

WILL THE UNITED STATES RUN OUT OF SKILLED TECHNOLOGY WORKERS?

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ABSTRACT

The United States' standing in the world has been waning over the years, with more and more STEM and skilled workers looking to other countries for work and to potentially start a better life. There are likely a plethora of reasons, but the lack of immigration reform in the United States and its continued political divisiveness over immigration policy certainly does not help. It is no coincidence that many STEM workers are choosing places like Australia, Italy, Greece, Canada or other countries that do not put up barriers to entry. It can be argued that the United States is no longer enticing the world's talent, but rather subjecting foreign nationals to unnecessary hurdles.

This Article will review the origins of the U.S. immigration system and how its evolution has led to the current visa systems. Additionally, it will critique the current visa options for STEM and skilled workers in the United States and compare the options that Canada and other countries have used. Lastly, it will detail the best response to the current issue and ways that the current U.S. immigration system can evolve to ensure that lasting changes are made.

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I. INTRODUCTION	105
II. THE ORIGINS OF THE U.S. IMMIGRATION SYSTEM.....	106
III. THE CURRENT NEED FOR STEM WORKERS IN THE U.S. LABOR MARKET	108
IV. THE STEM IMMIGRANT AND NONIMMIGRANT VISAS	109
A. OPTIONAL PRACTICAL TRAINING	110
B. THE L-1 VISA CATEGORY	111
C. O-1 VISA: INDIVIDUALS WITH EXTRAORDINARY ABILITY OR ACHIEVEMENT	112
D. TN NAFTA/UMSCA Visa.....	113
E. H-1B NONIMMIGRANT VISA	115
F. DIVERSITY LOTTERY.....	117
G. IMMIGRANT VISAS ARE NOT THE ANSWER EITHER.....	118
V. CURRENT INDUSTRY NEED AND OVERARCHING ISSUES WITH CURRENT NONIMMIGRANT VISA SYSTEMS	119
VI. DIFFICULTY RETAINING HIGHLY SKILLED FOREIGN-BORN GRADUATES.....	122
VII. CANADA’S APPROACH TO ATTRACTING STEM AND SKILLED WORKERS.....	123
VIII. HOW DOES THE NEGATIVE LIST IMPACT IT PROFESSIONS?	128
IX. CANADA’S START-UP VISA:	134
X. CANADA’S APPROACH TO RECRUITING TECHNOLOGY WORKERS THROUGH ITS IMMIGRATION SYSTEM	135
XI. WHAT SHOULD THE UNITED STATES DO TO REGAIN ITS ABILITY TO RECRUIT STEM AND SKILLED WORKERS? ..	136
A. EXPAND O-1 VISAS SO THEY CAN BE USED REGULARLY BY STEM PHDs AND OTHER SKILLED WORKERS	136
B. PROVIDE IMMIGRANT PATHWAYS FOR STEM FOREIGN STUDENTS THAT GRADUATE FROM A U.S. BASED POST-SECONDARY INSTITUTION.....	136
C. EXPAND TN VISA AVAILABILITY TO STEM AND SKILLED WORKERS.....	137

D. REFORM THE H-1B VISA PATHWAY AND ESTABLISH AN H-1B VISA FOR SKILLED AND STEM WORKERS..... 137

E. REFORM BUSINESS STRUCTURE AND PRACTICES..... 138

F. CREATE THE STARTUP VISA OR REINTRODUCE THE STARTUP VISA ACT OF 2013 139

XII. CONCLUSION 140

I. INTRODUCTION

Over the past several years, a critical question seems to plague most business owners, hiring managers, and those within the STEM industries: why and how does the United States continue to run out of skilled and STEM workers? A study from the Partnership for a New American Economy and the Partnership for New York City titled NOT COMING TO AMERICA found that only 4.4% of U.S.-born undergraduates are enrolled in science, technology, math and engineering (“STEM”) programs, while 33.9% of students in Singapore, 31.2% of students in China, 12.4% of students in Germany, and 6.1% of students in the United Kingdom were enrolled in STEM programs.¹ It has been incorrectly assumed that the United States is the mecca for the world’s intellectual elite. Historically, this has been the case. It can be argued that for decades the United States was the epicenter for most foreign skilled workers. This, however, is no longer the case. There is a burgeoning trend that shows most skilled STEM workers are looking elsewhere for their new beginnings.

The NOT COMING TO AMERICA report concluded that, as a result of the STEM and skilled worker shortage, the U.S. would face a shortage of 230,000 high tech workers by 2018.² Since 2012, very little has been done to address this shortage. Reports from February 2024 project a shortage of available technology talent to increase to 1.2 million by 2026.³ The U.S. immigration system remains mired in gridlock, especially when addressing the recruitment of skilled workers from abroad. Given the U.S. immigration system still uses the framework of immigration legislation passed in 1965—almost 60

1. P’SHP FOR NEW AM. ECON. & P’SHP FOR N.Y.C., NOT COMING TO AMERICA 12 (May 2012), <https://research.newamericaneconomy.org/sites/all/themes/pnae/not-coming-to-america.pdf> [<https://perma.cc/8AZU-ATE5>].

2. *Id.* at 2.

