

PURDUE

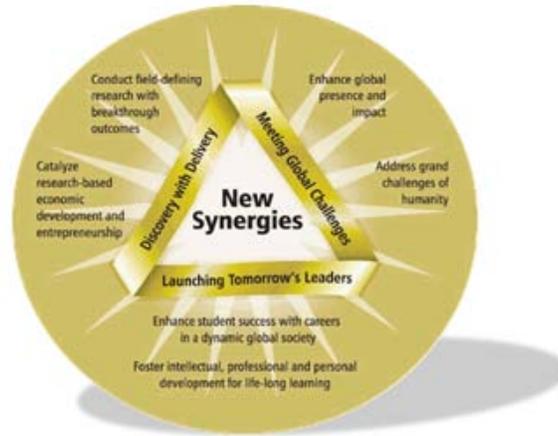
RESEARCH FOUNDATION

GOVERNANCE REPORT

February 3, 2012

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Advancing Purdue's Mission



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Introduction

This governance report begins with the vision that Purdue University has for the future. This future is articulated in the New Synergies Strategic Plan and this governance report specifically focuses on one of the three major goals: Discovery with Delivery. Under this goal, Purdue University has said that it will, “catalyze research-based economic development and entrepreneurship” and, “conduct field-defining research with breakthrough outcomes.”

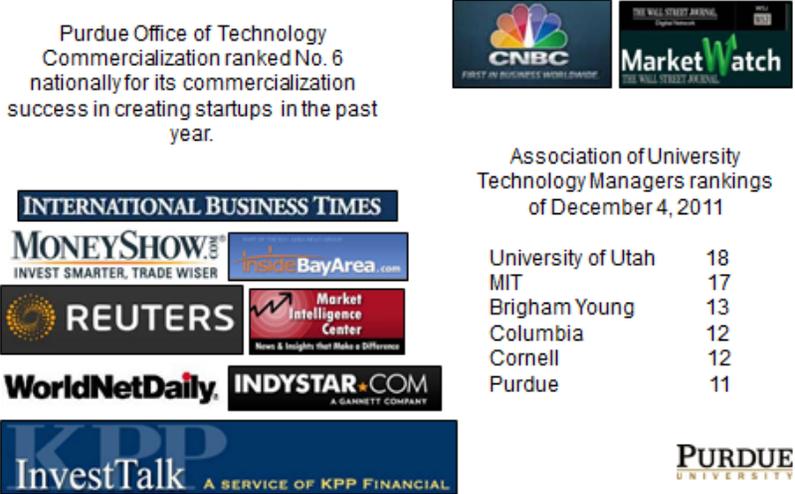
Significant Highlights

Cracking the Top 10 in Startups

Purdue Office of Technology Commercialization ranked No. 6 nationally for its commercialization success in creating startups in the past year.

Association of University Technology Managers rankings of December 4, 2011

University of Utah	18
MIT	17
Brigham Young	13
Columbia	12
Cornell	12
Purdue	11



Recently released statistics from the Association of University Technology Managers (AUTM) showed that Purdue cracked the Top 10 for business startups. In fact, Purdue ranked 6th on a national basis with 11 startup companies based on Purdue technology formed during the reporting period. By comparison, the University of Utah reported 18 new ventures, MIT had 17, Brigham Young posted 13, and Columbia and Cornell tied with 12 each. Purdue's ranking drew significant national media attention as displayed in the slide above.

AUTM Better World Report

Purdue technology highlighted in Better World Report for the first time.



Purdue had another milestone this year. For the first time a Purdue discovery was highlighted in the AUTM Better World Report. This report highlights the most significant discoveries coming out of universities each year with the potential for successful commercialization and global impact.

The discovery by Lonnie Bentley, Tony Smith and Michael Kane of the College of Technology has changed the way broadband communications are conducted by providing dependable communications, particularly in crisis situations.

It can take hours to establish broadband communications with conventional technology, but the Purdue discovery allows first-responders to set up wireless communication in minutes.

