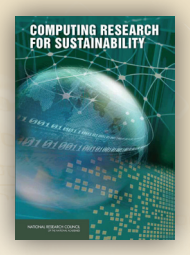
COMPUTER SCIENCE AND TELECOMMUNICATIONS BOARD (CSTB)

The CSTB's purpose is to provide a base of expertise in the fields of computer science, information technology, and telecommunications; monitor and promote the health of the these fields; initiate studies involving these fields as critical resources and sources of national economic strength; respond to requests for advice from government agencies, nonprofit organizations, and private industry; and foster interaction among computer science, telecommunications, and other fields of science and technology.

Selected Recent Reports

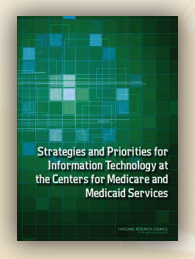
Continuing Innovation in Information Technology (2012)

Information technology (IT) is widely understood to be the enabling technology of the 21st century. IT has transformed, and continues to transform, all aspects of our lives: commerce and finance, education, employment, energy, health care, manufacturing, government, national security, transportation, communications, entertainment, science, and engineering. IT and its impact on the U.S. economy continue to grow in size and importance. This report examines important research areas and some of the significant, billion-dollar-plus, IT industries that have resulted from those investments. It features an updated visualization of the impact of research on IT innovation, including the links to U.S. IT firms and products, and explains the critical role of federal support and the interplay between academic and industrial research.



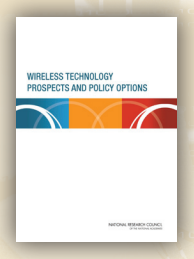
Computing Research for Sustainability (2012)

There is a clear and critical role for the application of IT and for computing research in advancing the nation's and world's sustainability goals. IT provides an essential bridge between technical and social solutions because it fosters economic, political, and cultural adjustments by enhancing communication and transparency. Moreover, IT is at the heart of nearly every large-scale socioeconomic system, including the financial, manufacturing, and energy systems. Innovation in IT must thus play a vital role if the nation and the world are to achieve a more sustainable future. The report highlights some of opportunities for IT innovation and computer science research, and it urges the computing research community to bring to bear the approaches and methodologies that will have a significant, measurable impact on sustainability.



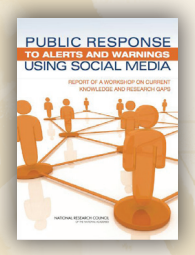
Strategies and Priorities for Information Technology at the Centers for Medicare and Medicaid Services (2011)

The Centers for Medicare and Medicaid Services (CMS) is the agency in the U.S. Department of Health and Human Services responsible for providing health coverage for almost 100 million beneficiaries, including seniors, people with disabilities, and low-income children and adults. Recent legislation places CMS at the center of efforts to increase the efficiency of U.S. health care services, move toward value-based purchasing, improve health care quality, reduce health disparities, increase adoption of health information technology, and collect and analyze data to promote health and wellness. CMS's ongoing operational requirements are currently being met with a very large and complex set of hardware, software, and communications systems that vary considerably in age, capability, and sophistication. In light of these challenges, CMS asked the NRC to review the plans of the Centers for modernizing and developing its information systems.

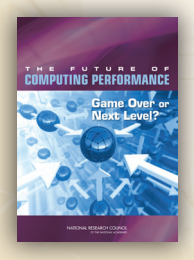


Wireless Technology Prospects and Policy Options (2011)

The use of radio-frequency communication—commonly referred to as wireless communication—is becoming more pervasive as well as more economically and socially important. Technological progress over many decades has enabled the deployment of several successive generations of cellular telephone technology, which is now used by many billions of people worldwide; the near-universal addition of wireless local area networking to personal computers; and a proliferation of actual and proposed uses of wireless communications. As outlined in this report, current and ongoing technological advances suggest the need for a careful reassessment of the assumptions that inform spectrum policy in the United States today.



Public Response to Alerts and Warnings on Mobile Devices: Summary of a Workshop on Current Knowledge and Research Gaps (2011)
Cellular phones and other mobile devices have been recognized by the U.S. government as an important tools for alerting the public and providing information in the case of a disaster. This book presents a summary of a workshop that gathered inputs and insights from social science researchers, technologists, emergency management professionals, and other experts knowledgeable about public responses to alerts and warnings. It also explored the implications of this knowledge for an emergency communication system being developed by the Department of Homeland Security.



The Future of Computing Performance: Game Over or Next Level? (2011)
Recent decades have seen dramatic exponential growth in single-processor computing performance. The end of this trend marks a a shift toward parallel processing, and creates opportunities for innovation in programming systems and computing architectures. This book recommends describes the factors that have led to the future limitations on growth for single processors that are based on complementary metal oxide semiconductor technology. It explores challenges inherent in parallel computing and architecture, including ever-increasing power consumption and the escalated requirements for heat dissipation, and delineates a research, practice, and education agenda to help overcome these challenges.

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