Vice President for Research Office
Strategic Plan

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INTRODUCTION

The New Global Context of University Research, Scholarship and Creative Activity

"There is hardly a part of American society -- business, government, education, research -- that is not affected by global forces and developments."¹

In founding the new School of Global and International Studies, Indiana University recognized the opportunities inherent in the “global village.” While the economic, policy, and environmental implications of globalization may be widely known, the impact on research, scholarship and creative activity is less familiar but no less important. Both the research IU faculty members conduct and the ways in which they conduct it are deeply impacted by the new global context.

Writing in Nature magazine, Jonathan Adams noted in 2012 “a fundamental shift ... in the geography of science. Networks of research collaboration are expanding in every region of the globe.”² Not only has co-authorship “exploded;” international collaborations (as measured by articles with co-authors from multiple countries) have increased significantly since 2000. Every region of the developing world demonstrates noteworthy growth in scientific research activity and in collaborations with both regional and distant neighbors. Whereas Western countries dominated the scientific research landscape in the twentieth century, the twenty-first century will see a more global and international research landscape than ever before.

The Academic Ranking of World Universities has tracked the shift, as the proportion of top ranked universities from Asia and Oceania has grown significantly


³ Published by Shanghai Jiao Tong University, the ARWU uses six objective indicators of research performance: % of academic staff having Ph.Ds; % of international collaboration; number of alumni and staff winning Nobel Prizes and Fields Medals; number of highly cited researchers selected by Thomson Scientific;
over the last decade. In 2004, 170 US and 209 European universities were ranked among the top 500; in 2013, 149 US and 200 European universities were ranked in the top 500. Asia saw corresponding growth in the number of universities ranked over this time, moving from 89 in 2004 to 112 in 2013. China more than doubled the number of top ranked universities between 2004 (16) and 2013 (42). As Adams notes, the shifting geographical balance of research activity “means that the significance of Western research economies as preferred partners for research could dwindle.”

The increasingly global nature of research led in 2012 to the establishment of the Global Research Council, which includes the heads of science and engineering funding agencies from around the world. GRC promotes best practices in research, developing international principles on Research Integrity and Scientific Merit Review and promoting high quality multilateral research collaboration. GRC in 2013 endorsed data sharing and Open Access as key to “improving the quality and impact of research.” Traditional models of research and dissemination are changing along with the geographical balance of research activity.

The new global research economy is a significant opportunity for American research universities to recalibrate the focus and conduct of their research. A merely local or national focus will be insufficient. Just as environmental research must seek to understand both local and global indicators of climate degradation and recovery, Indiana University researchers in all fields must work with new partners both domestically and internationally. *International initiatives such as the Indiana University Gateway – India and the Indiana University China Office, and educational...*

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3 Published by Shanghai Jiao Tong University, the ARWU uses six objective indicators of research performance to rank world universities: # of alumni and staff winning Nobel Prizes and Field Medals; number of highly cited researchers selected by Thomson Scientific; number of articles published in journals of *Nature* and *Science*; number of articles indexed in Science Citation Index – Expanded; number of articles indexed in Social Sciences Citation Index; and per capita performance relative to the size of an institution.

4 Adams, *op cit.*


initiatives such as the School of Global and International Studies must be matched with strategic initiatives that enhance the connections of IU research and researchers with outstanding partners across the world.

The National Landscape

The landscape for scientific research and academic inquiry in the United States is significantly changed from the high water mark of the post-WWII years. On the whole, Americans remain confident in the value and importance of higher education, even as they express concerns about the cost and quality of higher education. Americans are also largely confident in the value of science and technology, and support increased funding for basic research. In 2012, 83% of Americans “agreed” or “strongly agreed” that “even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is necessary and should be supported by the federal government.”