The technology was licensed and commercialized by an Indianapolis-based company, Broadband Antenna Tracking Systems. It is already being used around the globe at such places as the Empire State Building, the Turkish Navy, at the 2010 Toronto Global Economic Summit and in a number of sites under the auspices of the United States Department of Defense.

In the slide above is a picture of Dr. Bentley receiving the Faculty Commercialization Award from President France A. Córdova and Provost Tim Sands.

Purdue: Pioneer in Technology Commercialization

"Ralph Davis set the wheels in motion for what was to become the...Bayh-Dole Act."
Sen. Birch Bayh



Sen. Birch Bayh and Ralph Davis

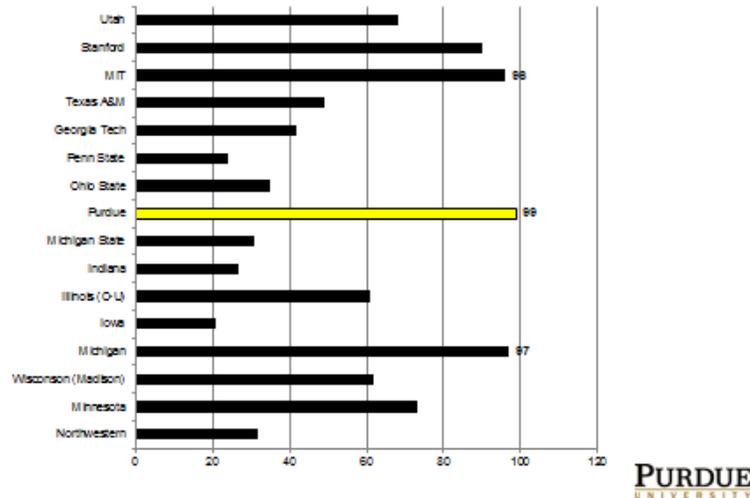
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Many fail to recognize the leadership role that Purdue has played in the commercialization of university technologies. In fact, Purdue was a pioneer in this movement under the direction of Dr. Ralph Davis. Dr. Davis was Purdue's first technology transfer manager, and in 1978, he approached Senator Birch Bayh with the idea that ownership of innovations should be granted to university researchers rather than the government agencies that funded their research. That discussion led to collaboration with Senators Birch Bayh and Bob Dole in drafting what became the Bayh-Dole Act of 1980.

In 2010, Senator Bayh presented Dr. Davis with a Driving Innovation Award at the 30th anniversary celebration of the Bayh-Dole Act.

Dr. Davis passed away this past September at the age of 90. In recognition of his game-changing contributions to the practice of technology transfer, AUTM saluted this valued Purdue family member with a tribute in its annual report (pictured above).

License Agreements Executed



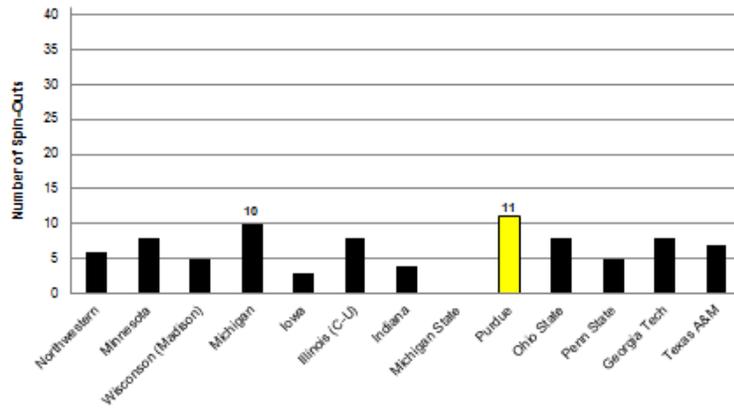
AUTM states that, “Generating and maintaining active licenses and options with private companies is the goal of the technology transfer enterprise.” Against that backdrop, the first chart illustrates the number of transactions completed by the Big 10 and aspirational peer institutions’ respective offices of technology commercialization.

