



# The Rise of International Research Collaboration

By Charlotte West

***Researchers at Institutions Around the World Are Stepping Up to the Challenge to Solve Global Problems***

**F**ROM LARGE-SCALE GLOBAL VENTURES to one-on-one projects between faculty in different countries, international research collaboration is on the rise. Publications with authors from multiple countries are cited more frequently and more likely to be published in prestigious journals. And while international research by individual faculty is nothing new, cross-collaboration has become increasingly possible and now plays a greater, more important role in internationalization efforts.

The advent of collaborative technology, as well as an amplified recognition of the cross-border nature of some of the world's most pressing issues—such as global health and climate change—are partly responsible for the uptick in international research. Many universities now track and map out how and where their faculty are engaged abroad, which allows them to focus their investments and publicize their global reach.



20%



In addition, senior international officers and international offices are playing a greater role in promoting international research, attracting international scholars, and defining how international research fits into the overall internationalization agenda.

### **The Growth of International Research Collaboration**

A combination of new opportunities and new pressures has led to an increase in international research collaboration, says Laura Rumbley, associate director of the Boston College Center for International Higher Education (CIHE).

“That’s true not only for individual institutions, but also for entire countries and systems of higher education,” she says. “We see a lot of impetus for collaboration because there are big questions around the world that may require a lot of different perspectives to come up with meaningful solutions. We are also seeing countries that are really trying to stand out on the global stage and attract talent.”

Many U.S. institutions are increasingly focusing on large-scale, cross-border research projects, often with support from agencies such as the United States Agency for International Development (USAID), on issues such as sustainable development, agriculture, climate change, global migration, and public health. Countries like China have also made major investments in both research and development (R&D) and higher education infrastructure. China’s universities have gradually increased their global rankings through greater research output. The National Science Foundation’s (NSF) *Science and Engineering Indicators 2018* report recently found that in 2016, the number of scientific publications from China exceeded those from the United States for the first time.

Joanna Regulska, vice provost and associate chancellor of global affairs at the University of California-Davis, adds that research agendas are increasingly being shaped by shifting political, policy, and funding

climates, as well as new technological developments and evolving ecosystems. “The changing environment has pushed for new frontiers in transportation studies or energy efficiency research,” she says. “Massive flows of refugees, migrants, and internally displaced populations around the world bring the need for new architectural and housing design, for energy solutions, for tools for access to education, and more for this displaced generation.”

Addressing these issues requires cross-border collaboration, which is on the rise. According to the NSF report, the percentage of worldwide publications written by authors from at least two countries rose

from 16.7 to 21.7 percent between 2006 and 2016. This was attributed to increasing global capabilities in R&D, an expanding pool of trained researchers, improvements in communications technology, and expanding networks of international scholars.

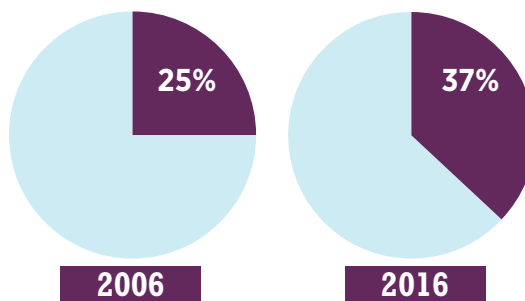
In the United States, approximately one-fourth of all science and engineering articles were internationally coauthored in 2006. This number grew to 37 percent by 2016. Authors based at U.S. institutions collaborate most frequently with

partners from China, which accounted for 22.9 percent of U.S. internationally coauthored publications in 2016. Other main research partners for the United States include Canada, Germany, and the United Kingdom.

Other research has reported similar findings. A 2017 study led by Caroline Wagner, a professor at the Ohio State University, found that the number of multiauthor scientific papers with collaborators from more than one country jumped from 10 to 25 percent between 1990 and 2015. The study also concluded that 58 more countries participated in international research in 2015 than in 1990.