Coupled with this broad support for scientific research is recognition that the United States must work to maintain its global leadership in research and development. A bipartisan group of legislators requested in 2005 that the National Academies “identify the top 10 actions, in priority order, that federal policy-makers could take to enhance the science and technology enterprise so that the United States can successfully compete, prosper and be secure in the global community of the 21st Century.” The report issued by the Committee on Prospering in the Global Economy of the 21st Century, Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future (2007), included the sobering reminder that “federal government funding of R&D as a fraction of GDP has declined by 60% in 40 years.” It also included the recommendation that the US “double the

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7 97% of respondents to a Lumina Foundation/Gallup Poll released in February 2013 (available at http://www.luminafoundation.org) say having a degree or certificate beyond high school is at least somewhat important.
10 Members of the Committee reconvened in 2010 to assess progress toward the goals identified in the original report; their assessment was published as Rising Above the
real federal investment in basic research in mathematics, the physical sciences, and engineering over the next seven years (while, at a minimum, maintaining the recently doubled real spending levels in the biosciences).” In spite of some new investment in R&D as a response to this recommendation, there seems little likelihood that the long-term trend of declining federal funding for R&D will be reversed. While it is impossible to forecast definitively exact levels of federal R&D funding in coming years, it is certain that federal grants to universities for research will decline relative to previous years. Analysis by the American Association for the Advancement of Science of both President Obama’s budget request for FY 2015 and the recently released House Budget anticipates that federal R&D funding, in constant 2014 dollars, will rise slightly through FY 2016, though remaining $20B below FY 2010 (non-ARRA) funding. The AAAS anticipates a particularly significant decline in nondefense R&D: under the House budget, perhaps as much as a 14.3% decrease from current funding levels.\textsuperscript{12}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{federal_r_d_projections.png}
\caption{Federal R&D Projections Under Various Scenarios}
\end{figure}

The impact of significant reductions to federal funding for research and development is already being widely felt. The national success rate for applicants to the NIH for research funding has dropped dramatically over the past dozen years: from 31.2% in FY 2002, to 21.8% in FY 2008, to 16.8% in FY 2013. The success rate for R01s has seen a similar decline: from 30% in 2002 to 22% in 2012, to 17% in 2013.

The relative reduction in federal research funding presents Indiana University with an imperative: *while working strategically to grow our federal funding, we must also develop strategic new partnerships with nonfederal sponsors.* Additionally, IU must continue to make the case – by engaging in consequential research and by strategic communication about that research – for the importance of robust federal financing of research as central to the nation’s long-term well-being.

**The Local Environment**

Indiana University has for close to 200 years been one of the nation’s premier research universities, and approaches its bicentennial with a foundation of broad and deep intellectual inquiry and achievement. From the induction of Carl Eigenmann into the National Academy of Science in 1923 to Elinor Ostrom’s 2009 Nobel Prize in Economics, the induction of twelve faculty members from two campuses into the American Association for the Advancement of Science in 2012 and 2013, and the induction of five faculty members into the American Academy of Arts and Sciences since 2012, the important contributions of IU faculty members to a wide variety of fields have long been recognized by peers both nationally and internationally.

Rather than rest on its traditions of excellence, IU has in the past several years capitalized upon existing resources and made strategic investments to undertake significant changes to academic programs and structures. Two new

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Schools of Public Health, the new School of Global and International Studies, and the new School of Philanthropy are just a few recent demonstrations of the university’s commitment to flexible and strategic realignment of resources in response to changing educational opportunities. By capitalizing upon intellectual synergies, these and other new academic structures have the potential to significantly enhance IU’s research portfolio.

At the same time, IU faces many local challenges related to research and creative activity. As faculty members with long experience and success retire, they take with them the funding history and reputations that take decades to amass. It is very important to hire and promote new faculty members who will be able to maintain and enhance IU’s reputation in the future. Increasing regulatory burdens from federal, state, and private sponsors of research require an expanding amount of effort from staff and scholars, threatening to reduce productivity. Responsibility Centered Management, while encouraging entrepreneurialism within Responsibility Centers, can make interdisciplinary or intercampus collaboration a challenge. Lack of familiarity across schools and campuses means that opportunities for synergistic collaboration can be missed. Divergent school and campus policies and procedures can dilute the impact of some initiatives that might incentivize increased research activity.

The strategic planning process, like New Academic Directions before it, is an opportunity. The strategic priorities identified by different IU campuses, schools and Vice Presidents offer an appropriately ambitious vision for IU’s movement into its third century. Building upon those plans, and working with university and campus leaders, faculty members, administrators and staff, VPRO over the next several years will help IU to think creatively about the current and future character of research across the university so that IU will continue shining into its third century.
VICE PRESIDENT FOR RESEARCH OFFICE STRATEGIC PRINCIPLES

In the face of a more complex global research economy and a more challenging external funding environment, Indiana University must initiate strategic efforts to help faculty members from all disciplines, campuses, and schools continue their record of outstanding achievement and to maintain and enhance the university’s competitive advantage. Working with university, campus and school leaders to support local research priorities and build university-wide strategic research programs, the Vice President for Research Office will help IU greet its bicentennial as “one of the great research universities of the 21st century, and the preeminent research university in Indiana.”  

