economic impact, have improved people's lives, or have been widely recognized as a remarkable advance in science . **http://www.osti.gov/accomplishments**



Electronic Current Awareness Publications - Subject specific citations from the Energy Science and Technology Database. **http://www.osti.gov/ecaps/**

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Tool Usage Statistics – May 1999 – April 2000

	TOTAL	edu	gov	mil	com	net	int'l	other
PubSCIENCE	1,000,000	241,200	115,000	15,300	180,500	91,000	233,000	124,000
PrePRINTS	200,000	20,300	33,400	3,600	22,700	11,600	60,000	48,400
DOE InfoBridge-Pub	221,965	14,989	32,505	2,300	36,664	18,099	19,607	97,801
R&D Accomplish	30,689	1,316	8,183	239	6,385	2,273	3,866	8,427
R&D Proj Summ	108,886	4,581	23,947	620	22,125	8,098	10,270	39,245
Energy Files	193,595	10,601	20,847	2,034	35,570	16,962	18,950	88,631
Energy Portal	57,500	4,547	9,853	897	11,149	7,324	11,370	12,360
ECAPS	184,257	8,237	5,026	467	25,562	14,232	23,691	107,042
TOTAL USAGE	1,996,892	305,771	248,761	25,457	340,655	169,588	380,754	525,906
Percentage of Total		15%	13%	1%	17%	9%	19%	26%

* Other includes Unknown, Old Style Arpanet, Non-Profit Organizations and US

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Future Information Infrastructure for the Physical Sciences

Strength Through Science

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Future Information Infrastructure for the Physical Sciences

Strength Through Science

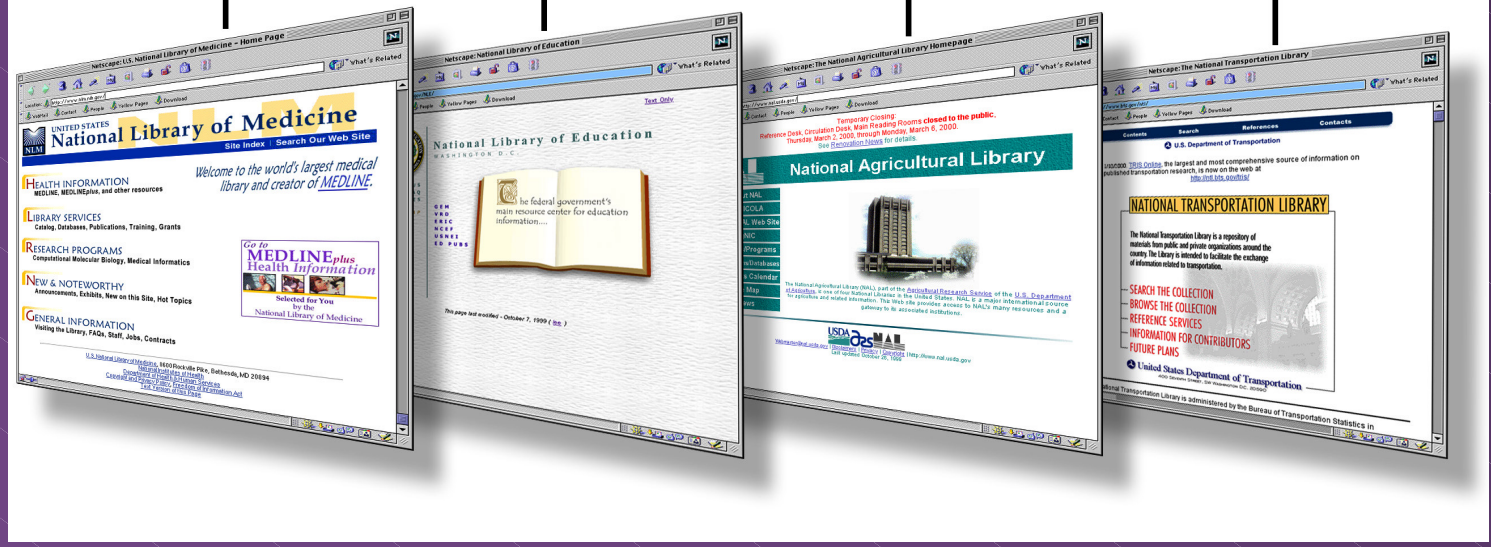
Exec. Branch National Libraries

NIH National Library of Medicine,
1836 (Legislated 1956)