The increase in the number of internationally coauthored publications and participating countries is not the only evidence of growth in international research collaborations. Studies suggest that universities are seeking ways to ensure long-term, cross-border

**In the United States, approximately one-fourth of all science and engineering articles were internationally coauthored in 2006. This number grew to 37 percent by 2016.**



partnerships. A 2016 study from the Georgia Institute of Technology (Georgia Tech) examining international university research ventures found that research universities in the United States are rapidly establishing facilities and specialized offices outside of their home

countries. Based on analysis of university websites, the research team found that 50 percent of top U.S. research universities have engaged in establishing international university research ventures, which range from research offices to branch campuses.

## Strategies for International Offices to Promote International Research

**M**any international offices are playing a growing role in fostering international research opportunities on their campuses. Here are two cases of how institutions are successfully coordinating, tracking, funding, and supporting international research collaboration.

### University of South Florida

The University of South Florida (USF) created what Associate Vice Provost for Research, Innovation, and Global Affairs Kiki Caruson refers to as a “community of practice around international research”—the Global Research Operations Work Group. USF then developed an online global research toolkit that brings together campus resources in one place. “We asked folks to come together and share the tools that they use in their worlds to navigate international research,” Caruson explains.

The initiative extends beyond the international office and research office, she says. “It’s also about enfranchising the people who process payroll, people in accounting who deal with the tax implications, and those who work with purchasing.”

Another key element to facilitating international research is creating communication structures, according to Roger Brindley, who oversees USF World, the university’s system-wide global engagement office, in his capacity as the system vice president.

“Every college has an associate dean who has a direct connection to the [senior international officer’s] office,” he says. “We call them associate deans for global. Most research universities have an associate dean for research in each college who is in direct communication with the vice president for research at that institution. Why not do that with your global work as well?”

### University of California-Davis

Joanna Regulska, vice provost and associate chancellor of global affairs at the University of California-Davis (UC Davis), says her office focuses

on three specific tactics to encourage faculty to participate in international research collaboration: informing, engaging, and supporting.

“We ensure an up-to-date website, distribute announcements about funding opportunities and workshops, present at faculty meetings, and provide specific information on existing partnerships and institutional relationships,” she explains.

Engaging faculty requires recognition of their work, so UC Davis created a Chancellor’s Award for International Engagement that showcases faculty members and staff for their outstanding international engagement in carrying out the university’s mission. In 2017–18, UC Davis recognized undergraduate adviser Rosalind Christian for her innovation in global education advising, professor of parasitology Patricia Conrad for her international research and training of health science students, and professor of plant sciences Paul Gepts for his work on African beans.

UC Davis’s international office also promotes international research through the Faculty and Staff Ambassadors program, which connects UC Davis faculty with partner institutions, funding agencies, alumni, parents, and supporters around the world during their travel plans abroad.

“There are many ways to support faculty, including providing country and regional briefings focused on research priorities, internationalization efforts, and funding opportunities; hosting workshops with representatives from funding agencies; and offering internal funding opportunities, such as seed grants for international activities or grants for regional faculty groups,” Regulska says.

“All these activities aim to enable faculty, especially junior faculty, in starting international collaborations, which will in turn expand their network and increase their access to opportunities, including those that may not be available in the United States.”

According to the study, international university research ventures are often affiliated with teaching campuses. Georgia Tech, for example, operates a campus in Metz, France, where it offers courses in English as well as runs an international laboratory with the French National Center for Scientific Research (CNRS). Georgia Tech also collaborates with the National University of Singapore (NUS) to run The Logistics Institute-Asia Pacific (TLI-AP), which focuses on global logistics, information technology, industrial engineering, and supply chain management.

Regulska has witnessed the increased role of such cross-border collaboration over the last decade. “Networks, consortia, or multi-institutional hubs are serving more and more often as a base for large-scale research projects,” she says. “This is both in response to the increasing complexities of scholarly work, but also in response to the benefits generated by the economies of scale of such large undertakings.”

Even funding structures have evolved to rise to this shifting demand in international research. “Funding agencies have even begun to engage in multi-institutional agreements that allow for shaping common research agendas and cost-sharing for such initiatives,” Regulska says.