Some of VPRO’s strategic efforts focus upon research development – understood most broadly, helping IU’s faculty members expand and strengthen their research and creative activity. Equally important are those VPRO strategic efforts that focus upon research administration and compliance – most notably, minimizing the administrative burdens that divert the energy and attention of faculty members from the scholarly inquiry central to their work. Three overriding principles focus VPRO’s efforts in all areas:

- **to enhance IU’s capacity** for outstanding research, scholarship and creative activity;
- **to enhance the impact** of IU’s research and creative activity;
- **to enhance IU’s reputation for excellence** in all areas of research, scholarship and creative activity.

Enhancing IU’s Capacity

In an increasingly competitive global and national context, IU faculty members already must work harder than in the past just to prevent losing ground. In such a context then, we cannot expect to increase capacity by working more: we must rather **work more strategically** to enhance our capacity for excellence.

Through our efforts in research development, VPRO helps to enhance IU’s capacity for excellence in research and creative activity through financial and programmatic

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14 Indiana University *Principles of Excellence.*
support ranging from seed funding programs to proposal development assistance and strategic efforts to diversify the sources of external funding for research and creative activity. Through our work in research administration, VPRO enhances capacity by minimizing administrative burdens and facilitating compliance with all institutional, state and federal regulations.

**Enhancing IU’s Impact**

Central to Indiana University’s mission is the creation and preservation of knowledge across all fields of inquiry and contexts. As interesting as the wide variety of possible research foci may be, however, it is not enough for IU’s research portfolio to be “interesting.” Rather, IU is deeply committed to research and creative activity that makes a difference in local communities, across the state, and more broadly across the nation and the world, that is, to research and creative activity with consequential impact. VPRO enhances the impact of IU’s research portfolio by working with faculty members to identify and focus their research around significant and timely topics, such as the White House BRAIN Initiative. VPRO also works to strengthen connections among IU researchers and between IU and other leading Indiana universities, businesses and foundations. Fostering collaborative and complementary research activity in these ways ensures that the whole is more than the sum of the component parts. VPRO’s administrative and compliance organizations also enhance the impact of IU’s research. The Office of Research Administration, through which IU participates in initiatives like STAR METRICS and U METRICS,15 tracks the economic impact of sponsored program activity. Additionally VPRO’s Research Administration and Research Compliance organizations ensures that best business practices and efficiency and regulatory compliance and research integrity are the hallmark of all research and creative activity conducted at IU.

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15 STAR Metrics is a national initiative gathering data on economic impacts of sponsored program expenditures from more than 100 universities and research organizations. The Committee on Institutional Cooperation (CIC) created U METRICS to use and supplement this data for its members.
Enhancing IU’s Reputation

At most universities, a significant amount of important research and creative activity passes largely unnoticed outside closely related programs or departments. While the self-effacing character associated with the “gentleman scholar” might have been admirable in previous generations, cultivating a reputation for excellence – at the institutional level as at the individual level – is increasingly necessary. Given the changing geographical balance of research and the more competitive nature of research funding, reputation (while no substitute for achievement) is an undeniably important accompaniment to scholarly and creative achievement. As more universities and individuals compete for limited opportunities – to participate in significant collaborative projects like the Large Hadron Collider, to perform at Carnegie Hall or curate an exhibit at the Chicago Art Institute – intentional and strategic efforts to enhance IU’s reputation must be central to the work of VPRO, working with other university leaders. Such efforts can enhance the capacity and impact of our researchers by helping to attract outstanding new faculty members to the university, and by helping our faculty and students gain the place at the table their work and potential merit.

These principles – enhancing IU’s capacity, impact, and reputation for outstanding research and creative activity – are of course interconnected, and actions directed toward one will inevitably advance the others. Together, actions taken toward these principles over the next five years will help IU enter its third century in its strongest position yet.

VICE PRESIDENT FOR RESEARCH OFFICE STRATEGIC ACTIONS

Strategic Action: Capitalize on existing strengths to catalyze research addressing Grand Challenges

In April 2014, President Obama called for companies, universities, foundations and philanthropists to identify and pursue the Grand Challenges of the 21st Century. As described by John Holdren, Director of the White House Office of Science and Technology Policy, “Grand Challenges are ambitious but achievable
goals that harness science, technology, and innovation to solve important national or global problems and that have the potential to capture the public imagination.”