National Library of Education,
1994

National Agricultural Library,
1862 (Legislated 1962)

National Transportation Library,
1998



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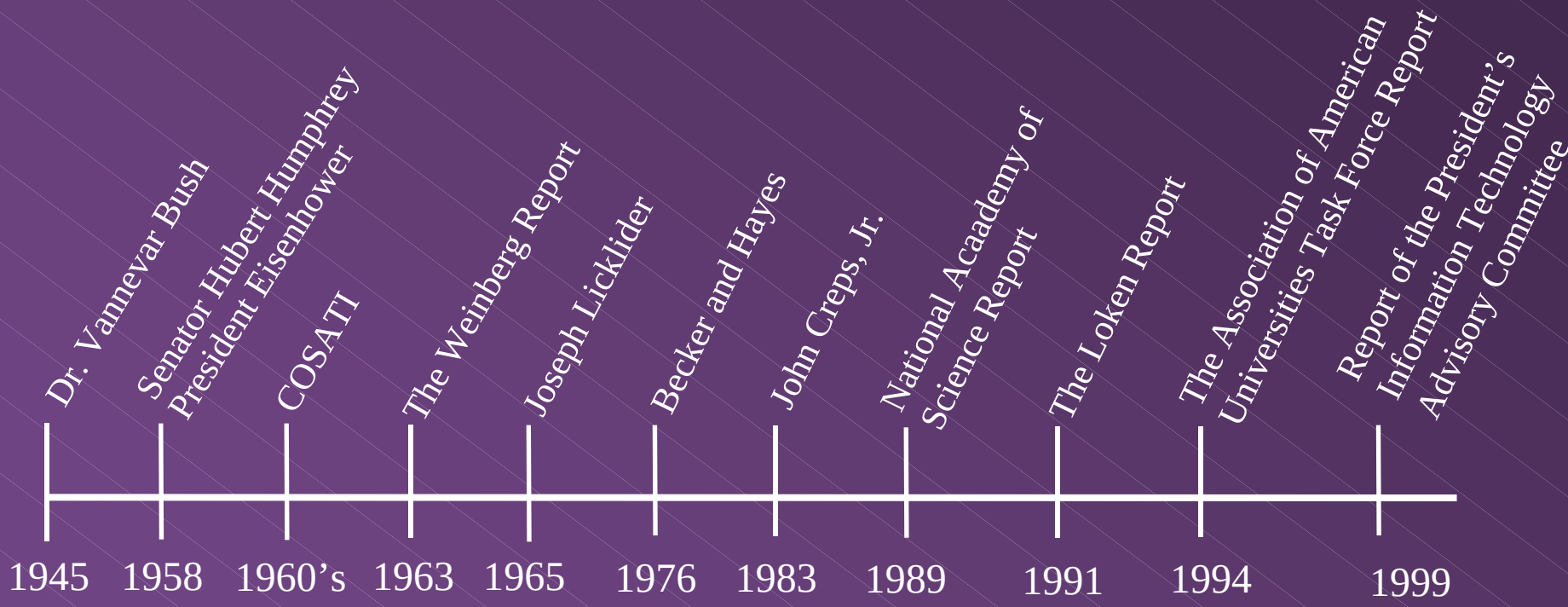
Strength Through Science