### **Measuring International Research Collaboration**

While international research collaboration is increasingly prevalent, it is difficult to measure its value quantitatively. However, scholars are turning to economic impact as a benchmark to capture this value.

A 2017 study from Universities New Zealand, titled *Assessing Returns on International Collaboration*, states that “funding for international research collaboration initiatives contributes to GDP by increasing both the total number of researchers who undertake research and improving the quality of research completed by those who receive funding.” International research collaborations, furthermore, tend to have higher returns on investment than domestic research projects.

Similarly, a 2015 report by the Australian Academy of Humanities, *Measuring the Value of International Research Collaboration*, concluded that international research collaboration contributes to research and nonresearch job creation, the development of regional communities, the ability to leverage domestic funding to receive international funding, and the encouragement

of trade and investment opportunities. Other analyses have looked at the value of investments in international research collaborations in specific sectors. According to the Global Health Technologies Coalition, U.S. government investment in global health R&D from 2007 to 2015 generated an estimated 200,000 new U.S. jobs and \$33 billion in economic growth.

Another measure of value is the impact factor of published work, referring to how often an article is cited. This can, in turn, boost an institution’s standing in global rankings. “Every institution that pays attention to international rankings knows that one of the factors these ranking systems use is a citation index,” explains Anthony Ogden, associate vice provost for global engagement at the University of Wyoming. “If I publish with a coauthor from another country, my citation index goes higher.”

A 2014 study, “The Scientific Impact of Nations: Journal Placement and Citation Performance,” which reviews the scientific impact of 1.25 million journal articles, confirmed this dynamic. Not only are papers with authors from multiple countries cited more often, they are also more likely to appear in more prestigious journals.

Ogden says that investments in international research can therefore be very strategic. “Internationally oriented research...improves our rankings, as well as our reputations. Those rankings also play into [how many] international students and scholars come here,” he says.

### **The Role of the International Office**

A university’s global rankings can be a major factor in attracting international students and scholars. While the international office has an obvious role to play in supporting international students and scholars through visa assistance, there is an increasing number of other ways that international offices help promote international research as part of the institution’s larger internationalization agenda.

Some institutions, such as the University of Florida (UF) and Texas Tech University (TTU), have established research units within their international offices that coordinate with the university-wide offices of research. The research functions include providing seed funding, assisting with grant writing, and ensuring compliance with university and funder regulations.

“My office works with faculty to encourage international engagement,” says Sandra Russo, director of the UF Office for Global Research Engagement. “We encourage them to go after grants, often helping them

## Research Spotlight: Chrystal George Mwangi

### *Recipient of the 2018 NAFSA Innovative Research in International Education Award*

**I**t was only natural that Chrystal George Mwangi would bring a global lens to her work as the assistant professor of higher education at the University of Massachusetts-Amherst. The daughter of an immigrant from the Caribbean, George Mwangi often visited family abroad while growing up.

“Having that transnational lens was never unusual for me. It was always a part of who I was,” George Mwangi says.

She began her career in higher education as an administrator working with issues such as diversity and multiculturalism before undertaking a PhD program at the University of Maryland-College Park. “As a doctoral student, I saw that there was a lack of talking about internationalization as a goal in terms of issues of diversity and social justice. It was oftentimes talked about as being a financial contribution to the campus,” George Mwangi explains.

Her doctoral dissertation, which examined how African immigrant families gained access to higher education in the United States, also focused on mobility and migration. Her dissertation helped pave the way for her more recent research on internationalization, which was recognized with the NAFSA Innovative Research in International Education Award in May 2018 from the Teaching, Learning, and Scholarship Knowledge Community (TLS KC).

The award celebrates new and innovative research that shows potential or demonstrated significance in the field of international education. The TLS KC committee recognized George Mwangi for her research project, “Partner Positioning: Examining International Higher Education Partnerships Through a Mutuality Lens.” The project examined 60 international higher education partnerships that received funding for international development projects through the United States Agency for International Development (USAID).

