

Indiana Innovation Alliance: Q & A

Prepared by Indiana University and Purdue University • September 26, 2008

The Indiana Innovation Alliance is an unprecedented collaboration between universities, business, and government that will amplify Indiana's assets in the biosciences and life sciences. To kick start the Alliance, Purdue and IU are requesting that the Indiana General Assembly appropriate \$35 million in each year of the 2009–2011 state biennial budget. This funding would build upon previous investments in the life sciences, including the FY 2009 \$20 million appropriation to the Indiana Life Science Fund.

Together, we'll do more for Hoosiers: more cures and more jobs for all of us. Learn more about the Alliance by visiting www.indianainnovationalliance.org. In this document, you can also find answers to common questions about core research capabilities, matching grants, management, and more.

Partners

Who are the business partners that will help to establish and manage the Alliance?

The Alliance is in the early stages of development. We will partner with Indiana companies specializing in medical devices, biotechnology, pharmaceuticals, agriculture, bioenergy, and other life sciences-related areas.

What does it mean to be an Alliance business partner?

Business partners can be advisors, access the research cores supported by the Alliance, or participate in or lead grant proposals supported by Alliance matching funds.

Core Research Capabilities

Purdue and IU would target \$25 million each year toward core research capabilities and matching grants.

How much would be dedicated to research capabilities versus matching grants?

There is no set amount. The Alliance would review opportunities as they arise, but we anticipate that matching funds would be reserved for multimillion-dollar grant opportunities like the recent \$25 million Clinical and Translational Science Award (CTSA) that IU and Purdue received from the National Institutes of Health.

What does "core research" mean?

Core research involves the essential elements—technologies, capabilities, and expertise—necessary to conduct life sciences research. For example, almost all of the sciences use genomics and proteomics. Thus, these areas and many others are "core."

What are "research core facilities?"

Research core facilities are fee-for-service, centralized laboratories. They make life sciences research possible by providing highly trained researchers and expensive equipment for measurement, computer modeling and analysis, and testing.

What are the benefits of research core facilities?

Shared facilities and a unified approach are both more cost-effective—and advance scientific discoveries more quickly—than duplicating core services at multiple institutions. Innovation is enhanced, because the core facility can develop new equipment, new purposes and methods for using that equipment, and new ways of analyzing the data produced by it.

What would be the initial core capabilities of the Alliance?

■ **Whole-body advanced imaging**

Magnetic resonance imaging (MRI) is a noninvasive method for producing detailed pictures of organs, soft tissues, bones, and other internal body structures. These images allow physicians to evaluate diseases that may not be assessed adequately with X-ray, ultrasound, or CAT scanning. *Neuroimaging* of the brain is providing a new level of detail for understanding how different parts of the brain respond to sensory, motor, and higher-level thought processes.

■ **Nanotechnology, device fabrication, and advanced analytics**

Life sciences research is largely focused at the cellular, molecular, and even atomic levels. This core brings together the capabilities needed to support biomedical research and product development at this scale. *Nanotechnology* refers to the technology that makes it possible to build diagnostic devices (sensors) and therapeutic agents one molecule at a time so that individual diseased cells (such as cancer cells or viral-infected cells) can be identified and/or removed. *Device fabrication* refers to the capability to develop working prototypes for such devices as diagnostic instrumentation, biomedical implants, and tissue replacement scaffolds. *Advanced analytics* uses advances in molecular biology and analytical chemistry—such as genomics, proteomics, and metabolomics—to diagnose diseases as diverse as cancer, AIDS, and rheumatoid arthritis.

■ **Informatics**

Informatics is the use of technology to convert data into applicable information technology solutions for medical and other scientific research.

■ **Model systems**

Model systems allow studies to be done on a model before human trials are conducted. For example, a mouse can be exposed to an infectious disease and the results on various systems (metabolic, digestive, spatial memory) can then be assessed.

Don't these four core capabilities already exist?

Yes, but they are campus-specific, accessible only to academic researchers at a given institution. And because it is so expensive to maintain these capabilities at each institution, existing facilities are not as well-equipped as they need to be for Indiana to be competitive on a national or global scale.

Why is the state being asked to help pay for these core capabilities?

Core capabilities are key for Indiana to attract and retain top business and talent, but traditional funding mechanisms simply do not exist to fund these capabilities. IU and Purdue should work together to address core needs and share the costs with the State of Indiana because:

1. Core facilities involve expensive technical experts to manage complex, evolving instrumentation.
2. Federal grant programs expect states to make initial investments in their own infrastructure—and the technical expertise necessary to use it—before getting supplementary funding.
3. Brainpower attracts biosciences businesses, which add high-paying jobs to the state’s economy.

Where would these capabilities be housed?

The Alliance management committee would identify locations where already-existing talent and equipment could be leveraged. One technology might be housed at IU, another at Purdue, and still another as a new start-up company. In some cases, the core facility might be virtual, and all data and specimens would be transferred between sites electronically. The I-Light infrastructure (ilight.grnoc.iu.edu), which connects all research institutions in the state with high-speed connections and high performance computing, makes Indiana uniquely suited for such virtual facilities.