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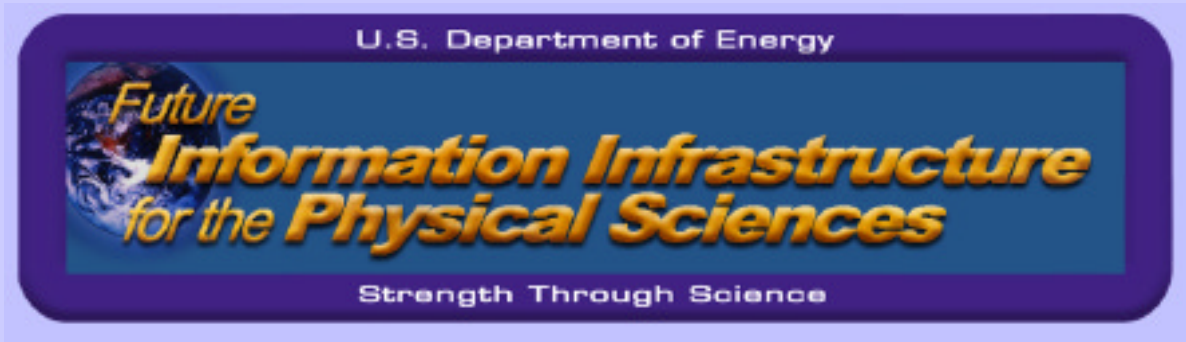
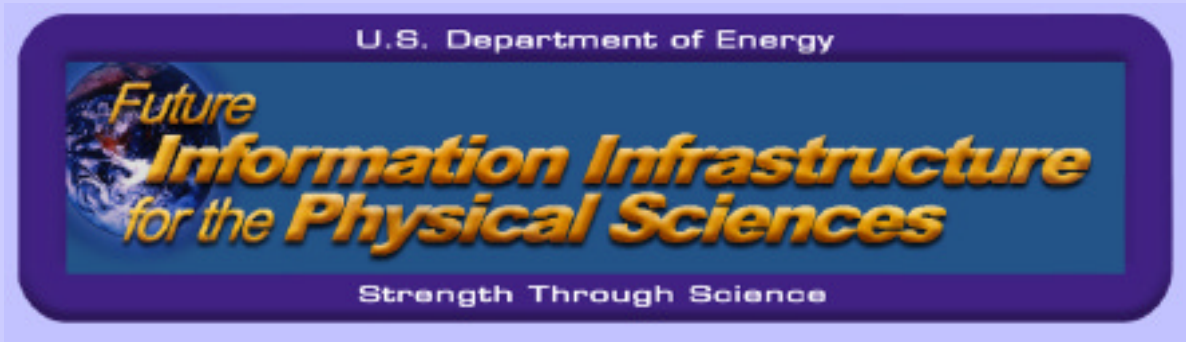
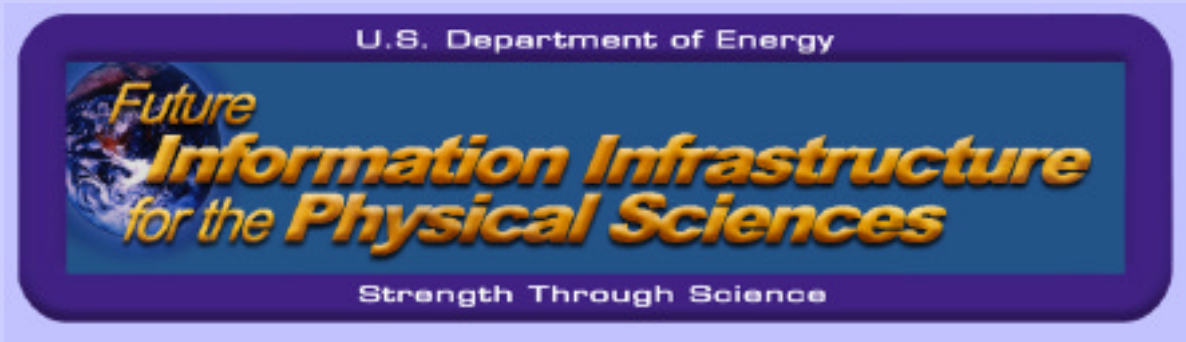


- In 1999 OSTI and the broader technical information community began deliberating this concept.
- Focus on the infrastructure, the content, the technology and components
- Briefings held for senior level management
- Workshop recommended to seek input of key representatives external to the Department
- May 30-31, 2000, Workshop held at the National Academy of Sciences