Specific observations of note:

Purdue closed more commercial licenses and options with development partners than any other university in the Big 10 and, among aspirational peers, was second only to the statewide system of the University of Texas.

Purdue for the first time closed more commercial licenses and options than MIT, an office with almost 3 times the licensing personnel as Purdue’s Office of Technology Commercialization (MIT 20 FTE; Purdue 7 FTE).

Startup Company Formation



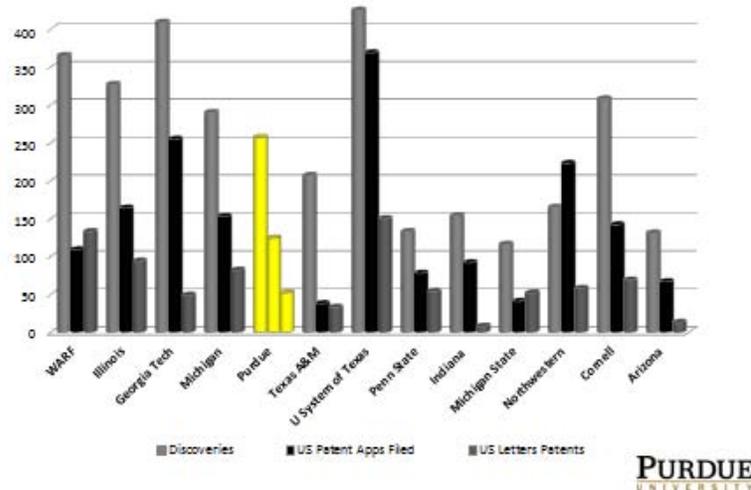
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According to the U.S. Department of Labor's Bureau of Labor Statistics for the year ended March 2010, the number of new business establishments "born" nationwide was the lowest since its research began. Despite this observed national trend, Purdue spun-out 11 new ventures in FY2010, placing it 6th in the nation, tying with Johns Hopkins University, for university spin-outs in the reporting year. Recall, in last year's report, that the Office of Technology Commercialization (OTC) committed to re-engineering its programs to create more effective pulls and value addition for new ventures. The result shown above suggests those efforts have had a positive impact.

As one tangible example, LogView, LLC, one of the FY2010 Purdue start-ups out of Forestry and Natural Resources, recently finalized a commercial partnership with a major saw mill equipment manufacturer for distribution of the Purdue technology. Annual revenues for LogView have already reached seven figures.

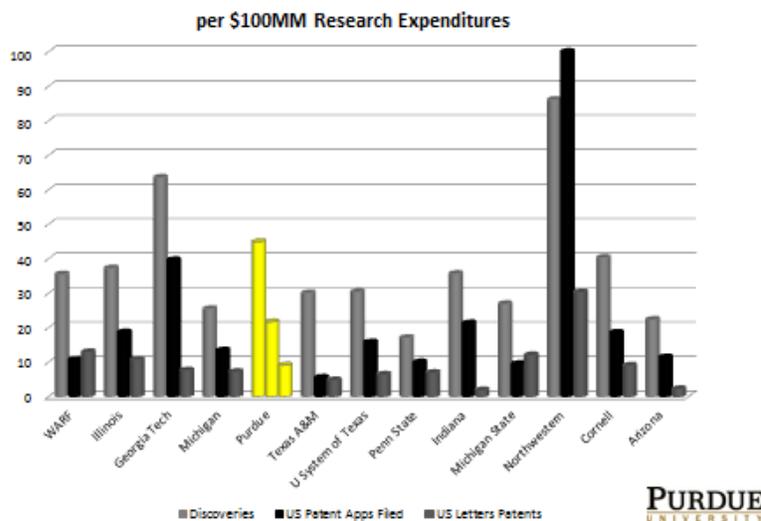
OTC performed a review of the 55 Purdue spin-outs created in the timeframe spanning 2006 through 2011. Supporting claims that university spin-outs support regional economic development, 42 of the Purdue spin-outs (76%) were located in the State of Indiana. As of the end of FY2011, 34 of the Purdue spin-outs remained viable businesses and 12 were making commercial sales.