The scope and potential impact of Grand Challenges sets them apart from typical approaches to research. Taking a “Grand Challenge” approach in the past brought humanity into the nuclear age and onto the surface of the moon, and mapped the Human Genome with almost incomprehensible detail and speed. Science is not the only realm for Grand Challenges; as Holdren notes, “When defined in terms broad enough to capture our imagination and with sufficient specificity to convey what success looks like, Grand Challenges can spur significant developments in a wide range of domains such as health, energy, sustainability, education, economic opportunity, and human exploration.”

Grand Challenges research, a component of both the IUB and IUPUI Strategic Plans, has the potential to enhance significantly the impact of IU research and creative activity. To identify and successfully pursue truly Grand Challenges will require the very best that all of our Indiana University faculty members have to offer. VPRO will therefore partner with IU's President and other university and campus leaders to catalyze Grand Challenges research through an annual university-wide Grand Challenges Competition. No more than two projects will be chosen annually by a review board of national experts. IU Grand Challenges will involve faculty teams from multiple disciplines or campuses working for up to 18 months to frame and complete proof-of-concept research for projects of broad

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17 Ibid.

18 Among the universities that have initiated “Grand Challenges” efforts are Princeton (http://www.princeton.edu/grandchallenges/), Tulane (https://tulane.edu/news/releases/pr_02172014.cfm), UCLA and New York University. NYU announced in September, 2013 two awards of $250,000 each (http://www.nyu.edu/about/news-publications/news/2013/09/23/nyu-announces-winners-of-grand-challenge-science-competition.html); UCLA announced in November the first Grand Challenge project, “to make the LA region 100% sustainable in water and energy without harming biodiversity by the year 2050." UCLA will announce five additional Grand Challenge Projects over the next five years (http://www.grandchallenges.ucla.edu/about/).
importance and specific impact, with the expectation of attracting follow-on external funding thereafter.

**Strategic Action: expand IU’s research portfolio and external funding**

The realities of the new research economy – more global, more competitive, less able to rely on traditional sources of federal funding – require IU to work intentionally and strategically to expand our research portfolio and external funding. Doing so will rely upon a suite of coordinated and interrelated actions, including:

- *investing in collaborative and multidisciplinary research*

  National funding agencies are increasingly emphasizing collaborative research funding mechanisms, and many of the most important national and international issues require interdisciplinary, collaborative and multifaceted investigation to resolve. Partnering with President McRobbie, VPRO has invested more than $4M in the IU Collaborative Research Grants program since 2010, funding new collaborative research projects involving teams of IU faculty members from different disciplines, departments, schools or campuses. The initial return on this investment is promising: recipients of IUCRG funding in the program's first year have received more than $26M in new external funding, while IUCRG recipients from the second and third years are well on their way to matching that success.

  IUCRG is just one mechanism by which Indiana University must encourage and facilitate collaborative research as we approach our bicentennial. Additional activities directed to this goal include

  - partnering with schools and campuses to identify and support cross-cutting collaborative research initiatives (including strategic interdisciplinary or cluster faculty hires) and
  - establishing university-wide research centers and institutes to facilitate collaborative research in timely, important areas of research where IU has a critical mass of faculty strength.
• providing additional incentives and support for efforts to increase external funding for research and creative activity

While external funding is by no means the sole indicator of IU’s robust portfolio of research and creative activity, it is an important measure with substantial benefits to the university and the larger pursuit of knowledge. Anecdotal evidence indicates that the more competitive federal funding landscape has led some faculty members to reduce their reliance on external funding.19 These and other circumstances that provide a disincentive to the pursuit of external funding and fellowships can be disrupted though concerted strategic action. This is a trend that IU cannot support over the long run, but more importantly, it is a trend that we can disrupt, by providing incentives and support for faculty members working to secure external funding even in a challenging funding environment. To that end, VPRO will:

  o establish and strengthen seed funding programs for teams preparing large-scale (Center, P-level and U-level, STC, MRSEC)20 proposals so as to strengthen those proposals;
  o partner with the President and Responsibility Centers to provide a percentage of ICR garnered on federal research grants directly to PIs;

• diversifying IU’s external funding sources for research and creative activity

Reductions in federal funding for research have resulted in significantly lower success rates for proposals to the NIH and NSF, the two federal agencies from which IU receives the most funding. While VPRO and campus research offices to work with faculty members in a variety of ways to maintain our success in securing funding from NIH and NSF, we also recognize the need to diversify IU’s

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19 It is particularly troubling that available data seems to confirm this evidence. Fewer proposals for federal funding were submitted in FY 2013 than in any year since FY 2004; the percentage of federally-funded research expenditures at IU has dropped from 46% in FY 2010 to 39% in FY 2013, while internally-funded research expenditures have risen by a corresponding percentage, from 34% in FY 2010 to 41% in FY 2013.

