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Overview

The University of Oklahoma (OU), Norman created the Data Science Institute for Societal Challenges (DISC) in the summer of 2020. The vision of DISC is to assist OU in becoming a nationally recognized leader in data science research. The mission is to empower transdisciplinary research and collaboration to drive convergent solutions to societal challenges in Oklahoma, the nation, and the world through data science research, tools, and capabilities.

DISC is focused on problem-driven convergent research to address global issues and advance science, humanities, and state-of-the-art data science through transdisciplinary collaboration, community, and industry partnerships. DISC is leading advances in artificial intelligence and machine learning to ensure understandable, trustable, and domain-grounded data-science solutions that enable effective decision-making by researchers, practitioners, and the public.

DISC plays a key role in OU's strategic plan, more specifically, the research strategic plan. DISC is integrated and provides foundational capabilities to advance the university's four research strategic themes: Aerospace, Defense, and Global Security; Environment, Energy, and Sustainability; the Future of Health; Society and Community Transformation. The four research strategic themes were created to address specific global challenges with convergent research partnerships utilizing OU expertise. This tight alignment and integration with OU's strategic plan ensure focus, relevance, and opportunities for both impact and success.

Data Science at OU and creation of DISC

As with all universities, data science activities are pervasive across all disciplines, with many labs, courses, and centers that have emerged over the past ten years. At OU, there are data science and/or data-science-enabled activities in every college. One goal in creating DISC was to help coordinate and navigate these activities, as the current organizational structure is not clearly defined. Providing a central directory of researchers and activities helps identify collaboration opportunities, relevant expertise, and breadth of interest and expertise across campus. Community building, cross-disciplinary collaboration, and teaming is a key activity of DISC. The initial response across campus has been extremely enthusiastic, with faculty and departments anxious to engage.

DISC was created by the Vice President of Research and Partnerships (VPRP) and functions with on-going financial support provided by the office of the VPRP. The director of DISC is also an Associate Vice President of Research and Partnerships and part of the VPRP's Leadership Team, supporting the central, critical role of data-science and data-enabled research in the university's research mission. DISC's structure includes a director, managing director, research and administrative staff, four quarter-time associate directors, and three research fellows from various OU departments. The annual budget of DISC also enables support for research team-building, seed funding, and matching funding for collaborative activities.

Current Activities

DISC, with the OU Center for Faculty Excellence, has created and is running a series of workshops centered on the data science integrated convergent proposal development process. These workshops are intended to empower faculty, post-docs, and graduate students to form synergies, teams capable of obtaining



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funding for large-scale, convergent problem-driven projects. In FY 2021, DISC hosted 33 workshop events with a total of 626 participants.

To date, DISC has spearheaded several successful funding applications, including a series of grants focused on COVID-19 research. DISC is engaging in international transdisciplinary research efforts with collaborations in Italy, Georgia, and Peru, supported by funding from NATO. DISC is also leading a multi-university NSF/USDA AI Institute planning grant.

In December of 2020, DISC created a research seed funding program that aimed to incentivize transdisciplinary, convergent research teams focused on grand challenges, such as opioid research and the convergence of data science and aerospace, defense, and global security. Providing seed funding allows OU researchers to incubate ideas with the potential for future extramural support. To date, DISC has awarded nine transdisciplinary teams with seed funding exceeding \$115,000

In the spring of 2021, DISC created a membership model for faculty, postdoctoral scholars, staff, and students. This membership model is designed to connect individuals and cultivate an active data science community at OU. DISC membership supports the development of a diverse, equitable, and inclusive data science community, a firm and keystone commitment of DISC.

Challenges, Opportunities, and Insights

DISC has faced several challenges during its first year. The first challenge stems from being a new organization— DISC was the first institute created by the VPRP. Another related challenge is that the director and several staff are new to OU, joining the university during a pandemic and a time of unprecedented remote operation. The experience has highlighted the need for and benefits of an open, inclusive, transparent, communication and management approach. Additionally, the DISC team faced the unanticipated challenge of starting a new center during a pandemic, with limited opportunity for group dynamics and face-to-face interaction.

Fortunately, we are a growing institute, integrated within the university's strategic plan, with active support and engagement from the administration, college deans, department heads, and faculty across OU's three campuses. Realizing data science as a fundamental, enabling core of the research strategic themes is empowering, enabling, and opens many opportunities within the university and beyond.

Even though we are in the early stages of growth at DISC, we have already learned from our experiences. The first lesson is to engage in clear, consistent communication regarding the institute's mission and vision to help cultivate a positive organizational culture. The second insight is to engage in transparent communication through team building exercises to establish trust. Finally, capitalize on the inclusive nature of convergent research in team-building and functional institute activities

In addition, OU has been preparing for a healthy and safe return to on-campus instruction for students, and in-person operations for faculty and staff. The DISC team officially returned to in-person operation in early July, marking the inaugural formal introduction for the team. The return to campus has been a welcome transition and has provided a new institute like DISC the backdrop necessary for continued growth and success. The DISC team looks forward to fall on campus and the excitement of new and engaging opportunities.