Disclosures and Patent Activity



The chart shown above depicts disclosure and patent activity for Purdue University for the FY2010 reporting period. Purdue’s performance is compared to universities in the Big 10 and strategic plan aspirational peer group. The data that is displayed is “raw” in that it has not been normalized for any causative factors such as the size of the sponsored research base or the impact of medical school research. Discoveries by Purdue faculty researchers achieved a level of 257 for the year. And while only U.S. Patent Application activity is displayed, it should be noted that Purdue filed 364 worldwide patent applications during the reporting period.

Disclosures and Patent Activity



Activities involved in the protection of university-generated discoveries include reporting new discoveries, filing applications for intellectual property protection, and successfully obtaining a property right for the discovery. Each of these discrete activities is shown above for Big 10 universities and Purdue’s aspirational peers. This data has been normalized by portraying these activities relative to the size of each institution’s level of research expenditures (per \$100 MM).

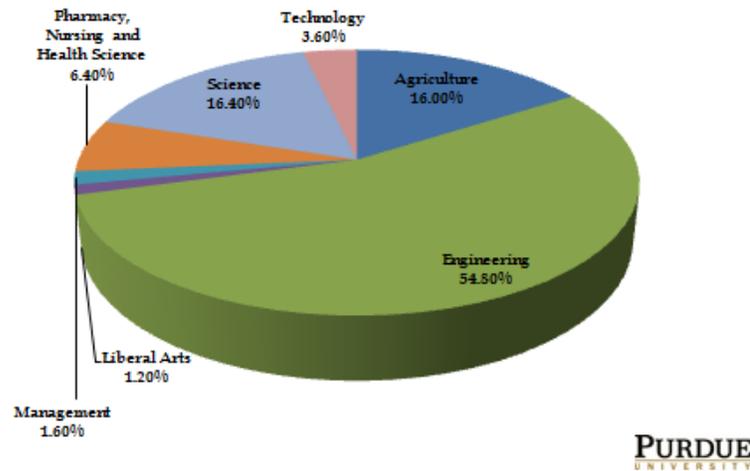
Specific observations:

Purdue is second in the Big 10 to Northwestern in pulling disclosure of new discoveries into the university commercialization process, and third, behind Georgia Tech among aspirational peers.

With respect to new U.S. patent applications filed for protection of new discoveries, Purdue is second to Northwestern in the Big 10 narrowly besting Indiana University which is 3rd. Among aspirational peers, Georgia Tech filed the most new U.S. patent applications with Purdue in second place, but well ahead of our other peers.

U.S. Letters Patents are property assets generated after the previous two reported activities occur. In the Big 10, Purdue rose two spots to 5th, and among aspirational peers performed slightly better than Cornell and Georgia Tech.

Purdue Discoveries by College



To provide information on the current hubs of innovation at Purdue University, the FY2010 new discoveries reported to OTC are shown by College of the inventors.

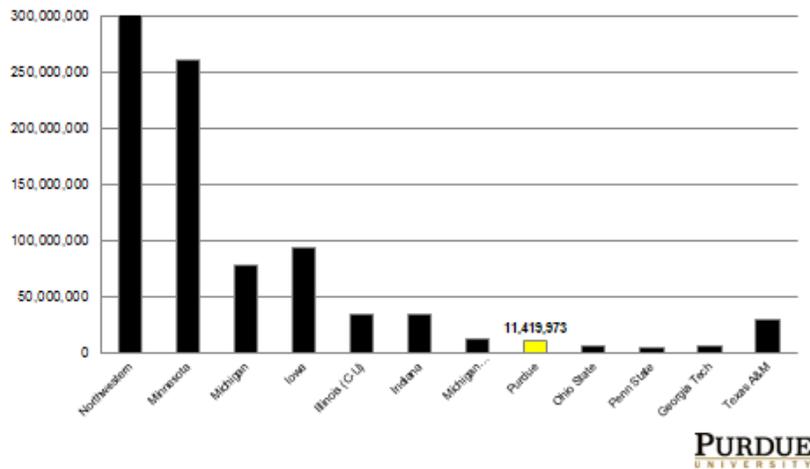
Purdue's College of Engineering produces the most new discoveries, with Electrical and Computer Engineering, Biomedical Engineering and Mechanical Engineering accounting for over 95%, respectively. Chemical Engineering accounts for the balance.