How would funds for core capabilities be used?

The proposed funds would be used for laboratory equipment purchases, service contracts, and equipment upgrades; for researcher training; for improvements to existing equipment and software; and for reducing core research lab operating expenses including personnel.

How would capabilities be made available to other Indiana universities and companies?

They would contact the appropriate core facility to speak to scientists who could provide guidance in technology, methodology, and processes to conduct the appropriate experiments.

How much would it cost to use these facilities?

The Alliance management committee would help to determine any fees for services. Such fees would help to sustain the core, and would be below market costs for access to state-of-the-art technologies.

Matching Grants

How much of the \$25 million would be for matching large grant opportunities?

At this time, there is no set amount. The Alliance would review opportunities as they arise, and matching grants would be determined by the management committee.

Would this duplicate state appropriations already going to Purdue and IU through the research support formula?

No. The proposed new funding would be to enhance success in competing for large, usually federal, awards for which providing matching funds would increase chances of receiving the award. Historically, large federal grants fund only a portion of the proposed budget, and the research team is then expected to meet most of the grant application’s stated milestones. However, the scale and scope of biosciences research requires a level of funding that often exceeds the amounts available from any one source.

What types of grants are envisioned?

These are usually large, multidisciplinary grants from the National Institutes of Health, the National Science Foundation, and the Department of Defense.

Would these funds be limited to research opportunities for IU and Purdue only?

No, but it is expected that IU and Purdue would play key roles in such projects that might involve other higher education institutions or business partners.

How would these funds be administered?

Matching opportunities would be presented to the Alliance for evaluation and possible award. We would utilize a two-tiered review system similar to the grant review process at federal institutions.

At the lower tier, reviews would be solicited from experts in the discipline. These experts would be located at institutions outside of Indiana to avoid any conflict of interest. Those proposals receiving high-priority scores would subsequently be reviewed at the higher tier. This higher tier would involve a standing committee appointed by the Alliance and involving representatives from IU, Purdue, the state, and the private sector.

Medical Education and Healthcare Innovation

In FY 2009, IU requested \$2 million from the Indiana Life Sciences Fund to expand its Centers for Medical Education (CME). Why is an additional \$5 million being requested?

The \$2 million request will be used for one-time start-up activities. The \$5 million Alliance request would be for ongoing operating funds to expand academic programs at the CMEs into their third and fourth years.

What are the plans for each CME?

Each CME has unique attributes that are determined by its relationship to its host institution and community. Thus, the IU School of Medicine, host institutions, and communities are preparing joint plans.

What types of healthcare assistance would be provided under Purdue’s Technical Assistance Program (TAP)?

TAP would assist projects aimed at increasing the efficiency of healthcare delivery in hospital systems throughout the state. As these projects reduce healthcare delivery costs, businesses throughout the state would benefit.

How would these funds be spent for workforce development?

These funds would be used to develop professional educational programs in bioengineering and biotechnology for engineers and scientists working in Indiana. These programs would range from short courses to degree programs, and would teach critical components of these rapidly changing fields.

Management

What would the management agreement address?

The agreement would address how proposals for funding would be evaluated and would detail the governance structure and responsibilities of the management committee.

Is statutory language needed?

We believe that a memorandum of understanding would preclude the need for statutory language.

Why is a management committee necessary?

The management committee would oversee implementation of the initiative, ethical oversight, and the scientific potential of proposals.

What would the committee do?

Initially, the management committee would appoint Alliance staff, determine guidelines for evaluating proposals, and address other issues related to implementing the initiative. Moving forward, the committee would review and award funding applications, appoint peer review panels and advisory committees, procure additional technical services as needed, monitor progress, and report results.

What uses of the funds would require competitive peer review?

All uses of the funds would be overseen by the management committee. The committee may solicit external peer review to decide what cores are needed, and for most matching opportunities.

Other

How do the capital requests for IU and Purdue relate to the Alliance?

IU and Purdue's capital requests include the following projects that relate to the initiative:

- Purdue University Comparative Medical Sciences Building
- IU Indianapolis Neurosciences Building Phase II
- IU Bloomington Cyber Infrastructure Office
- IU Life and Health Science Laboratory Renovations at Bloomington and Indianapolis
- IU Bloomington Multidisciplinary Sciences III

How does the the Indiana Clinical and Translational Science Institute (CTSI) relate to the Alliance?

The two initiatives complement one another. The Alliance would leverage and benefit CTSI—the emerging IU and Purdue partnership in the translation of medical discoveries to patient care—by providing an expanded set of capabilities in the life sciences, such as facilities, cost-sharing on large proposals, and educational programs.

Contact Us

- Victor Lechtenberg, Purdue University Vice Provost for Engagement, vll@purdue.edu, (765) 494-9095
- William Stephan, IU Vice President for Engagement, innovate@indiana.edu, (317) 231-2114