





International Students and American Competitiveness

Executive Summary

As the organizations representing the presidents of America's leading research universities and the chief executive officers of America's leading companies, the Association of American Universities and Business Roundtable recognize that the United States' continued global competitiveness depends on developing, attracting and retaining top international science, technology, engineering and math (STEM) talent. International students, scientists and engineers help drive cutting-edge research and development, fill job openings in critical STEM fields, advance national security and bolster the U.S. economy by generating new domestic startups and businesses.

To ensure that America's doors remain open to international talent, this report will highlight the importance of the international talent pipeline and examine the symbiotic relationship between academic institutions in the United States and the business community. The report will show the many ways that international talent bolsters our nation's economy and our innovation ecosystem; detail the challenges to attracting and retaining international talent that exist throughout the U.S. immigration system; highlight the increasing competition we face from other countries in terms of attracting and retaining international talent; and present public policy recommendations to ensure that the United States continues to attract the world's best and brightest.



These recommendations include:

- Allowing individuals with advanced degrees in STEM fields from accredited U.S. universities, or foreign equivalents, to be exempted from the employment-based green card limit.
- Eliminating the requirement that students prove an intention to return to their home country upon conclusion of their studies to qualify for a nonimmigrant student visa.
- Increasing the number of H-1B visas available and exempting from the annual visa cap H-1B professionals with advanced degrees in STEM fields from accredited U.S. universities or foreign degree equivalents.
- Reforming or repealing policies that place international students at a disadvantage in obtaining H-1B status.
- Creating immigrant and nonimmigrant visa categories for foreign entrepreneurs.
- Streamlining the definition of STEM.
- Maintaining flexibility in high-skilled visa categories by avoiding overly bureaucratic rules that restrict access to high-skilled workers.
- Reviewing visa policies for graduate students to ensure that the evaluation criteria protect American interests and are not so broad as to eliminate suitable candidates.
- Attracting and retaining the STEM talent necessary for protecting U.S. national security interests.



America's strength lies in its openness, freedom of ideas and our historic ability to benefit from the contributions of people from around the world. As our national competitiveness and national security increasingly depend on our ability to innovate, it is crucial that our immigration policies assist, rather than hinder, our pursuit of the world's top talent. The United States is a nation of immigrants — and we must continue to be if we are to successfully compete as a global science and technology leader.

International Students Advance National Security and Bolster the U.S. Economy

U.S. employers have actively recruited global talent since at least the end of World War II, and the results are evident: consistent innovation and economic growth. This, in turn, has helped propel the United States into its position at the helm of the postwar world order. Today, however, fierce competition with rival nations such as China threatens that position. As our nation looks to increase investment in its technological, scientific and innovative ecosystem, the United States must consider the contributions of international students and workers and modernize our immigration law and policy to secure our future.

The need is already apparent; as just one example, there are currently more than a million STEM job vacancies in U.S. computer occupations. While the domestic workforce can meet some of this demand, the United States must look to foreign talent to maximize market potential. A 2021 report from the Institute for Defense Analyses' Science and Technology Policy Institute (STPI) found that the United States derived substantial economic benefits from foreign STEM talent. In 2019 alone, STPI estimates that the foreign-born STEM workforce contributed \$367 billion to \$409 billion in labor value added; that amounts to 1.7 to 1.9 percent of U.S. GDP. The same report found that foreign-born entrepreneurs have played a central role in founding R&D-intensive U.S. companies. The total value added from these companies is estimated to range from \$260 billion to \$394 billion, or 1.2 to 1.8 percent of GDP.2

International STEM Talent is Vital to our National Interest

International talent is also indispensable for ensuring our national security. A report from the Institute for Progress finds that "50 percent of the advanced STEM degree holders working in the defense industrial base are foreign-born."³ The same report finds that outdated immigration policies are making it difficult for advanced STEM degree holders to remain in the United States and that they are increasingly selecting other countries, such as Canada, as alternatives. The final House GOP China Task Force Report echoes this conclusion, noting that the United States "needs to continue to attract the best and brightest



STEM talent from around the world, or risk falling behind in the global race for talent and losing its competitive advantage in innovation."⁴

The rapid growth of China's scientific enterprise is a rising threat to American leadership. According to a study from the Georgetown University Center for Security and Emerging Technology (CSET), Chinese universities have been producing more STEM doctorates than their U.S. counterparts annually since the mid-2000s.⁵ The report estimates that by 2025, based on current trends, China "will produce more than 77,000 STEM Ph.D. graduates per year compared to approximately 40,000 in the United States."