The Colleges of Science and Agriculture generated relatively equal percentage contributions to the FY2010 new discoveries.

Within the College of Science, the Chemistry Department accounts for the majority, with some discoveries generated in both Computer Science and Biology.

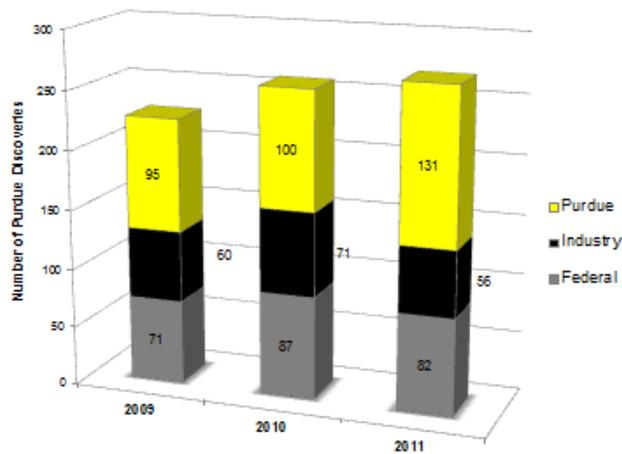
Within the College of Agriculture, Agricultural & Biological Engineering and Horticulture account for the majority of the discoveries.

2008-2010 Cumulative OTC License Income



In the 2010 AUTM Licensing Survey, three-year cumulative amounts of license income were reported. Northwestern University received \$947 million over the three-year period and is the top earner among the Big 10 and aspirational peers. Ninety-nine percent of Northwestern's license income is generated from one invention; only 1.5 million is generated from other inventions in their intellectual property portfolio. The top three earners are Northwestern, Minnesota and Iowa. Of the top three earners, given Wisconsin did not report cumulative data, both Minnesota and Iowa are on patent cliffs this year for their "one hit wonders" which account for over 90% of both universities' license income earnings. Of note, Wisconsin did not report cumulative data.

Sponsors of Purdue Discoveries



Using data obtained at the time a new discovery is reported to OTC, the chart above illustrates the funding associated with new discoveries at Purdue for the years shown. Primary funders are categorized by stakeholder: Industry, Federal, and Purdue University.

In 2009, Purdue supported about 40% of the new discoveries submitted to OTC while the U.S. Government supported about 30% and Industry supported slightly less than 30%.

In 2010, each category of funding slightly increased at various levels to yield a slightly more equitable sharing of new discovery sponsorship (39%, 28% and 34%, respectively).

Interestingly, in 2011, Purdue sponsored nearly a majority of the new discoveries while Industry sponsored about 20%, a decline in comparison to the earlier two years. Federally sponsored discoveries were maintained at a relatively flat percentage compared to the previous two years.

Takeaway

Robust, even peer-leading performance in many areas, but ROI needs to be improved.

Strategies:

- ✓ Alfred Mann Institute
- ✓ Drug Discovery Center
- ✓ Innovative Purdue



From the data presented it should be apparent that Purdue compares favorably to Big 10 and aspirational peer activity metrics. However significant the financial return experienced by a number of institutions as a result of technology transfer has not yet accrued to Purdue University. Therefore, several strategies to address the return on investment (ROI) part of the technology transfer equation have been or will be introduced. They are:

- Alfred Mann Institute – founded nearly five years ago, the Institute is showing remarkable progress in advancing discoveries related to medical devices, primarily through Biomedical Engineering.
- Drug Discovery Center – in the fall of 2011, the Trustees of Purdue University authorized the construction of a new drug discovery center. Data presented in this report displayed the role that pharmaceutical discoveries play in growing the royalty income stream.
- Innovative Purdue – President Córdoba just announced the Innovative Purdue initiative associated with the Decadal Funding Plan. By advancing Purdue discoveries further down the technology commercialization pipeline, it is expected that the University will increase financial returns.

