Executive Summary: 1998 NSF Information and Data Management: Research Agenda for the 21st Century, March 29-31, 1998

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The Information Management, Information Retrieval(IR), Data Management, and Database (DB) communities have made fundamental contributions to basic Computer Science research and have been remarkably successful in technology development. Under the aegis of the Information and Data Management Program (IDM) of the National Science Foundation[1], over 150 researchers, federal officials, and invited industrial and academic guests participated in a three-day workshop that enabled the articulation of near- and long-term goals for the concerned research communities. Highlights of the workshop covered:

- **National priorities and directions, and evaluation and measurement of success for research and technology.** Briefings by government attendees, including Thomas Kalil (White House National Economic Council), Juris Hartmanis (Assistant Director for the NSF Computer and Information Sciences and Engineering Directorate), Michael Lesk (Director of the NSF Information and Intelligent Systems Division) and Les Gasser (Director of the NSF Computation and Social Systems Program).
- **Collaborations between academic and industry across the information retrieval and database research communities.** Presentations by industry invitees, including Avi Silberschatz (Lucent/Bell-Labs) and David Lewis (AT&T Research)together with the industrial/academic panel on *Achievements and Vision*.
- **Community-generated directions for the 21st century.** Discussions by six sub-groups on topics such as efficient information access permitting users to find what they want when they want it; improved presentation and visualization to permit experts and non-experts alike to interact with complex data, including text, numerical, image and video summarization systems; coping with heterogenous distributed data in heterogeneous databases including metadata management; technologies to support integration of structured and unstructured data, including multilingual information management; and methods for evaluation, including the development of new resources, tools, and methodologies.

Major challenges facing the Information and Data Management communities include:

1. **"Omnipresent, omniscient data access"** to enable an unprecedented number of new and important applications such as e-commerce, distance learning and health care, empowering tools for physically challenged people, and for new scientific research methods.
2. **The support and development of research facilities** which include both general purpose computing and network equipment and systems and special purpose repositories providing access to data and document sets, test collections and procedure depositories, transaction and query traces, IR/DB tools, etc.
3. **The encouragement of academic-industry collaborations** to facilitate effective technology transfer and to leverage NSF investment in the research community, such as by the establishment of national IR/DB research centers with industry and government cost share.
4. **The establishment of interdisciplinary research projects** to permit maximum interaction between the IR and DB and other related disciplines including other sciences, engineering medicine and the humanities who are involved in building new data intensive applications.

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