But there is a significant strategic opportunity for the United States even in this trend. Despite its unprecedented efforts to foster domestic talent, China still faces a variety of significant challenges to attracting and retaining international students. Maintaining a welcoming posture toward international talent, both societally and through our immigration system, must be part of any U.S. strategy to win the global competition for talent and to ensure our economic stability.

The Path from International Student to Nonimmigrant Full-Time Employee in the U.S.

Under current law and regulations, the path for talented international students to come to our country and continue working can be cumbersome and frustrating. These students generally come here using "F" or "J" nonimmigrant visas. To qualify for these visas, each student must prove that he or she has an intent to return to their home country after graduation. The Department of Homeland Security (DHS) monitors these students' status and compliance.

Students can gain on-the-job training through Optional Practical Training (OPT), which allows them to work for up to 12 months after they have graduated in a job related to their field of study or 36 months if they have a STEM degree and work in a STEM job directly related to their field.

International students seeking to work permanently here must first find a U.S. employer willing to file a nonimmigrant visa petition on their behalf. This is often done under the H-1B classification, for specialized occupations; however, the low annual cap on the number of H-1B visas that can be issued further complicates the process. Our immigration system's design lends itself more to pushing talent away from the United States than retaining it.



Economic Benefits of International Students in the Workforce — Optional Practical Training

Business Roundtable conducted an analysis in 2018 showing that reduced student immigration, and therefore reduced OPT participation, would have a negative effect on the U.S. economy. The analysis showed that a 35 percent reduction in the issuance of international student visas and a 60 percent decline in OPT participation would have the following effects over 10 years:

- Real U.S. gross domestic product would decrease by approximately a quarter of a percentage point.
- 443,000 jobs would be lost, including 255,000 jobs held by native-born workers. This reinforces findings from many prior studies showing that foreign-born workers actually create jobs for native-born workers rather than displacing them.
- The average real hourly wage would decrease 17 percent due to increased slack in the labor market and fewer productivity gains.

As is discussed in more detail below, foreign workers create jobs for U.S. workers. This is true with respect to OPT workers. A study by Madeline Zavodny, formerly an economist at the Federal Reserve Banks of Atlanta and Dallas, examined nine years of data on international students with STEM majors working via OPT status and found that large numbers of these students received OPT work authorization when the unemployment rate among U.S. STEM workers was low. The study suggests that U.S. employers are more likely to turn to foreign student workers when they are having a harder time finding U.S. workers for open positions.8 Zavodny concludes that the "OPT program is a small but important way the United States attracts STEM students and enables them to contribute to the U.S. economy after graduation."9

Rather than adopting short-sighted policies that discourage OPT participation, the United States should do everything it can to encourage talented, foreign-born students to study here and to work for U.S. companies after they graduate.

Entrepreneurship and International Students

International students are a key source of entrepreneurship in America. In fact, "immigrants have started more than half (50 of 91, or 55 percent) of America's startup companies valued at \$1 billion or more and are key members of management or product development teams in more than 80 percent of these companies," according to research from the National Foundation for American Policy. "Nearly one-quarter (21 of 91) of the billion-dollar startup companies had a founder who first came to America as an international student,"10 the foundation noted.11



Michelle Zatlyn is one example of how international students go on to make invaluable contributions to the American economy. She is president and CEO of Cloudflare, a publicly traded company which provides web security and infrastructure for more than 25 million properties. While attending Harvard Business School in 2009 as an international student from Canada, Zatlyn started Cloudflare with fellow student Matthew Prince and his friend Lee Holloway. She first worked via OPT while establishing the company and then obtained H-1B status to continue working in the United States. The first H-1B petition filed on her behalf was denied, but a second attempt was approved and allowed her to continue her work. Today, Cloudflare is valued at more than \$35 billion and employs more than 2,000 people.

