As one of the most comprehensive public research universities in the United States, The Ohio State University is taking a leadership role in helping to solve the global challenges of the 21st century. Through its ambitious Discovery Themes initiative, the university is leveraging its breadth and depth to address problems that align with its academic strengths. Here Caroline C. Whitacre, Senior Vice President for Research, talks about the initiative, its accomplishments, and the hiring effort behind it.

Q. Can you tell me more about the Discovery Themes initiative?

The Discovery Themes initiative is designed to accelerate innovation and help solve global problems, like feeding the population and preventing infectious diseases. It’s also meant to be transformational – not simply by generating discoveries, but by creating a culture that inspires a new model of research and teaching that engages all stakeholders and nurtures novel partnerships.

An important and distinguishing part of the initiative is our hiring commitment. The vision is that new hires will augment our general areas of excellence – our “themes” – and complement the existing faculty who make them so strong. In fact, US$350 million has been made available to fill positions in these four thematic areas: energy and environment, health and wellness, and humanities and the arts. So far, more than 80 tenured or tenure-track faculty have been hired. The investment also provides programmatic support for new recruits and existing faculty.

Q. What milestones have you reached?

Developing our data analytics capacity was the first order of business. We’re investing in about 75 data analytics positions across Ohio State’s 15 colleges, and 38 of those positions have been filled. The majority of these faculty work in areas such as machine learning, data visualization, and data mining. In addition, we’re taking steps to develop degree and certificate programs in data science and analytics, and moving ahead on a US$52 million building renovation to house the physical hub for translational data analytics. But our progress goes well beyond data analytics. Faculty involved in Discovery Themes are working with partners across the Midwest to help agriculture adapt to climate change. Others are developing an integrated model of the Lake Erie watershed to examine how payment and tax incentives can influence farmers to better manage their fields. And researchers who just last fall developed the world’s first solar air battery have reached a new milestone: their device – which combines a solar cell and a battery – now achieves a 20 percent energy savings over traditional lithium-iodine batteries.

Some of our milestones involve convening important conversations that lead to the collaborations that lead to discovery. Ohio State hosted a major roundtable discussion that brought together representatives from 12 research universities to address challenges posed by antibiotic resistance. This is an area in which there will be federal funds for new research, and the consortium is well positioned to address many of them. Likewise, we co-sponsored a global brain summit that convened neuroscientists, technology experts and entrepreneurs to discuss injury prevention, detection and recovery.

And we’re collaborating with a number of leading multinational companies, as part of the Corporate EcoForum, to expand the boundaries of corporate sustainability and resiliency. In the area of materials and manufacturing for sustainability, a culture of discovery-to-deployment is emerging.

This is just a sampling. The Discovery Themes initiative is big in scope and intersects with a large number of research areas.

Q. So how is the initiative organized?

The Discovery Themes can be thought of as four overlapping circles, supported on a foundation of translational data analytics. Within each circle, or theme, we’re focusing on specific topics that align best with our strengths. Under the health and wellness theme, for example, we chose to concentrate on chronic brain injury and infectious diseases. Under the energy and environment theme, the focus is on materials and manufacturing for sustainability, and sustainable and resilient economy. And under the food production and food security theme, the priority areas are foods for health (metabolomics) and food and agricultural transformation. Humanities and the arts is the fourth theme to be created and is currently developing its focus areas.

Q. How will you know if the initiative has been successful?

Our research advances and their applications will be the most important and obvious indicators of success. But we’ll also measure success by the number of new centers formed, trajectory of research funding, new strategic university partnerships that are developed, and the number of postdocs, graduate students and undergraduates trained in these grand challenges and related areas. We’ll also look at non-traditional metrics, like the extent of interaction between faculty members, the impact on education, the number of startups created, and investment from industry. We have a robust industry liaison initiative, and because Ohio State ranks fourth in the country in industry-sponsored research, we have the mechanism to ramp up these partnerships and get engaged earlier in the pipeline.

Q. How does the initiative benefit students at the university? How does it benefit the Ohio region?

Undergraduate and graduate students have opportunities to work with Discovery Themes faculty, and the initiative will expand training opportunities for postdoctoral fellows. Additionally, faculty will catalyze relationships with industry that will create internships for students. Importantly, the initiative will help transform the very culture of the university and create an ecosystem that inspires an unfettered give-and-take among faculty, staff, students and outside partners. For Ohio and the Midwest, the Discovery Themes initiative will only accelerate what the university has done since its founding as a land-grant institution in 1870: turn knowledge into solutions that serve the common good. Besides the obvious advances in medicine, science, the arts and the humanities, this also translates into a well-educated citizenry that propels the region’s economy and informs its policy.
YOUR PASSION FOR DISCOVERY

OUR COMMITMENT TO DIVERSITY

AT OHIO STATE, A DIVERSE COMMUNITY OF PEOPLE AND IDEAS INSPIRES DISCOVERY

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Our commitment to an environment that inspires innovative alliances across a breadth of disciplines and expertise, plus the ingenuity of our students and the global reach of our partners, support Ohio State faculty as they ask the questions that haven’t been asked and address the problems that need to be solved.

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