Stories of Success, Stories of Impact

Impacting Our World – Student Entrepreneurs

Student entrepreneurs like Leah Kentamaa-Squires and Kyle Amick are making a global difference.



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Metrics detailing Purdue's technology commercialization output provide a quantitative measure of success when it comes to Discovery with Delivery. However, it is the stories of how these quantitative results impact our world that is the ultimate measure of success. Some of these stories are detailed in the paragraphs which follow.

Purdue student entrepreneurs are impacting our world in a number of ways. Student-inventors are operating street-legal motorcycles powered by plug-in AC current or solar energy, playing an electric guitar with a new type of wah pedal and creating medical chairs for developing countries.

Leah Kenttämää-Squires, an industrial design graduate, and Kyle Amick, a mechanical engineering graduate student, created a medical chair that can be used as a dolly to transport medical equipment and then changed into a dental chair or examination table. It's called the Mantis for its transformative properties. This technology is now being actively marketed worldwide through the Office of Technology Commercialization.

Impacting Our World



This past summer, Advion Bioanalytical Laboratories required world-class lab space to accommodate an outsourced research function associated with Eli Lilly and Company. Advion and the Indiana Economic Development Corporation turned to Purdue to fill that need at the Purdue Technology Center of Indianapolis. The 22,000 square foot facility was delivered to Advion on time and under budget by the Purdue Research Foundation. As a result, more than 50 high-tech jobs were secured for the City of Indianapolis and the State of Indiana.

Impacting Our World



**ENTREPRENEURSHIP
ACADEMY**



Established in 2007

- 228 graduates.
- 53 Indiana counties participated.
- 57 students received tuition vouchers.
- 65% attending Purdue.
- 80% interested in creating a startup.



The Purdue Research Park Entrepreneurship Academy, celebrating its fifth year of operation, has continued to excel and foster entrepreneurship for Indiana high school students. Since being established in 2007, 229 Indiana students from 91 high schools in 53 Indiana counties have participated in the Academy. The top three teams receive tuition vouchers in the amounts ranging from \$100 to \$500 to attend Purdue University. To date, 57 tuition vouchers have been presented to winning team members. Upon completion of the program, about 80 percent of the students are interested in starting a company, which compares to a national average of 30 percent.

The program has become so popular that it now has been “franchised” to universities in Illinois and North Dakota.

The program provides student teams with high-tech business cases to experience what it is like to create a startup. They have to develop a business case, identify capital needs, and create marketing plans and form management teams. It concludes with a "pitch" to a panel of judges. Thus far, 65% of the students receiving tuition vouchers wind up attending Purdue University including the Academy's most famous graduate, Student Trustee Miranda McCormack.

**Discoverywith Delivery
West Coast Partnership Center Symposium and Reception**



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The West Coast Partnership Center hosted the Discovery with Delivery Symposium and Reception during the fall of 2011. There were more than 200 people in attendance including members of the Purdue University faculty and staff, representatives from Purdue Research Park companies, members of the extended Purdue family, and corporate representatives.

Dennis Barkett, a co-founder of FLIR Griffin Analytical, a company based on Purdue research in mass spectrometry, was a speaker at the event. The company recently celebrated its 10th anniversary.

Darryl Dickerson and Eric Nauman, Purdue researchers and co-founders of BioRegenerations Technologies at the Purdue Research Park, also spoke during the program.

John Boyle, the Director of the Center continues to enhance Purdue's engagement with friends of Purdue University and the corporate community in Silicon Valley.

Economic Impact

Thomas P. Miller and Associates

2011 Independent Study Reports:

- \$1.3 billion annual economic impact on Indiana.
- 4,000 Indiana jobs.
- Top 20 private employer in Indiana.
- \$63,000 average annual wage.
- \$48 million contributed to state and local taxes.
- \$49 million in Federal grants for startups since 1987.
- Park companies fund \$2.5 million annually in sponsored research at Purdue University.