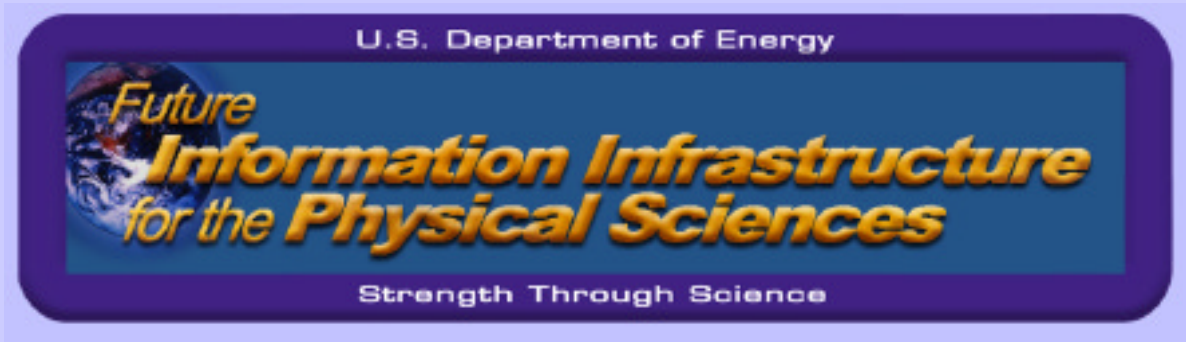
Workshop Panel

Name	Title/Organization	Discipline/Community
Alvin Trivelpiece	Emeritus Director,Oak Ridge National Laboratory	Physics Research Manager
R. Stephen Berry	James Franck Distinguished Service Professor, Department of Chemistry, The University of Chicago	Chemistry Scientist Data Manager
Derek Winstanley	Chief, Illinois State Water Survey	Geosciences Science Manager State Perspective



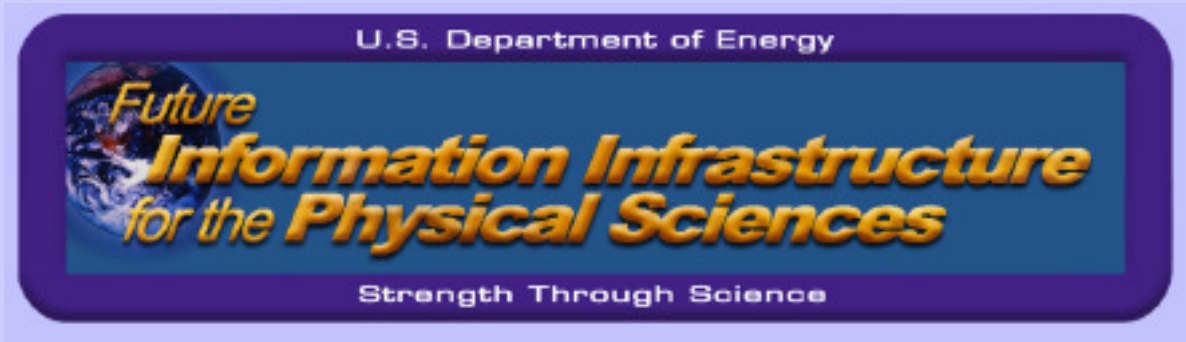
Workshop Panel (cont.)

Name	Title/Organization	Discipline/Community
Krishna Rajan	Professor, Materials Engineering, Rensselaer Polytechnic Institute (RPI)	Materials Science Scientist Materials Informatics
Martin Blume	Editor-in-Chief, American Physical Society	Physics Science Editor
Jose-Marie Griffiths	CIO and Professor, University of Michigan	Library/Information Science Information Manager



Workshop Panel (cont.)

Name	Title/Organization	Discipline/Community
Kirk McDonald	Professor, Princeton University	Physics Scientist
Lee Holcomb	Chief Information Officer, NASA	Engineering Information Technology
Kent Smith	Deputy Director, National Library of Medicine, NIH	Information Management National Library



Participants of the Workshop

Archive.org

American Association for the Advancement of Science

Corporation for National Research Initiatives

Defense Technical Information Center

DOE Energy Library

Department of Justice

Digital Library Federation

Government Printing Office

Internet2

Library of Congress

National Agricultural Library

National Research Council

National Science Foundation

Nature Magazine

Special Libraries Association

University of Maryland

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Strength Through Science

Major Themes

- Scope of the Initiative
- Information Types
- Information Products and Services
- Archiving, Preservation and Access to Information
- Research, Education, and The Public Interest
- Quality
- Participation of Sectors of the Economy
- Leadership

