WEST LAFAYETTE, Ind. – “Discovery Park … is a place where scientists and students dare to take on society’s grand challenges,” said Alan Rebar, director of Purdue’s multi-disciplinary facility. A walk through of the 40-acre complex – all of which either recently finished construction or will be up and running within months – yields a range of work that’s difficult for the beholder to comprehend.

Since its inception a few short years ago, Discovery Park has generated $300 million in support through foundations, individual donors and sponsored research. The Discovery Learning Center, which is dedicated to accelerating education from K-12 to workforce development to graduate programs, broke ground on Sept. 21.

“The Discovery Learning Center has the potential to transform the way we teach and learn the scientific disciplines,” said Purdue President Martin C. Jischke. “Projects that have started there have synthesized technological advancements from disciplines throughout the campus to build new teaching and learning methods that will be used for generations.’

No less than 10 highly specialized centers make up the park, which touts a simple but profound message: “It will happen here.” That message becomes believable once a visitor sets foot in any of the spacious buildings on the west side of the main Purdue campus where a discernable buzz of activity conveys a sense that great things are under way from world-class faculty.

Normally reserved faculty members break into animated gestures if asked about the work proceeding within the confines. Mark Lundstrom, director of the Network for Computational Nanotechnology at the Discover Park, humbly apologizes that the multi-variant calculus is “oversimplified” for what he’s describing at the subatomic level.

Infinitely small vibrations become a huge issue when trying to benchmark inventions at the subatomic level. For the Birck Nanotechnology Center, though, that’s no issue. When they built the center earlier this decade, they dug the foundation until they reached bedrock. Construction crews sifted out all organic material from the fill dirt leaving only sand and gravel.

A special pit was constructed in which a gigantic, multi-ton slab of concrete was placed and mounted on massive air shocks. Coupled with shielded walls and an air-filtration system that traps particles at the micron level, this produces a nano-testing facility that exceeds federal measurement standards for almost non-measurable levels of vibration.

“When conducting testing, you can’t even be in the room as your heartbeat may produce enough significant vibration to skew the measurements,” said Discovery Park faculty administrator George Adams.
What is truly surprising about the Discovery Park is the complete lack of traditional academic “silos” that often inhibit multi-disciplinary research. The center taps the expertise of 500 faculty representing 12 schools and colleges and 45 academic departments at Purdue along with those from other universities, business and industry, teachers and professional organizations.

During a visit earlier this month, this writer viewed a presentation of collaborative work done by Purdue’s Homeland Security Institute, which is a member of the Purdue veterinary faculty and faculty from the Purdue Visualization & Analytics Center (PURVAC). Through cross-disciplinary applications and help from Purdue’s Cyber Center, the team has prototyped visual data presentations that quickly pinpoint the spread of disease on a national scale.

By gathering data from retail pet stores, veterinary hospitals and farm reports, the Discovery Park team produces reports that can provide valuable warning of animal epidemics. This could include the initial spread of the Asian bird flu or mad cow disease.

Another presentation showcased how systems engineering techniques are being applied to cancer therapies to increase critical knowledge about the effectiveness of given therapies against specific types of cancer. Collaborating on this project are faculty members from the Bindley Bioscience Center, Purdue’s e-Enterprise Center, the Oncological Services Center and engineering faculty.

As the Discovery Center uncovers and documents this new knowledge and research, does it ever have any public benefit? Purdue’s Rebar said: “Absolutely. The Discovery Park is designed to rapidly integrate Purdue with outside partners.”

The faculty available at the Discovery Park touch virtually every commercial discipline, according to Rebar, which enables the rapid transfer of developed or prototyped technology into the commercial realm. The multi-disciplinary centers create “an environment where projects can flourish through shared talk, shared work and shared innovation,” Rebar said.

The park is dedicated to “creating a culture in the university setting that moves away from individual work done in isolation,” he added, which is expected to link the university’s considerable resources “more closely with the Indiana and U.S. economies”.

Known in academic circles around the nation, the Discovery Park expects to soon make better inroads into the commercial sector. Rebar concluded: “The tools are here, the talented faculty and students are here and the intellectual capital is here.” By breaking down academic silos, Rebar expects nothing less than “real and truly robust innovation” from the Hoosier institution.

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