A recent CSET report discovered that immigrants, many of them former international students, have played a critical role in founding many of America's most promising artificial intelligence (AI) companies. AI is an emerging technology critical to U.S. economic and national security, a field in which competitors like China are working to outpace us. Sixty-six percent of the AI 50 (Forbes' list of the "most promising" U.S.-based AI startups) had at least one immigrant founder. According to the CSET report, "an estimated 72 percent of these founders first came to the United States on student visas; the others came for professional opportunities, in many cases likely using H-1B work visas." The data show that immigrant entrepreneurs are critical to the U.S. AI ecosystem and "the U.S. artificial intelligence sector." ¹²

International Student-Driven Patents

International graduate students are also a vital source of patents and innovation in America. Economists Gnanaraj Chellaraj, Keith E. Maskus and Aaditya Mattoo found that a "10 percent increase in the number of foreign graduate students would raise patent applications by 4.7 percent, university patent grants by 5.3 percent, and non-university patent grants by 6.7 percent."¹³ Their research suggests that reducing the number of foreign students "could significantly reduce U.S. innovative activity."¹⁴

The OPT program contributes to an increase in patenting. "The data show statistically significant positive effects of OPT participation on the number of patents and on average earnings," according to a study by the Niskanen Institute. "All else equal, the data suggests 10 additional OPT participants working in a core-based statistical area (CBSA) leads to about five additional patents originating in that CBSA." 15



International Students Bolster Domestic STEM Talent

The United States faces challenges in growing and educating our domestic STEM talent. As the National Science Board emphasized in its Vision 2030 report, addressing these challenges starts with integrating STEM into all levels of the education system — elementary, secondary and postsecondary — and ensuring that we are taking full advantage of the increasing diversity of the U.S. population by better attracting and retaining women and students from underrepresented groups in STEM fields.¹⁶

As we work to grow our domestic talent, it is also important to recognize the vital role that foreign-born STEM graduates play as professors and instructors, making up more than 29 percent of full-time science and engineering faculty. ¹⁷ Additionally, research suggests that international students are associated with increasing the number of bachelor's degrees in science and technology fields earned by U.S. students. Examining the nearly two decades of data on undergraduates at U.S. universities, economist Madeline Zavodny found that "each additional 10 bachelor's degrees — across all majors — awarded to international students by a college or university leads to an additional 15 bachelor's degrees in STEM majors awarded to U.S. students."18

Zavodny suggests that because international students disproportionally enroll in STEM programs, increased international enrollment causes universities to devote more resources to STEM departments which then become more attractive for domestic students as well. When thinking about domestic vs. international talent, we must move away from the idea that international talent pushes out, or comes at the expense of, domestic students.

The research also concluded that international students do not take away educational opportunities from U.S. students because most colleges and universities have more than enough capacity to enroll the students they want to enroll.¹⁹ For example, the number of full-time international students enrolled in graduate degree programs in computer and information sciences at U.S. universities increased from 10,930 in 1998 to more than 44,000 in 2019. At the same time, the number of full-time U.S. students in graduate-level computer and information sciences rose from 9,042 in 1998 to 17,334 in 2019.²⁰ If student admissions in the United States were zero-sum, enrollment in computer and information sciences would not have increased at the same time for both U.S. and international students.

To successfully compete with countries like China, we must adopt a "both/and" approach that both develops our domestic talent and simultaneously seeks to attract the best and brightest from across the world.



U.S. University Graduate Programs With a Majority of International Students (2019)

Field	Number of U.S. Universities With More Than 50 Percent International Students in Graduate School Program (2019)	Percentage of U.S. Universities With a Majority of International Students in Graduate School Program (2019)
Electrical (and Electronics and Commercial) Engineering	149	88%
Industrial/Manufacturing Engineering	65	86%
Economics	86	80%
Statistics	60	79%
Computer and Information Sciences	211	78%
Civil Engineering	93	76%
Mechanical Engineering	101	67%
Metallurgical and Materials Engineering	36	63%
Pharmaceutical Sciences	29	63%
Chemical Engineering	55	61%
Mathematics/Applied Math	83	54%

Source: National Science Foundation, Survey of Graduate Students and Post-doctorates, National Foundation for American Policy calculations. U.S. students include lawful permanent residents. Note: analysis limited to programs with at least 30 full-time students.



