To achieve its vision of Engineering the Future of Health℠ NIBIB will:

1. Continue to develop innovative, enabling technologies that integrate engineering with the physical and life sciences to advance state-of-the-art tools, solve complex biomedical problems, and drive the bioeconomy. (Please provide input on the impact, challenges, and/or opportunities on objective 1.) – **250 words allowed.**

- The National Institute of Biomedical Imaging and Bioengineering (NIBIB) continues to be a leader in developing innovative technologies, including those related to radiology and biomedical imaging. The American College of Radiology (ACR) serves as a valuable partner with the NIBIB on a variety of projects. One example, the ACR National Clinical Imaging Research Registry (ANCIRR), collects images and clinical data from multiple practice settings, enabling researchers to address complex scientific questions and produce results applicable across various care settings, geographic locations, and populations. One ANCIRR project, the COVID Imaging Research Registry (CIRR), contributes COVID data to the Medical Imaging and Data Resource Center (MIDRC) with NIBIB funding and support. NIBIB is encouraged to continue to pursue such partnerships, as the necessity for shared research registries expands and technological capabilities are strengthened. MIDRC's primary purpose is to foster machine learning innovation through sharing data created through the rigorous processes employed during collection. NIBIB should continue to respond to the field of artificial intelligence with appropriate physician oversight, including its role in healthcare and radiology, as well as in precision health and medicine. Efforts should be expanded to include electronic health care systems, integrating AI algorithms, and imaging tools. The ACR Data Science Institute created the ACR AI-LAB, a toolkit for radiologists to develop algorithms for individual clinical needs and test on multiple data sets to avoid bias. NIBIB should consider the use of a tool to promote the benefits of AI in clinical work, such as the AI-LAB, as an example.

2. Drive interdisciplinary collaboration and advance partnerships with a range of NIBIB communities, including NIH institutes and centers, government agencies, foundations, professional societies, industry, and academia, among others. (Please provide input on the impact, challenges, and/or opportunities on objective 2.) – **250 words allowed.**

- Cross collaboration with additional institutes and centers, government agencies and external entities is vital in maximizing efforts and minimizing redundancy to ensure projects are as impactful and effective as possible. As described above, MIDRC is an example of an NIBIB funded project that involves multi-institutional collaboration with ACR and other partners and leverages the efforts of imaging facilities despite their competing priorities and limited funding. The partnership of various organizations allows MIDRC to leverage the existing and developing infrastructure of such organizations, to access data for transfer of knowledge and innovation throughout and beyond the COVID-19 pandemic. In addition to the creation of the datasets, this coalition is generating standards, such as skull stripping procedures, which will benefit similar initiatives. NIBIB is encouraged to continue to seek and develop multi-institutional collaborations, as sharing data and resources furthers the development of biomedical research. Imaging specifically is a necessary tool for a variety of medical fields and research, and its capabilities should continue to be highly considered in promoting future collaborations and research efforts. Additionally, NIBIB is encouraged to take a greater leadership role in fostering collaboration and educational efforts by sponsorship of various platforms/vehicles for engagement (meetings, publications, etc.).

3. Train the next generation of diverse and interdisciplinary scientists, bioengineers, and health care providers and promote the value of research and commercialization that synergizes these communities. (Please provide input on the impact, challenges, and/or opportunities on objective 3.) – **250 words allowed.**

- Providing resources for the next generation of researchers, specifically surrounding biomedical research and radiology, is essential to continue to strengthen and develop the field. Support from an established and influential entity such as NIBIB makes an impact when early-stage career level researchers decide the next step in their professional endeavors. NIBIB is encouraged to foster environments and opportunities for the interdisciplinary role that radiology plays in healthcare and in integrating data across fields, including imaging, pathology, and genetics. The NIBIB established New Investigator Pay Plan is an example of the institute prioritizing access and availability of grant opportunities for researchers new to NIH funding. Retention of early-career radiologists and academic researchers is of utmost importance to ACR and NIBIB is encouraged to continue to aid these individuals. Recognizing the lack of diversity in the radiology profession, ACR established the Commission for Women and Diversity, aiming to improve diversity, equity, and inclusion within radiology. The Commission has highlighted that healthcare disparities and inequitable access to advanced imaging and interventional care among America's diverse population requires a professional radiological workforce that reflects the diverse patient population it serves. A Commission effort, the Pipeline Initiative for the Enrichment of Radiology (PIER) program, exposes women medical students and those from underrepresented backgrounds to radiology and equips them to be competitive applicants to radiology residency programs. NIBIB is encouraged to foster similar programs that may assist in prioritizing the support of researchers of diverse and underrepresented backgrounds.