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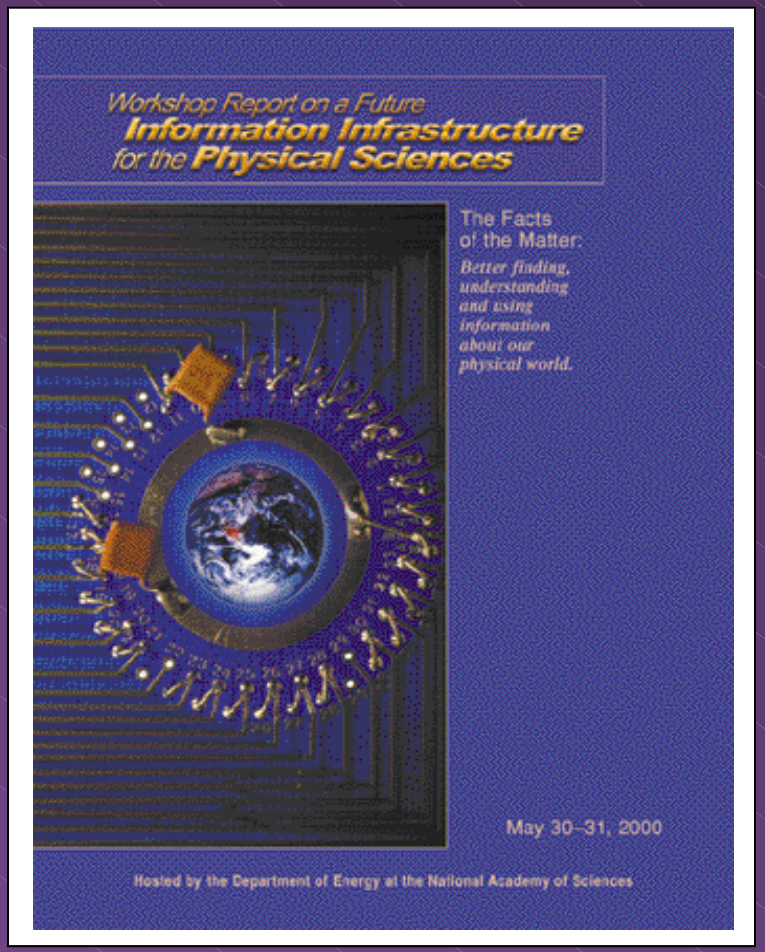
http://www.osti.gov/physicalsciences/



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Future Information Infrastructure for the Physical Sciences

Strength Through Science

A Common Knowledge Base that seeks in an integrated approach to provide comprehensive access and facilitate the reuse of worldwide sources of physical sciences information, regardless of where they reside, what platform(s) they reside on, or what format or data structure they employ.