The Link Between International Students and the U.S. Workforce

International students often become a part of the U.S. workforce at the conclusion of their studies. This talent pipeline is critical for U.S. businesses as they try to manage a severe shortage of STEM talent: more than 11 million STEM job openings are projected by 2030 — but the U.S. domestic STEM workforce is not nearly sufficient to meet that demand.²¹ Despite the ever-increasing need for international STEM workers, the U.S. immigration system provides few options and no guarantees.²²

Research shows that this lack of openness in the U.S. labor market negatively impacts international student interest in enrolling at U.S. universities. Kevin Shih, a researcher at Queens College, conducted a study examining the relationship between the availability of high-skilled temporary H-1B visas and international students in the United States. After a temporary increase in the numerical limitation on the number of H-1B visas available for fiscal years 2001 through 2003, the annual limitation returned to 65,000. Reducing the number of available visas back to a level that we knew was insufficient to meet demand lowers the expected return for studying in the United States; if international students perceive that they will be unlikely to secure work authorization following graduation, studying in the United States becomes much less attractive. Decreasing the number of available visas also signals a less friendly and welcoming climate for international talent, which further discourages international students and damages information networks that facilitate information exchange about opportunities in the United States. Due to these factors, Shih estimates that the decrease in the H-1B annual cap in FY 2004 caused international enrollment to decline by 10 percent.²³ Given the increasingly intense global competitions for talent and existing shortages across a variety of STEM fields, the United States cannot afford to drive away international students and workers and must work to maintain international perceptions of the United States as a welcoming destination for talent.

Highlights from the Fiscal Year (FY) 2023 H-1B Lottery

Demand for H-1B visas is vastly outpacing supply. U.S. Citizenship and Immigration Services (USCIS) received 483,927 H-1B registrations for 85,000 available H-1B visas for FY23 — representing a 57 percent increase in the number of registrations from FY22 and the highest number of registrations ever received by USCIS.

Based on these numbers, there were approximately six registrations for each available visa and an FY23 H-1B registration had a 17 percent chance of being accepted.

This sends signals to potential international talent of an unfriendly and unwelcoming climate, discouraging students from studying in the United States. It also lowers potential international students' expectations that they will be able to find U.S. employment after graduation, thus reducing their interest in studying here.²⁴



Section 2 | Policies Among U.S. Competitors for Students and Talent

Other nations have developed comprehensive immigration policies and talent-recruitment campaigns to attract international students while the United States has not — putting our companies and universities at a disadvantage in the global competition for talent. Below is a look at two of America's leading competitors for students and how government policies play a significant role in where international students choose to attend universities.

Canada

Canada has developed stronger and more attractive policies than the United States for international students to gain permanent residence and allow individuals to work on highskilled temporary visas. In the United States, an international student can work on OPT for 12 months or 36 months in a STEM field. In general, international students must leave the country after completing OPT unless they have obtained a nonimmigrant work status such as H-1B status. Obtaining nonimmigrant work authorization is a cumbersome process that requires significant amounts of paperwork and steep processing fees. Students often remain in a state of limbo while it takes months to obtain final approval from DHS. Selection for an H-1B visa is especially difficult because demand dramatically exceeds the annual numerical cap on available visas.

Under Canada's Express Entry program, meanwhile, many temporary visas are approved within two weeks. Moreover, there is no annual limit on high-skilled temporary visas. Provinces can use their immigration allotment to target skilled workers.

By comparison, our country has a low statutory annual numerical limit on employmentbased green cards (140,000, including dependent spouses and children) along with a percountry limit (7 percent from one country); this results in long wait times for many highly skilled applicants trying to immigrate to the United States. The impact falls most heavily on scientists and engineers from India. The Congressional Research Service (CRS) has estimated that, without a change in the law, it would take 195 years to eliminate the backlog of Indians in the employment-based second preference category.²⁵ CRS predicts the backlog for Indian nationals in all three employment-based categories will reach nearly 2.2 million by FY 2030, unless the immigrants move elsewhere.²⁶

Meanwhile, Canada has made it relatively easy for international students to stay and work after graduation and gain permanent residence. International students who graduate from a public college or university in Canada receive a three-year post-graduation work permit. During that timeframe, students who work a minimum of a year in a skilled position and/or complete post-secondary studies in Canada are rewarded through the Express Entry system for permanent residence. Some provinces even offer a direct path to permanent resident



status for those holding advanced degrees from Canadian universities, even if they do not have a job offer.²⁷

While individuals could wait potentially decades for permanent residence in the United States, there is no per-country limit on employment-based immigrants in Canada, and it takes approximately six to eight months for approvals after an applicant submits an online application (with only somewhat longer waits for the programs administered by Canadian provinces).

