New report: Social, behavioral, and economic sciences contribute to advancing NSF mission

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The social, behavioral, and economic (SBE) sciences make significant contributions to the National Science Foundation's mission to advance health, prosperity and welfare, national defense, and progress in science, says a new report from the National Academies of Sciences, Engineering, and Medicine. NSF should undertake a systematic and transparent strategic planning process that defines SBE research priorities, the required resources, and how success in addressing SBE priorities will be evaluated over time.

Although it is commendable that NSF consults with advisory groups and the broader scientific community to identify needs and opportunities in the SBE sciences, such as those outlined in its "Rebuilding the Mosaic" document, in the absence of a strategic plan, it is unclear how this input is combined and integrated in the agency's SBE research priorities.

"Nearly every major challenge the United States faces—from alleviating unemployment to protecting itself from terrorism—requires understanding the causes and consequences of people's behavior," said Alan Leshner, chief executive officer emeritus, American Association for the Advancement of Science, and chair of the committee that conducted the study and wrote the report. "The diverse disciplines of the social, behavioral, and economic sciences produce fundamental knowledge and tools that provide a greater understanding of why people and societies respond the way they do, what they find important, and what they believe and value—which is critical for the country's well-being."

In addition, the understanding, tools, and methods provided by the SBE sciences—including research supported by the NSF—provide an essential foundation that helps other agencies achieve their missions, the report says. For example, NSF-supported research has provided valuable information about the patterns of behavior of hackers and the vulnerabilities of the nation's cyber networks. These analyses served as the foundation for the development of tools and applications that contribute to military capability in current conflicts and the prevention of future conflicts, as well as to efforts to combat terrorism, which are central to the missions of the U.S. Department of Defense, intelligence agencies, and the U.S. Department of Homeland Security.

The SBE sciences have also provided advances applicable to business and industry and enhanced the U.S. economy, the report says. For example, social science methods such as polling and forecasting are routinely used to inform consequential business decisions related to marketing, customer relations, and product development. In addition, the original version of the Google search engine resulted from a formula developed with NSF funding in the late 1990s. Researchers recognized that the decision to link pages to each other required conscious effort and the need to reflect human judgment about the significance of the link's destination, which led researchers to treat the collection of links as a network.

The NSF should continue to support the development of tools, methods, and research teams that can be used to advance the SBE sciences, facilitate interactions with other scientific fields, and help NSF and other agencies and organizations more effectively address important national needs. The report also includes recommendations for NSF to support training to prepare the next generation of scientists to be more data-intensive, interdisciplinary, and team-oriented, as well as to undertake more systematic efforts to communicate the results and value of the SBE research it supports and how NSF grants advance its mission.

The committee emphasized that it could not conduct an exhaustive review and analysis of all SBE research funded at the NSF in the time allotted, and as a result, the report does not claim that all SBE research serves the NSF mission or national needs.

Provided by National Academies of Sciences, Engineering, and Medicine