“A lot of research on international higher

education focuses on outcomes that happen as a result of partnerships. I wanted to understand what dynamics were at play in the relationships, particularly between higher education institutions in the United States with partners who are in what I call the majority world”—areas in which most of the world’s population and landmass are located, but are often economically poorer, George Mwangi says.

“Using a framework of mutuality, I wanted to know if these partnerships were mutually reinforcing and mutually beneficial for both partners,” she says.

She found that the partnerships were most often characterized by unequal footing from the very beginning, partly because the funding was situated in the U.S. institution. “Both sides go into the partnerships with authentic intentions, but there was a power imbalance from the get-go,” she says.

The U.S. partner was almost always looked to as the expert, despite the fact that the international partner had a better understanding of its own societal context.

George Mwangi says this skewed relationship points to a need for higher education institutions in the United States to provide training and professional development to ensure that faculty and students going abroad are working with other countries in ways that are mutually beneficial and reciprocal. Grant funders should also consider the ways in which they structure opportunities for institutions both in the United States and abroad to participate in internationalization efforts.

George Mwangi intends for her work on internationalization to have an impact, which is one of the reasons the TLC KC recognized it. “I don’t just want my research to sit on a shelf,” she says. “I hope it can bridge the gap between research and practice.”

***NAFSA welcomes submissions and nominations for the 2019 Innovative Research in International Education Award through January 25, 2019. To submit or nominate someone, visit [bit.ly/TLSAward](http://bit.ly/TLSAward).***

through the proposal process. Sometimes we run grants through my office, especially when the topic meshes well with our interests. We also encourage interdisciplinary work that crosses college boundaries.”

Institutions are also beginning to track where their faculty are working internationally in an effort to

map their global research footprint. The University of South Florida (USF) has implemented a database called Global Discovery Hub to track where faculty are active abroad.

“We collect information from internal and external sources and we feed it into the hub so that we can



**“International scholars often bring a fresh or different approach to an issue; they bring their experience and culture to the campus and the community.”**

—Joan Goodman-Williamson,  
Texas Tech University

get in a footprint of what our faculty are doing and where,” explains Kiki Caruson, associate vice provost for research, innovation, and global affairs. “It’s not confined to research, but teaching, professional development, and even conference presentations. That allows us to begin to connect the dots across partnerships, across what faculty are doing, where our students are coming from, and where they’re going.”

The database enables USF to identify regions where they are most engaged, so they can focus on supporting more strategic partnerships in those areas. “When we began this endeavor, we thought we had an idea

of where our regions of emphasis were,” Caruson says. “We were looking at Brazil, China, and India. What we found is that there’s a tremendous amount of high-quality, high-impact research going on with partners in Canada.”

“Virtually every one of our colleges is represented in a research collaboration with a collaborator in Canada—from marine science, to natural sciences, to art history, to public health, to business. USF has 75 researchers working in active initiatives with Canadian colleagues at this time,” Caruson says.

### **Challenges to the International Research Community**

Just as creating opportunities for faculty to engage in research abroad is an important element of campus internationalization, so too is fostering the academic mobility of international scholars, both short-term visitors and permanent faculty hired from abroad.

Many international scholars are interested in working in the United States at a particular institution due to a strong program or discipline that is at the cutting edge of research, or the opportunity to work with a particular faculty member whose work has had an impact on a particular area, says Joan Goodman-Williamson, director of international relations at Texas Tech University.

For example, USF runs the Ghana Scholars Program, which brings junior faculty from the University of Ghana to Florida to conduct research with a USF faculty mentor in fields ranging from geography to global health. In Ghana, professors have a heavy teaching load, so the opportunity to work at USF gives them dedicated time to focus on their research.

“That’s been very successful in catalyzing work across disciplines and across scholars at the University of Ghana, who bring great ideas and great perspectives to our campus,” Caruson says. “The next phase is for our faculty to go to Ghana to continue these partnerships and to attract external funding.”