United Kingdom

Facing new competitive pressures after Brexit, the United Kingdom had modeled its policies for international students after Canada. U.K. policymakers hope to attract more top talent by presenting a clear path to permanent residence for students.

International students who graduate from qualified U.K. universities can receive graduate visas that allow them to work for two years in the United Kingdom (three years for individuals with a Ph.D.). And time spent in the United Kingdom under the graduate visa route does not count toward settlement status.²⁸ After three to five years in a qualified temporary status, international talent in the United Kingdom can apply for permanent residence without the years (decades in some cases)-long queue they would face in the United States. An individual can apply for eventual permanent residence after being on a Skilled Worker or Innovator (Entrepreneur) visa.

In August 2019, the U.K. government announced a new visa to attract science and engineering talent. The Global Talent scheme provides a visa for an initial three-year period with no minimum salary requirements or the need to have an employer sponsor. The visa allows individuals to travel in and out of the United Kingdom. Following the threeyear period, foreign nationals can apply for Indefinite Leave to Remain (ILR) in the United Kingdom. After three years, ILR holders can reside in the United Kingdom permanently and access benefits and healthcare the same as U.K. nationals do.²⁹

Consequences of an Outdated Immigration System

International students have demonstrated they will vote with their feet. Canada produced more attractive policies for students, particularly by improving opportunities to work long term after graduation, at the same time that gaining a work visa or permanent residence in the United States became more difficult. The result? Between 2016 and 2018, the number of Indian students attending Canadian universities increased by more than 100 percent, while the number of Indian students in graduate-level engineering and computer science programs at U.S. universities declined by 25 percent.³⁰ It is obvious why the United Kingdom chose Canada, rather than the United States, as a model for attracting more international students.



At a time when other nations are increasing their own research investments and employing strategies to attract leading technical experts, we must recommit to winning the global race for talent. While our nation's premier higher education system and research enterprise draw top international talent from around the world, our outdated policies too often require these top minds to return home. Ceding many of these brilliant minds to competitor nations is self-defeating.

Unforced Errors in Retaining Top Talent

The United States must stop committing unforced errors when it comes to retaining the best and the brightest. Take Turkish national Erdal Arikan for example. While attending a prestigious U.S. university he sought, but was unable to secure, work authorization here; he returned to Turkey. While studying here, Arikan had published a paper that solved a fundamental problem in information theory, allowing for much faster and more accurate data transfers. Arikan's solution turned out to be the breakthrough needed to move from 4G telecommunications networks to much faster 5G mobile internet services.

The United States' loss of Arikan was China's gain; that nation funded his research. Four years later, China's national telecommunications champion, Huawei, used Arikan's discovery to invent some of the first 5G technologies. Huawei holds more than two-thirds of the patents related to Arikan's solution — 10 times more than its nearest competitor — and the United States does not have a single major company competing. Had the United States been able to retain Arikan, this history might well have been different.



Section 3 Policy Recommendations

The Immigration Reforms U.S. Policymakers Can Enact to Encourage International **Students to Stay and Continue Contributing to America**

U.S. policymakers face a choice: America can continue its current policies or enact smart reforms to attract and retain international students and global talent. Maintaining current immigration policies or imposing new restrictions likely would cause U.S. universities to lose more international students to other countries, harming the U.S. economy, aiding America's competitors and threatening our national security.

Policymakers should consider the following policies:

