Purdue, Discovery Park

MARKET PIPELINE

Accelerating Research’s Drive for Economic Development

As one of the largest employers in Indiana, Purdue is an engine for economic development, contributing $2.2 billion to the state’s economy annually.

Through Discovery Park and its link to industry partnerships and the Purdue Research Park, Purdue is changing how a 21st century university translates research into viable commercial products — and how that same research can create jobs and spark the economy.

These efforts are helping address the challenges for affordable health care, alternative energy, nanoscale devices, biomarkers, the life sciences and innovative learning for grades K-12.

“We are a university-administered program that is aggressively working with companies and attracting research with real commercial applications,” said Charles Buck, director of operations at the Bindley Bioscience Center.

“It's not that we will be doing it. We are doing it. And now the infrastructure is in place for Purdue to be the frontrunner in competing not only with university researchers but also with private industry in the biotech and engineering arena.”

Since its launch in 2001, Discovery Park has received more than $180 million in funding for sponsored research and generated more than 40 patents. At the same time, 25 startup companies have been launched.

At the other end of the pipeline is the Purdue Research Park. It is home to Indiana’s largest cluster of technology-related companies in the areas of information technology, tissue engineering, biomedical diagnostic devices, targeted drug delivery, and nerve regeneration.

"Discovery Park is connected with the Purdue Research Park though a virtual pipeline," said Pankaj Sharma, assistant director of international programs at Discovery Park. "The news ideas are conceived in Discovery
Park and further incubated in research park. This integrated system approach is unique to Purdue for incubating high-tech businesses."

In 2004, the Purdue Research Park was ranked the nation’s best university research park, in part for its success in nurturing startup companies. It also was the first certified technology park in Indiana.

“We are advancing Purdue’s effort to commercialize the intellectual property generated by research at Discovery Park. And a key component of that is how Discovery Park is now working with the Purdue Research Park and other private companies,” said Julie Goonewardene, who works to identify and commercialize intellectual property at Discovery Park.

Here are examples in the Purdue Research Park:

• M4 Sciences Corp. was launched in early 2006 from research at Discovery Park's Center for Advanced Manufacturing. Founded by James Mann and Brian Gootee, M4 is designed to bridge the gap between nanomanufacturing and macromanufacturing, offering expertise to deliver advanced product designs that require ultra-precise, highly accurate miniaturized components. M4 works with products and materials ranging in size from tens of micrometers to just a few millimeters.

• BioVitesse Inc. has purchased and exclusively licensed intellectual property to develop and market a biochip product to detect and identify live bacteria in less than eight hours. This company is led by chief executive Laila Razouk and Purdue biomedical engineering professors Michael Ladisch and former Purdue professor Rashid Bashir.

• Quadraspec Inc. aims to commercialize protein diagnostics technology with a wide range of applications, including medical diagnostics for humans and animals, protein research, and biodefense. Its technology, largely based on the pioneering research of Purdue professors David Nolte and Fred Regnier, uses a direct optical protein detection technique and encodes the protein identification results on a compact disk.

Quadraspec was the first Hoosier company to win the annual Purdue University Life Sciences Business Plan Competition in April 2005, claiming $80,000 in cash and business services. The company projects that it will employ 80 people by 2007. Other startups also have used the event to turn
ideas and research into businesses — some now at the Purdue Research Park and others elsewhere in the state or across the country.

“Win, lose, or draw, the students are getting a strong exposure to entrepreneurship that will serve them well in any career path,” said Ken Kahn, who was named the Avrum and Joyce Gray Director of the Burton D. Morgan Center for Entrepreneurship in early 2008.

“Entrepreneurship is the aggressive and creative application of standard principles of business — economics, strategy, finance, marketing, human resources, and accounting. It’s not a new concept. Business startups need a business plan, and the Burton Morgan Center is making it clear why it’s necessary if a young business is to succeed.”

Others are watching.

In recent months, Discovery Park has entertained an India delegation, academic leaders from Japan, a health-care contingent from China, nanotechnology researchers from Japan and Australia, a business group from Qatar, and a group of nanomedicine researchers from South Korea.

And because of its modern equipment and facilities — specifically Birck Nanotechnology Center and Bindley Bioscience Center — private companies and organizations are calling to inquire how they too can gain an edge in a competitive global marketplace.

“Industrial and corporate partners are very interested in the research we can do for them in nanotechnology, life sciences, advanced manufacturing, health-care engineering, and other areas,” said George Adams, associate director for programs for the Network for Computational Nanotechnology at the Birck Nanotechnology Center.

A part of the e-Enterprise Center, the Regenstrief Center for Healthcare Engineering has formed partnerships with national hospitals and organizations and has tackled nearly 30 projects since it was launched in 2005 with a gift from the Regenstrief Foundation.

The Regenstrief Center, which became a major center in the park in summer 2008 through additional funding from the Indianapolis-based Regenstrief Foundation, is the only integrated, university-wide research center in the
nation that is focused on improving the efficiency, quality, and accessibility of health care.

And it’s doing that by tapping into Purdue’s expertise in engineering, science, pharmacy, management, and the social sciences.

One Regenstrief project researched why the U.S. Department of Veterans Affairs was experiencing no-show rates of 20 percent to 50 percent by patients who had scheduled clinic appointments four to six months in advance. Regenstrief researchers focused on minimizing the time between appointment requests, reducing how long patients must wait before seeing a physician after arriving at a clinic, and maximizing physicians’ time to avoid overtime.

“This is results-oriented research. And we’re delivering practical, oftentimes cost-saving, solutions to complex problems,” said Steve Witz, director of the Regenstrief Center.

“We know there are opportunities to increase efficiency, thereby reducing costs. We also know that improving quality and safety have a dramatic impact on reducing costs. These strategies allow us to use Purdue’s expertise in engineering principles and the quality of the faculty and researchers across this University’s campus to offer real solutions to real problems.”