20 NIH Project/Center Grants (indicated by activity codes beginning with the letter P) and large scale cooperative agreements (U54s) fund integrated, multi-project activities involving multiple investigators. The NSF has programs funding similarly complex multi-investigator centers like the STC=Science and Technology Centers and the MRSEC=Materials Research in Science and Engineering Centers.
sponsored research funding stream. There are important opportunities to secure funding for research in other federal agencies that have been overlooked by many researchers at IU. For instance, the AAAS estimates that funding for research in the Department of Defense’s science and technology programs, including the DoD extramural medical research program, will increase by 8% in FY 2014 over FY 2013 – even as NIH funding is expected to decrease by 2.2%. Given that IU’s DoD sponsored program funding in FY 2013 totaled only $9.58 million, the potential for increasing our ‘market share’ is significant. Over the past 18 months, VPRO has worked with the Office of the Vice President for Public and Government Affairs and the IU School of Medicine to increase our funding for medical research from the Department of Defense. As a result, a significant number of faculty members have submitted initial pre-proposals to DoD program directors; several have been invited to submit full proposals for DoD funding. This focused effort, which will be extended to other areas of DoD funding over the next several years, provides a model for how VPRO can increase IU’s success with specific federal agencies.

Additional efforts to diversify IU’s research funding include participation in public-private partnerships such as the Indiana Biosciences Research Institute and the Digital Labs for Manufacturing, and enhanced support for faculty members pursuing funding from high-profile foundations such as the W.M. Keck Foundation.

While securing funding more non-federal sources is an important component of IU’s effort to maintain a robust research portfolio, the distinct funding preferences of non-federal funders means that we cannot simply replace federal funding with non-federal funding. Diversifying IU’s external funding stream will require a careful cost-benefit analysis of specific funding sources in order to arrive at an appropriate and sustainable funding portfolio.

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21Foundations, for instance, are 5 times less likely than federal agencies to fund overhead costs, while corporate sponsors are 6 times less inclined to fund capital equipment purchases.
In order to appropriately diversify IU’s funding sources in the federal, philanthropic, and industry arenas, VPRO will:

- engage in broad cost-benefit analysis of different potential funding sources, so that IU experiences no negative “downstream” effects of shifting the overall balance of funders in our portfolio
- engage in a strategic review of federal agencies, philanthropies and private companies to identify those where IU has realistic potential for increased funding, and
- develop and implement plans to support faculty members in securing funding from those agencies, philanthropies, and private companies.

**Strategic Action: increase international collaborations**

Indiana University has multiple important connections with universities across the world, and has identified countries of “strategic priority” in Europe, Africa, the Americas, Asia/Oceania and the Middle East. Even so, we must do more to take full advantage of the range of opportunities within the new global research economy. As Jonathan Adams contends, “The United States and the United Kingdom must build new networks by actively exporting students to burgeoning science centres such as China and India. Researchers must stop expecting scientists from the new powerhouses to come to them, and should visit collaborators to experience different approaches – and be ready to learn, not just to teach.”

VPRO will partner with the Office of the Vice President for International Affairs to increase the number of institutional and faculty research collaborations with top universities across the globe. To promote research collaborations with international colleagues in particular, VPRO will create a competitive International Research Fellowship program, funding at least 3 major international research collaborations each year for the next five years.

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22 Adams, op. cit.
Strategic Action: facilitate development and implementation of university-wide collaboration database.