- 1. Allow individuals with advanced degrees in STEM fields from accredited U.S. universities, or foreign equivalents, to be exempted from the employmentbased green card limit. Such an exemption would both attract additional international talent to the United States and then would allow those individuals to continue contributing to the U.S. economy over the long term as permanent residents.
- 2. Eliminate the requirement that students prove, to qualify for a nonimmigrant student visa, an intention to return to their home country upon conclusion of their studies. Clarifying the law to make it clear that international students do not have to prove an intent to return home once they finish their studies would make U.S. universities more competitive internationally, both because it would reduce processing times and administrative delays and because it would signal to prospective students that the United States welcomes international talent. The current policy does the opposite — it establishes another substantial obstacle for international students to navigate and creates perceptions that the United States is an unwelcoming environment.
- 3. Increase the number of H-1B visas available and exempt H-1B professionals with advanced degrees in STEM fields from accredited U.S. universities, or foreign equivalents, from the annual visa cap. International students are more likely to choose U.S. universities if there are opportunities for long-term employment after graduation. U.S. businesses often recruit international graduates from university campuses, but the work authorization process, usually pursued through the H-1B nonimmigrant visa classification, is often a major obstacle to this talent recruitment. In FY 2022 the U.S. government rejected more than 70 percent of the approximately 308,000 H-1B registrations because the annual limit



- for H-1B petitions is 85,000. Congress should create an H-1B cap exemption for professionals who have earned advanced STEM degrees from U.S universities and for physicians in training and should continue to exempt higher education institutions, nonprofits and government research institutes.
- **4. Avoid policies that place international students at a disadvantage for obtaining H-1B status.** DHS should avoid policies, such as previously considered proposals to award H-1B petitions from highest to lowest salary, that would make it difficult for individuals with little work experience to gain approval. An inability to secure long-term employment in the United States would discourage many students from coming to U.S. universities, ultimately making our nation less competitive.
- **5.** Create immigrant and nonimmigrant visa categories for foreign entrepreneurs. The U.S. immigration system lacks a startup visa that would allow foreign nationals to gain permanent residence by founding a business, raising capital and employing U.S. workers. Rather than forcing such individuals to use circuitous immigration routes, the United States should establish specialized visa categories to incentivize foreign entrepreneurs to consider the United States as they start their businesses.
- 6. Streamline the definition of STEM. DHS should apply the existing definition of "STEM fields of study" under the STEM Designated Degree Program List, established in April 2008 and expanded in 2012, as a reference in legislation to ensure all related fields that are critical to U.S. economic growth and competitiveness are recognized by the Department of Homeland Security. If legislation instead refers to the Department of Education's Classification of Instructional Programs, which is more limited in scope, then it is critical to include all STEM fields, including (I) computer and information sciences and support services; (II) engineering; (III) mathematics and statistics; (IV) biological and biomedical sciences; (V) physical sciences; (VI) agriculture sciences; and (VII) natural resources and conservation sciences.
- **7.** Maintain flexibility in the high-skilled visa categories by avoiding overly bureaucratic rules that restrict access to high-skilled workers. Absent legislation, DHS should continue to find efficiencies and opportunities for reform within the current system. For example, the restoration of USCIS' granting deference to prior adjudications has reduced the risk of inconsistent decisions and has reduced processing times. Similarly, DHS added 22 new fields of study to the STEM OPT program in January 2022.
- **8.** Review visa policies for graduate students to ensure that evaluation criteria protect American interests but are also not so broad as to eliminate suitable candidates. DHS and the Department of State lack the necessary funding



and personnel to maximize the strengths of our current system. Delays and inconsistency in processing and adjudication, coupled with the inability to schedule visa interview appointments abroad, continue to plague the process and thus leave the United States at a competitive disadvantage. We need strong vetting and security measures for foreign nationals and to reduce the processing times that can adversely affect national security because petitions and applications languishing in the queue are not being actively vetted.

9. Attract and retain the STEM talent necessary for protecting U.S. national **security interests.** Now more than ever, it is critical that the United States reimagine our talent recruitment efforts and implement innovative solutions that secure the talent we need to maintain our national security. A new and stronger program will require policies that attract and retain top international students and researchers. Building pathways for international STEM talent to stay in the United States after graduation, create their innovations in America and contribute to advancing the field of science in the United States is vital to our ability to compete globally.

The United States has always welcomed people willing to take a chance by studying or working far from home. International students have proven time and again that they add value to our universities, strengthen the U.S. economy, create jobs and prosperity for Americans, and bolster national security. U.S. policymakers can keep the American economy strong and protect our national interests through immigration policies that welcome international students into our universities and then into our workforce.







Association of American Universities

Founded in 1900, the Association of American Universities is composed of America's leading research universities. AAU's 65 research universities transform lives through education, research, and innovation.

AAU member universities earn the majority of competitively awarded federal funding for research that improves public health, seeks to address national challenges, and contributes significantly to our economic strength, while educating and training tomorrow's visionary leaders and innovators.

