



**Human Factors  
and Ergonomics  
Society**

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**Official Written Testimony in Support of  
Fiscal Year 2017 Science and Research Funding**

Submitted to the Senate Subcommittee on Commerce, Justice, and Science, and Related  
Agencies; Committee on Appropriations  
United States Senate  
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On behalf of the Human Factors and Ergonomics Society (HFES), we are pleased to provide this written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, and Science, and Related Agencies for the official record. **HFES urges the Subcommittee to provide \$8 billion for the National Science Foundation (NSF), in the fiscal year (FY) 2017 appropriations process.**

HFES and its members recognize and appreciate the challenging fiscal environment in which we as a nation currently find ourselves; however, we believe strongly that investment in scientific research serves as an important driver for innovation and the economy and for maintaining American global competitiveness. We thank the Subcommittee for its longtime recognition of the value of scientific and engineering research and its contribution to innovation in the U.S.

**The Value of Human Factors and Ergonomics Science**

HFES is a multidisciplinary professional association with over 4,500 individual members worldwide, including psychologists and other scientists, engineers, and designers, all with a common interest in designing safe and effective systems and equipment that maximize and adapt to human capabilities.

For over 50 years, the U.S. federal government has funded scientists and engineers to explore and better understand the relationship between humans, technology, and the environment. Originally stemming from urgent needs to improve the performance of humans using complex systems such as aircraft during World War II, the field of human factors and ergonomics (HF/E) works to develop safe, effective, and practical human use of technology. HF/E does this by developing scientific approaches for understanding this complex interface, also known as “human-systems integration.” Today, HF/E is applied to fields as diverse as transportation, architecture, environmental design, consumer products, electronics and computers, energy systems, medical devices, manufacturing, office automation, organizational design and

management, aging, farming, health, sports and recreation, oil field operations, mining, forensics, and education.

With increasing reliance by federal agencies and the private sector on technology-aided decision-making, HF/E is vital to effectively achieving our national objectives. While a large proportion of HF/E research exists at the intersection of science and practice—that is, HF/E is often viewed more at the “applied” end of the science continuum—the field also contributes to advancing “fundamental” scientific understanding of the interface between human decision-making, engineering, design, technology, and the world around us through research funded by NSF. The reach of HF/E is profound, touching nearly all aspects of human life from the health care sector, to the ways we travel, to the hand-held devices we use every day.

### **Human Factors and Ergonomics at the National Science Foundation**

HFES and its members believe strongly that federal investment in NSF will have a direct and positive impact on the U.S. economy, national security, and the health and well-being of Americans. It is for these reasons that HFES supports robust funding for the Foundation to encourage further advancements in the fields of technology, education, defense, and healthcare, among others. In the past, NSF funding for HF/E basic research has strengthened interdisciplinary partnerships allowing for a multilateral approach to technology research and development, including the human and user perspectives. The benefits of this research are not confined to one field but rather span across a range of disciplines to increase understanding of the way humans interact with technology, as well as with each other.

In particular, NSF funds HF/E research to:

- Better understand and improve the effectiveness of how individuals, groups, organizations, and society make decisions.<sup>1</sup>
- Improve understanding of the relationship between science and engineering, technology, and society, in order to advance the adoption and use of technology.<sup>2</sup>
- Gain a better understanding of how humans and computers interact to ensure the development of new devices or environments that empower the user.<sup>3</sup>
- Inform decision making in engineering design, control, and optimization to improve individual engineering components and entire systems.<sup>4</sup>

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<sup>1</sup> Decision, Risk & Management Sciences (DRMS) Program  
([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5423](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5423))

<sup>2</sup> Science, Technology, and Society (STS) Program  
([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5324&org=SES&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5324&org=SES&from=home))

<sup>3</sup> Human Centered Computing (HCC) Program  
([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503302&org=IIS&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503302&org=IIS&from=home))

<sup>4</sup> Systems Engineering and Design Cluster  
([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13473&org=CMMI&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13473&org=CMMI&from=home))

## **Conclusion**

**Given NSF's critical role in supporting fundamental research and education across science and engineering disciplines, HFES supports an overall FY 2017 NSF budget of \$8 billion. This investment funds important research studies, enabling an evidence-base, methodology, and measurements for improving organizational function, performance, and design across sectors and disciplines.**

On behalf of HFES, we would like to thank you for the opportunity to provide this testimony. Please do not hesitate to contact us should you have any questions about HFES or HF/E research. HFES truly appreciates the Subcommittee's long history of support for scientific research and innovation.