American College of Radiology Data Science Institute Strategic Plan — September 2017

Core Purpose:

ACR Data Science Institute empowers the advancement, validation, and implementation of artificial intelligence in medical imaging and the radiological sciences for the benefit of our patients, society, and the profession.

Core Values:

Leadership/Innovation/Empowerment/Safety

Envisioned Future:

- Artificial intelligence has exponentially increased the amount of information available to physicians for improving patient care and population health and has become an integral adjunct to radiology and all of medicine.
- Artificial intelligence has been implemented in a way that has augmented (not just automated) radiology professionals' role as an integral part of the healthcare team and radiology professionals have become medicine's most valued data scientists.
- The use of artificial intelligence has extended radiology professionals' value from being the experts in imaging interpretation and image guided therapies to experts in gathering and integrating comprehensive diagnostic information into clinical care.
- ACR DSI has become the global leader for defining quality, safety, and interoperability for delivering artificial intelligence into clinical practice, and the standards for doing so have been universally adopted.
- Using interoperable standards and centralized and distributed validation models, ACR DSI has become a trusted partner with the FDA and other governmental agencies for the validation of artificial intelligence products and a trusted partner with industry for pre and post FDA approval for validation and clinical integration.
- ACR DSI developed pathways for the implementation of artificial intelligence algorithms into clinical workflow are widely used and enhance radiology professionals' value to the healthcare team.
- Healthcare economic models recognize the value of industry and radiology professionals in delivering artificial intelligence to medical practice.

Goals and Objectives:

Patient Safety
Artificial intelligence in medical imaging and the radiological sciences is developed and implemented in a manner that ensures patient safety and confidence, and ACR DSI is a trusted partner for government regulators, industry, and patients.

Objectives:

- Develop partnerships with industry and governmental agencies to develop artificial intelligence regulatory standards that optimize patient safety, ensure interoperability, and inform an efficient regulatory approval process.
- Develop centralized and distributed solutions for validation of artificial intelligence tools for all stages of the regulatory approval process.
- Become an honest broker and trusted partner with governmental agencies and industry for testing and validating artificial intelligence products to enhance efficiency in the regulatory process.
- Study and opine on the legal and ethical issues for artificial intelligence in medicine, such as data ownership and automated medical care.

Increase Radiology Professionals' Relevance to Patients and Health Systems
Artificial intelligence expands radiology professionals' diagnostic and clinical capabilities in ways that increase radiology professionals' value to patients and health systems.

Objectives:

- Define strategic use case categories and work with developers to ensure these use cases become industry priorities.
- Develop pathways for integration of patient data from a variety of sources including health records, pathology, genomic testing, and personal devices into radiology reporting.
- Define pathways and develop tools for implementation of artificial intelligence in radiology professionals' clinical workflow in order to augment detection of disease processes, prioritize critical results, provide in-depth image analysis, and integrate information from a variety of sources.
- Develop economic models demonstrating radiology professionals' and industry's changing role in providing healthcare services and work with governmental agencies and private payers to ensure radiology professionals' value for the expanding role of radiology professionals and artificial intelligence tools.

Education
Educate radiology professionals and non-radiology stakeholders — including industry, other medical specialties, governmental agencies, and the public — about the uses of artificial intelligence in the radiological sciences and the ACR's leadership role in data science in order to advance the welfare our patients and the public.

Objectives:

- Facilitate coordination and collaboration among radiology organizations nationally and internationally to ensure standardization and efficient implementation of artificial intelligence tools.
- Use radiology professional meetings, journals, and other venues to deliver a coordinated message to educate radiology professionals about how artificial intelligence tools will change and enhance their practices.
- Educate industry about ACR DSI resources available to developers.
- Educate patients and policymakers about radiology professionals' role in artificial intelligence.