AAU member universities collectively help shape policy for higher education, science, and innovation; promote best practices in undergraduate and graduate education; and strengthen the contributions of leading research universities to American society.

Business Roundtable

Business Roundtable CEOs lead America's largest companies, employing over 20 million workers. Their companies' total value, over \$20 trillion, accounts for half of the value of all publicly-traded companies in the United States. They spend and invest over \$7 trillion a year, helping sustain and grow tens of thousands of communities and millions of small- and medium-sized businesses.







- 01. Crane et al., Economic Benefits and Losses from Foreign STEM Talent in the United States, Science and Technology Policy Institute, Institute for Defense Analyses, October 2021.
- 02. lbid.
- Neufeld, "STEM Immigration Is Critical to American National Security," Institute for Progress, March 2022.
- McCaul et al., "China Task Force Report," China 04. Task Force, September 2020.
- Zwetsloot et al., "China is Fast Outpacing U.S. STEM PhD Growth," Center for Security and Emerging Technology, August 2021.
- 06. Ibid.
- According to Chinese Ministry of Education data, international students accounted for only about 7 percent of doctoral enrollments in China in 2018, and the share was lower in prior years. Calculated by Zwetsloot et al., "China is Fast Outpacing U.S. STEM PhD Growth," Center for Security and Emerging Technology, August 2021.
- 08. Madeline Zavodny, International Students, STEM OPT and the U.S. STEM Workforce, NFAP Policy Brief, National Foundation for American Policy, March 2019. Zavodny further found that an "[a] nalysis of the data show unemployment rates are lower in areas with larger numbers of foreign students doing OPT as a share of workers in STEM occupations. Comparisons at the state level likewise show a negative relationship. . . ."
- 09. Ibid.
- Stuart Anderson, Immigrants and Billion-Dollar Companies, NFAP Policy Brief, National Foundation for American Tina Huang, Zachary Policy, October 2018.
- Stuart Anderson, Immigrant Entrepreneurs and U.S. Billion - Dollar Companies, National Foundation for American Policy, July 2022.
- 12. Tina Huang, Zachary Arnold and Remco Zwetsloot, Most of America's "Most Promising" AI Startups Have Immigrant Founders, Center for Security and Emerging Technology Data Brief, Georgetown University, October 2020.
- Gnanaraj Chellaraj, Keith E Maskus and Aaditya Mattoo, The Contribution of Skilled Immigration and International Graduate Students to U.S. Innovation. Policy Research Working Paper; No. 3588. World

- Bank, Washington, DC, 2005.
- 14. Ibid.
- 15. Jeremy Neufeld, Optional Practical Training (OPT) and International Students After Graduation, Niskanen Center, Research Paper, March 2019.
- Vision for the Future, National Science Board 2030, May 2020.
- Science & Engineering Indicators: Foreign-born 17. Students and Workers in the U.S. Science and Engineering Enterprise, National Science Board, 2020.
- The Impact on U.S. Men and Women in STEM Fields of Increases in International Students," Madeline Zavodny, National Foundation for American Policy, April 2021.
- 19. Ibid.
- 20. International Students in Science and Engineering, NFAP Policy Brief, National Foundation for American Policy, August 2021.
- Seizing Up the Gap in our Supply of STEM Workers: Data & Analysis, New American Economy, March 29,
- America's industries of the future need more STEM workers, fwd.us, March 3rd 2020.
- 23.
- 24. "Labor market openness, H-1B visa policy, and the scale of international student enrollment in the United States.," The Free Library. 2016 Western Economic Association International 10 Aug. 2022 https://www.thefreelibrary.com/ Labor+market+openness%2c+H-1B+visa+policy%2c+ and+the+scale+of...-a0441162388.
- The Employment-Based Immigration Backlog, Congressional Research Service, March 26, 2020.
- 26.
- "How the Provincial Nominee Program (PNP) 27. works," Government of Canada, July 7, 2022.
- "Graduate Route Now Open," Fragomen, July 1, 28.
- 29. "New Global Talent Visa Forthcoming," Fragomen, August 14, 2019.
- Analysis of International Student Data for the 30. 2018-19 Academic Year, NFAP Policy Brief, National Foundation for American Policy, June 2020.

