

## Concept Clearance - Reissue and Expansion of NIH-NSF Smart and Connected Health Initiative

The need for a significant transformation in medical, public health and healthcare delivery approaches has been recognized by numerous organizations and captured in several reports. For example, the Networking and Information Technology Research and Development program recently released the [Federal Health Information Technology Research and Development Strategic Framework](#) that pointed to an overwhelming need for the integration between the computing, informatics and engineering disciplines and the biomedical research community. These types of transformations hinge on technological innovations by multidisciplinary teams that utilize advanced data science methods to intuitively and intelligently connect data from individuals, devices and systems to enable discovery and optimize health. The technical challenges include a range of issues from collection, harmonization, fusion, analysis and visualization of diverse data from biomedical and nontraditional research platforms and databases, multi-modal imaging, electronic health records, and medical and consumer devices.

The purpose of this reissue is to continue the Smart and Connected Health (SCH) interagency solicitation between NSF and the NIH, which began in 2013. The program supports innovative, high-risk research of generalizable, disease-agnostic approaches with the promise of disruptive transformations in biomedical research. This is achieved through well-coordinated, multi-disciplinary approaches that draw from multiple domains of computer and information science, engineering, and the biomedical, social, behavioral and economic sciences.

Based on programmatic input across NSF and NIH, including the NIH Data Science working group, the reissue of this solicitation aims to expand in focus to address technological and data science challenges across six scientific themes: Information Infrastructure, Transformative Data Science, Novel Multimodal Sensor System Hardware, Effective Usability, Automating Health, and Medical Image Interpretation. The broadly applicable results of this program align with the goals as set forth in the NIH [Strategic Plan for Data Science](#) and [the Report from the Advisory Council to the Directors Working Group on Artificial Intelligence](#).

**Ten** NIH Institutes, Centers, and Offices (OBSSR, NCCIH, NCI, NHGRI, NIA, NIAAA, NIBIB, NIMH, NINDS, NLM) currently participate in SCH ([NSF-18-541](#), [NOT-OD-18-849](#)) (OBSSR, NCCIH, NCI, NHGRI, NIA, NIAAA, NIBIB, NIMH, NINDS, NLM). An additional **11** (NHLBI, NIAID, NICHD, NIDA, NIDCR, NIDDK, NIEHS, NIGMS, NIMHD, NINR, ODSS) have expressed interest in signing on to the reissued solicitation.

Key aspects of the solicitation:

- Supports research activities that complement rather than duplicate the core programs of the NSF directorates and the NIH, and the research efforts supported by other agencies
- Integrative projects that make fundamental contributions to 2+ disciplines
- Proposal includes several students and post-docs
- Budget limited to \$300k/yr in total costs for up to 4 years

Since 2018, there have been 627 applications received in response to the SCH solicitation. NIH funded 32 applications and NSF funded 35 (11% success rate). The 32 applications funded by NIH included 98 PIs, of which 64 were new investigators and/or ESIs at the time of award.

Based on the success of SCH, OBSSR and ODSS request concept clearance from the Councils of Councils to reissue this initiative entitled, "Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science."