For U.S. institutions, having international scholars on campus can help enrich teaching and research. “International scholars and researchers bring their knowledge, expertise, and certain unique sets of skills that make them a powerful and valuable contribution to the university,” Goodman-Williamson says. “International scholars often bring a fresh or different approach to an issue; they bring their experience and culture to the campus and the community.”

But recent policies, like the travel ban, have made it difficult for scholars from some countries to get visas to the United States.

Regulska explains that institutions are facing a changing research climate with tighter visa, data protection, and privacy restrictions. “If researchers cannot meet face to face or work together in labs or conduct joint fieldwork, then how can collaborative and...cross-national research be conducted? How do we maintain the benefit of having different points of view and discovering through different cultural lenses?” she asks.

Bernhard Streitwieser, assistant professor of international education and international affairs at the George Washington University, collaborates with scholars from some countries from which traveling to the United States has become difficult, including a project on refugee student issues with a colleague in Lebanon.

“While increased visa restrictions imposed by the current administration...definitely cause undue complications, they will not prevent those of us who are willing from continuing the important scholarly work we must be engaged in internationally,” Streitwieser says. “We are compelled to find ways to continue being creative and, thankfully, we can work around these restrictions using virtual means.”

Institutions that want to hire and retain international faculty need to think about more than just getting them in the door, says Rumbley. Support systems for international scholars and their families are vital.

“Institutions that may be really successful at attracting researchers from abroad may have a hard time integrating them or really effectively leveraging them,” she says. “They really need good human resources and support to get them settled in very basic ways.”

At TTU, where 17 percent of the faculty come from abroad, the lead administrator for international faculty and staff immigration services meets with international applicants when they come to campus for job interviews. Richard Porter, director of international student and scholar services, explains that providing early immigration advice is a recruitment tool. “It’s a proactive strategy that allows us to recruit the best [international] faculty, because immigration support is one of their greatest needs,” he says.

## Embracing International Research

To better emphasize research within an institution’s internationalization plan, colleges and universities need

to more fully understand the preexisting international dimensions of their faculty’s work, says Kevin Kinser, department head of education policy studies at Penn State. Then, institutions can incorporate those elements into the overall internationalization agenda, like USF has done through its Global Discovery Hub initiative.

Most faculty aren’t usually thinking about international research from the perspective of internationalization, says Kinser. He points to a project between Taiwanese and U.S. universities on atmospheric sciences, which he is currently evaluating.

“[The researchers] are building this partnership because they have questions about extreme weather, and the scholars at the partnering institutions have relevant expertise,” Kinser explains. “But the faculty didn’t get involved with this because it was an international endeavor. They did it because this is where the knowledge is.”

Britta Baron, who leads international strategy development and programming at Humboldt University in Germany, says that comprehensive internationalization often seems to refer to the breadth within the teaching and learning agenda that can be exposed and engaged in internationalization. “There is little documentation [in regard to] the skills, techniques, templates, and standards required to successfully run international research activities,” she says.

Baron encourages international educators to think about the ways in which they might engage with international research in their day-to-day work. “There is great potential for thinking more systematically about ways and means for building success in international research, and also for looking at connecting international research with other components of the internationalization agenda.” ■

---

CHARLOTTE WEST is a freelance writer based in Seattle, Washington.

## FOR MORE INFORMATION

USF Global Discovery Hub: [bit.ly/2EIMXXd](https://bit.ly/2EIMXXd)

USF Global Research Toolkit: [bit.ly/2EqqBIh](https://bit.ly/2EqqBIh)

NAFSA’s *International Partnerships Series*: [bit.ly/2D4gCCS](https://bit.ly/2D4gCCS)

Global Health Technologies Coalition Global Health R&D Spending by State: [bit.ly/2MwubLA](https://bit.ly/2MwubLA)

Georgia Tech International Campuses: [b.gatech.edu/2xh64uO](https://b.gatech.edu/2xh64uO)

UC Davis Chancellor’s Awards for International Engagement: [bit.ly/2p82INv](https://bit.ly/2p82INv)