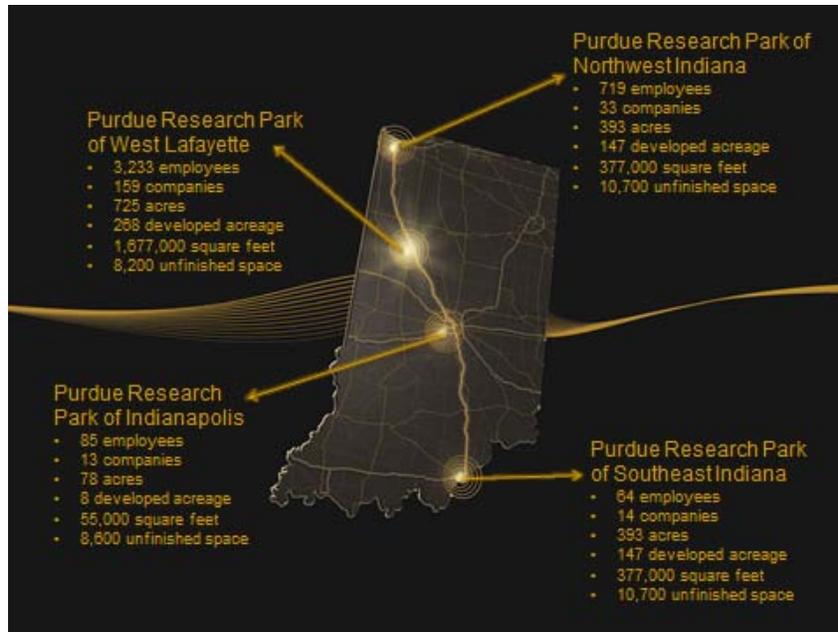


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The Purdue Research Park in West Lafayette is celebrating its 50th anniversary during the current fiscal year. As part of this celebration an independent economic impact study was conducted by Thomas P. Miller and Associates. The results of this study were truly impressive. Consider the following:

- The Purdue Research Park Network (includes the main park in West Lafayette and three satellite locations across Indiana) is a Top 20 private employer falling between Toyota Motor Manufacturing Indiana and Wishard Health Services.
- The average annual wage for Park jobs is \$63,000. This is 45% above the national average and 65% higher than the Indiana average. Total average annual payroll for the Park Network is more than \$238 million.
- The annual economic impact of the Park Network is \$1.3 billion.
- 46% of employees in the Park Network hold associate degrees or higher. This level of educational attainment not only exceeds the Indiana average, but also substantially exceeds the national average as well.
- Cumulative SBIR/STTR awards to Park companies totals \$49 million with 95% of these awards received during the past 10 years.
- The Park Network produces 10,000 direct and indirect jobs for the State of Indiana.

Clearly, Purdue University is an engine of economic development. The Purdue Research Park Network is creating jobs with impact for the knowledge economy.



Statistics associated with each location of the Purdue Research Park Network are displayed in the slide above. Purdue University is home to the largest university-sponsored incubation complex in the United States.

Impacting Our World

Purdue Research Park

Largest university-affiliated business incubation complex in the country.

Indiana's economic "Gold Standard"
-Mitch Roob, Indiana Secretary of Commerce
July 2, 2011



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Former Indiana Secretary of Commerce, Mitch Roob, called the Purdue Research Park, "the gold standard for university-led economic development." In the slide above it is easy to see the progress that has been made since the Park's founding in 1961. Much of this growth accrues from the leadership of three Purdue University Presidents: Steven Beering, Martin Jischke, and France Córdova. From the open fields of McClure Park in 1961, Purdue University and the Purdue Research Park have continually demonstrated that the jobs of the future are here today. That is why the Association of University Research Parks awarded Purdue with the first Creating a Culture of Innovation Award in late 2011.