Closely related to efforts to support collaborative research and team science is the need to help faculty members find others at IU whose expertise and interests dovetail with their own. Over the past four years, VPRO has brought together groups of IU faculty members around a number of research and scholarly foci, including epigenetics, pain, religious studies, network sciences, and brain sciences. In each case, one of the most difficult tasks has been identifying those persons whose research is related to the broader topic. Especially given the multi-campus nature of the university, it can be extremely hard to know which faculty members are engaged in what areas of research – even though the information exists – in Faculty Annual Reports, *curriculum vitae*, and faculty web pages. VPRO will work with the Office of the Vice President for Information Technology, the Executive Vice Presidents, the Dean of the Library and expert faculty members to develop a searchable faculty collaboration database using IU’s outstanding Information Technology resources and expertise.

Strategic Action: invest in outstanding scholarship and creative activity in the arts, humanities, social and behavioral sciences

New Frontiers in the Arts and Humanities has been a hallmark program over the past decade at Indiana University. Originally funded by the Lilly Endowment, Inc., and continued since 2009 by President McRobbie, New Frontiers has made more than 280 major grants and more than 410 smaller travel fellowship grants to 425 faculty members from all 8 IU campuses. Operas, books, theatrical performances, archival research, scholarly articles, and gallery exhibitions have been initiated or completed through the auspices of this unique and highly successful program. Particularly at a time when the value of artistic and humanistic work is regularly questioned in the public square, investment in outstanding scholarship and creative activity in the arts and humanities must remain a core commitment of the university. VPRO will continue to support creative, groundbreaking activity in the arts and humanities, beginning with a full
review of New Frontiers in 2014-15 and a recommendation for a renewed program of support thereafter.

Of equal importance, and long supported in different ways at Indiana University, are the social and behavioral sciences. IU faculty members are leaders in groundbreaking research in the social and behavior sciences, and are rightly recognized as such. And yet, we are at critical moment for securing the place of social and behavioral sciences in the university and beyond, as legislative questioning of federal funding for research in these fields is all too frequent. Richard Lempert of the Brookings Institute notes that “Research in the SBE sciences is crucial for the nation’s well-being, and money spent to support basic social and behavioral science research in the last 20 to 25 years contributed far more to the country’s well-being, in both dollars and non-monetary outcomes, than NSF has spent on social and behavioral science since its inception.”23 Lempert cites basic social sciences research funded more than 50 years ago that has led to the development of algorithms that make possible a more efficient and open kidney transplant system than would otherwise be possible, political science experiments in game theory that have been used to find new ways to attack cancer cells, and auction theory, which was used (at a net gain of roughly $60B) when the FCC allocated cell phone spectra. IU faculty members are engaged in their own high-return, important research in the social and behavioral sciences, which the university must make every effort to support. VPRO will convene a summit of leading faculty members in the social and behavioral sciences from all campuses to assess the state and future of SBS research, and to identify specific approaches that IU can take to invest in these important areas of scholarly activity.

Strategic Action: engage in enhanced best business practices across the VPRO organization to maximize efficiencies, ensure regulatory compliance and research integrity, and reduce administrative burdens upon researchers

Faculty, administrators and staff have long noted the significant administrative burdens that accompany – and indeed, too often displace – research and scholarly activity. IU is an active member of the Federal Demonstration Partnership (FDP)\(^{24}\) and participated in the 2007 and 2012 Faculty Burden Surveys, which indicated that they spend 42% of their time on administrative duties. By increasing efficiencies and leveraging information technologies in both the administration and compliance organizations, **VPRO will increase IU’s capacity for research and the impact of IU’s research by reducing administrative burdens that detract from research and creative activity.** Specific actions that VPRO will take in this effort include:

- regularly measure levels of administrative burden
- form a university-wide task force of administrative offices that impact administrative burden on researchers (Research Administration, Research Compliance, Purchasing, Accounting, etc.) to review survey results and identify specific measures that can be implemented to remove administrative impediments to research activity
- further implement Administrative Proposal Preparation Support (APPS) and Compliance Protocol Preparation Support programs. APPS has been successfully implemented in the College of Arts and Sciences at IUB and the School of Science at IUPUI to provide full-serve support for administrative elements of proposal preparation (budgeting, routing, sub recipient documentation, etc.); the Human Subjects Office has initiated a similar full-service support effort for preparation of IRB protocols. Relying more broadly on the expertise of our Research Administration and Compliance staff

\(^{24}\) “The Federal Demonstration Partnership (FDP) is an association of federal agencies, academic research institutions with administrative, faculty and technical representation, and research policy organizations that work to streamline the administration of federally sponsored research.” [http://sites.nationalacademies.org/PGA/fdp/PGA_054588](http://sites.nationalacademies.org/PGA/fdp/PGA_054588)
members to assist faculty members can significantly decrease administrative burden on faculty.