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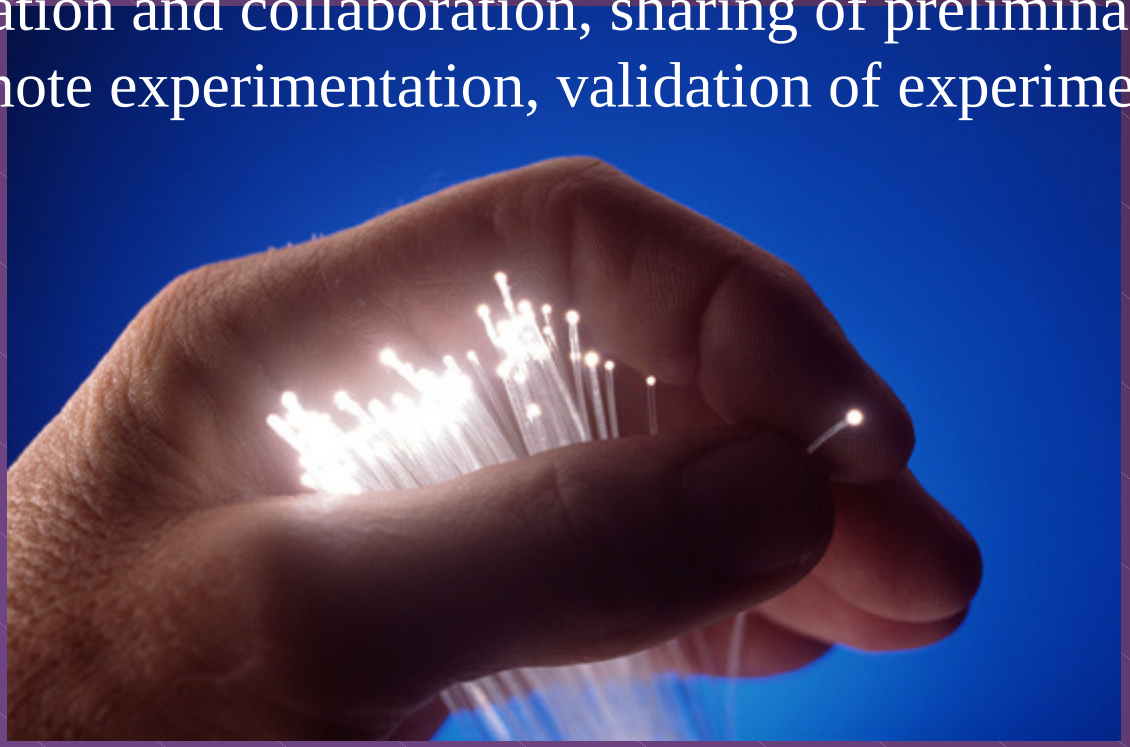
Future Information Infrastructure for the Physical Sciences

Strength Through Science

A Point of Convergence for ensuring the awareness, availability, use, and development of information technologies and tools to facilitate information assimilation, data analyses, peer communication and collaboration, sharing of preliminary research results, remote experimentation, validation of experimental results, etc...



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Future Information Infrastructure for the Physical Sciences

Strength Through Science

A Freely Available Source of information to serve all users, from students to scientists to concerned citizens, in a highly efficient electronic environment, with tools to assist users in their quest for information and ultimately knowledge.

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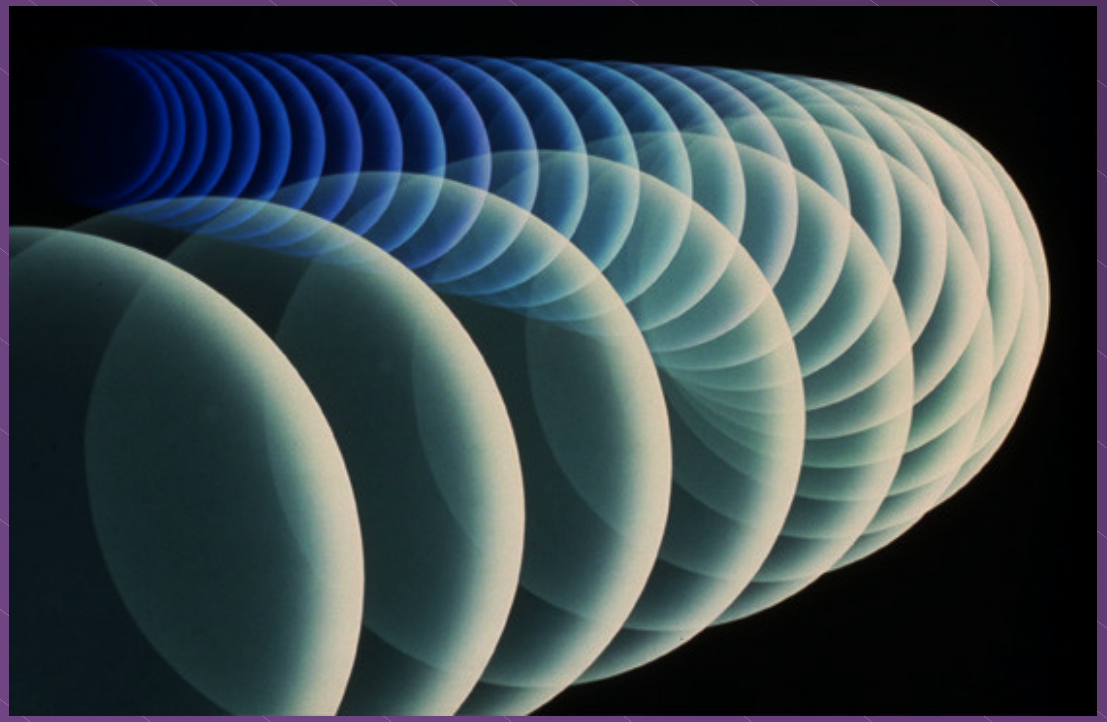
Strength Through Science