- Continue implementation of Kuali Coeus systems, an area in which IU is a national leader. Additional modules of KC in grants and contracts (negotiation, reporting, and subcontracting) and compliance (IACUC, Conflict of Interest, etc.) will improve efficiency and service, and simplify the reporting that federal agencies and other external sponsors require of researchers.

**Strategic Action: enhance research infrastructures and facilities**

A 2005 study of Indiana University facilities noted that limited facilities “represent possibly the biggest single impediment to IU reaching its full potential as a research university.” Since that time, on all its campuses, IU has made aggressive efforts to enhance research and academic facilities, with completion of MSB II and the East Studio Building at IUB, Walther Hall and the Science and Engineering Laboratory Building at IUPUI, and Harper Hall at IUSB just a portion of the brick-and-mortar evidence of this commitment.

Even so, like its peer universities, IU remains subject to the limitations of its research facilities and infrastructures. As IU prepares to enter its third century, **VPRO will partner with the President and campus leaders to engage in an inventory and review of research facilities, and to develop a strategic framework for maintaining up-to-date research facilities and maximizing the efficient use of research facilities on all campuses.** VPRO will partner with university, campus and IU Foundation leaders to secure public and private funding for new facilities, so that the energy and creativity of our faculty are matched by the spaces in which they work.

**Strategic Action: enhance IU’s reputation for excellence**

While IU faculty members from all disciplines are engaged in outstanding, important research and creative activity, like their peers across the US, they struggle

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to ‘make the case’ for their work to both general and scholarly audiences. While this is true across all disciplines, it is particularly important for those disciplines that are often discredited in the public square that we communicate strategically, clearly, and often about the benefits and impact of IU research, scholarship, and creative activity.\textsuperscript{26} Too often, important work is overlooked or misunderstood by those outside the university or a particular scholarly field, at least in part because faculty members, already busy with their scholarly, teaching, and service responsibilities are unable to devote time and energy to successfully spreading word of their accomplishments.

**VPRO will partner with the Office of the Vice President for Public and Government Affairs to develop a comprehensive research communications strategy and infrastructure**, including:

- creation of a university-wide research communications working group to ensure greater consistency of message about IU research across campuses and schools
- development of targeted publicity about IU research and creative activity, in multiple media formats
- support faculty and graduate students to develop enhanced communication skills, through participation in initiatives in “science communication”

An additional contributor to IU’s reputation for excellence in research, scholarship and creative activity is recognition by national peers, which can be facilitated by participation in honorary societies and on review panels for funding programs at federal agencies and foundations. The latter service not only familiarizes agency staff members and other scholars with IU’s outstanding faculty; it also helps our faculty members be aware of upcoming agency priorities and funding opportunities in advance of Requests for Proposals. **VPRO will work with**

\textsuperscript{26} Recall that 83% of respondents support federal funding for basic scientific research, but only half of Americans saw the social science fields of economics (45%) and sociology (45%) as “very scientific” or “pretty scientific.” (NSF Science and Engineering Indicators 2014). When funding for the social and behavioral sciences is threatened, IU’s outstanding social scientists must be enabled to make the case for the scientific value of their endeavors.
deans and department chairs to nominate faculty members for service at agencies and foundations, with the goal of increasing IU’s representation by 10% over the next four years. The Office of the President has in recent years prioritized nomination of IU faculty members to honorary societies, and this effort has resulted in record numbers of faculty election to membership in the American Association for the Advancement of Science and the American Academy of Arts and Sciences in the last two years. VPRO will partner with the President and campus leaders to expand the pipeline of such recognition by assisting department chairs and deans in nominating faculty members to the disciplinary societies and for the important national prizes that are often the first step on the path toward election to membership in prestigious honorary societies. Concerted effort in these areas will help to enhance the reputation of IU’s deserving faculty, and the university as a whole, in ways that will undoubtedly enhance the capacity and impact of IU’s research and creative activity.

CONCLUSION

A strategic plan is necessarily based on a freeze-frame snapshot of the university’s position in the always-moving research economy. As we approach implementation of this plan, therefore, VPRO recognizes that we must be flexible, and nimble in response to changing circumstances that we cannot yet anticipate, but that may provide unique opportunities to enhance IU’s research and creative activity, increase the impact of that activity, and enhance IU’s reputation for excellence.