Three Time Horizons



- Doing Better at What We're Doing Now
- Mobilizing for What is Possible Tomorrow
- Realizing the Future Potential

- http://www.osti.gov/physicalsciences

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Future Information Infrastructure for the Physical Sciences

Strength Through Science

Why this is important to the nation?

- Our future scientists and engineers are being trained today.
- Significant increase in scientist and engineer employment
- We may not have the talent to fill those positions.
- U.S. science and math achievement falls substantially below the world average.
- A source of physical science information and resources is needed to prepare for an educated research community.

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Future Information Infrastructure for the Physical Sciences

Strength Through Science

Why this is important to the nation?

- Taxpayers have an investment in science and technology
- Public's awareness and expectations have been raised
- Research base is often overwhelmed with a mass of information
- Difficult to stay abreast of work done in other arenas
- Opportunities may be missed or resources wasted
- Simplified and improved interdisciplinary opportunities
- Expedited transfer of information from bench to application

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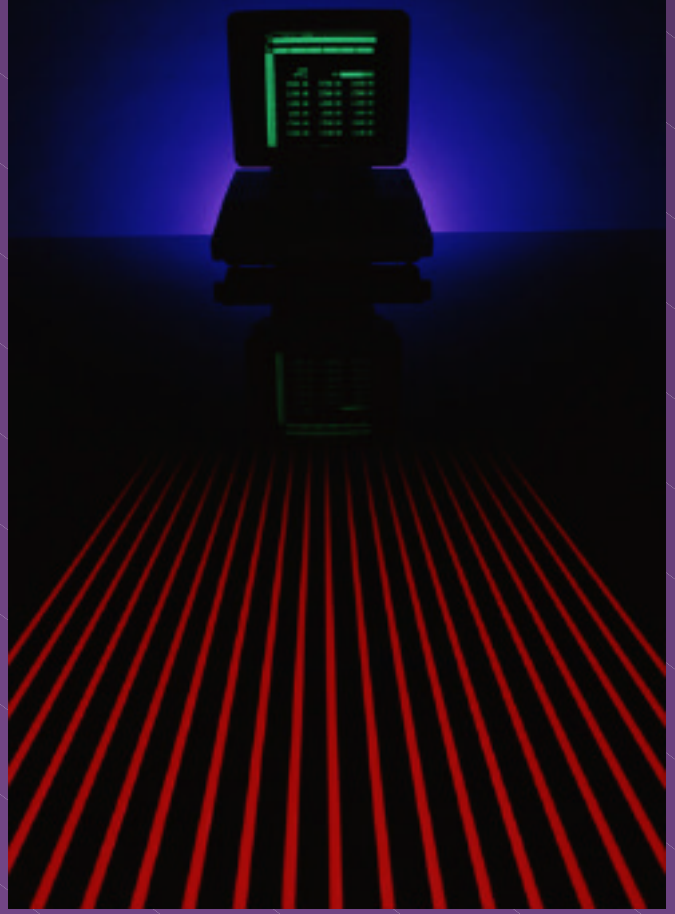
Future Information Infrastructure for the Physical Sciences

Strength Through Science

Why this is important to the nation?



Global Competitiveness

- The U.S. is not keeping pace with world competitors
- The number of patents issued to U.S. citizens has risen 220% versus 790% for patents issued to foreign citizens
- There is a pronounced need to keep pace with the global communication processes that are evolving through the use of the Internet

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Future Information Infrastructure for the Physical Sciences

Strength Through Science

http://www.osti.gov/