3. Sandra Loughlin, *The Tech Talent Shortage: Global Report Addresses Today’s Critical Hiring and Retention Challenges*, EPAM (Feb. 22, 2024), <https://www.epam.com/about/newsroom/in-the-news/2024/the-tech-talent-shortage-global-report-addresses-todays-critical-hiring-and-retention-challenges> [<https://perma.cc/5AEH-BY45>].

years ago—it is no wonder that most multi-national companies are looking elsewhere to set up offices. The 1965 framework no longer serves the interest of the current U.S. economy and the growing need for skilled and STEM workers.

II. THE ORIGINS OF THE U.S. IMMIGRATION SYSTEM

The current immigration system has evolved greatly throughout the years along with the various individuals who have immigrated to the United States. Since America's inception, immigration law was virtually nonexistent.⁴ Historically, the U.S. was relatively open to immigrants.⁵ That changed in 1921 when Congress enacted the Emergency Quota Act.⁶ The quota system provided for in the Act largely favored immigrants from Northern and Western Europe.⁷ In 1924, Congress also created the U.S. Border Patrol within the Bureau of Immigration, which has grown in size and strength.⁸ The changes in U.S. Immigration Policy occurred against the backdrop of an influx of immigrants, which resulted in the arrival of nearly 28 million immigrants to U.S. shores in the early 1900s.⁹

In the 1950s, Congress introduced the preference system designed to unite immigrant families and attract skilled immigrants.¹⁰ This system is, by and large, the system in use today. The Immigration and Nationality Act of 1952 created family- and work-based categories; most of the work-based categories tended to favor occupations that were experiencing labor shortages at the time.¹¹ Due to the implementation of this new immigration policy, legal immigration greatly expanded.¹² Since the 1960s, changes to the U.S. immigration system slowed and did not address the needs of the time, especially concerning lower-skilled workers.¹³ One such program that the federal

4. Andrew M. Baxter & Alex Nowrasteh, *A Brief History of U.S. Immigration Policy from the Colonial Period to the Present Day*, CATO INST. (Aug. 3, 2021), <https://www.cato.org/policy-analysis/brief-history-us-immigration-policy-colonial-period-present-day#reforms-1990s> [<https://perma.cc/V3N4-3YUK>].

5. *Id.*

6. *Id.*

7. *Id.*

8. *Id.*; see also *Border Patrol History*, U.S. CUSTOMS & BORDER PROT., <https://www.cbp.gov/border-security/along-us-borders/history> [<https://perma.cc/B4L5-R89N>] (May 10, 2024).

9. Baxter & Nowrasteh, *supra* note 4; see also Joe Myers, *These 3 Charts Explain the Complex History of US Immigration*, WORLD ECON. F. (Feb. 1, 2017), <https://www.weforum.org/stories/2017/02/from-the-1900s-to-today-a-snapshot-of-immigration-to-the-us/>; see also *Historical Overview of Immigration Policy*, CTR. FOR IMMIGR. STUD., <https://cis.org/Historical-Overview-Immigration-Policy> (last visited Nov. 25, 2024).

10. Baxter & Nowrasteh, *supra* note 4.

11. *Id.*

12. See *id.*

13. See *id.*

government allowed to lapse was the Bracero program, which led to as many as 800,000 temporary migrants from Mexico no longer being able to work in the agricultural industry and cut legal immigration from Mexico by 50%.¹⁴

From the 1960s until the early 2000s, there were minimal changes to immigration systems that did not accurately address systemic concerns percolating in the country.¹⁵ In 2000, Congress passed the American Competitiveness in the Twenty-First Century Act, “which temporarily raised the annual H-1B cap and permanently exempted universities and nonprofit research institutions from the visa cap.”¹⁶ Four years later, Congress passed the H-1B Visa Reform Act, which increased visas for highly skilled workers.¹⁷ Changes continued with the incoming Obama Administration. President Obama issued an Executive Action to “help high-skilled workers on H-1B visas . . . change their jobs easier,” but did not increase the number of visas.¹⁸ Changes to immigration policies occurred during the Trump Administration as well, but those changes largely included rolling back immigration measures rather than increasing immigration pathways.¹⁹

Between 2016 and 2017, the U.S. saw a decrease in immigration numbers that was largely the result of immigration policies enacted once President Trump took office.²⁰ From January 2017 through to February 2020, “the average number of green cards issued per month to immigrants abroad was down about 0.5 percent.”²¹ This is also on par with the numbers related to nonimmigrant visas.²² From January 2017 through to February 2020, prior to the COVID-19 pandemic, nonimmigrant visas per month were down twelve percent.²³

14. Charles Kamasaki, *U.S. Immigration Policy: A Classic, Unappreciated Example of Structural Racism*, BROOKINGS (Mar. 26, 2021), <https://www.brookings.edu/articles/us-immigration-policy-a-classic-unappreciated-example-of-structural-racism> [https://perma.cc/Y75N-NZZJ].

15. Baxter & Nowrasteh, *supra* note 4.

16. *Id.*

17. *Id.*

18. *Id.*

19. *See id.*

20. Alex Nowrasteh, *President Trump Reduced Legal Immigration. He Did Not Reduce Illegal Immigration*, CATO INST. (Jan 20, 2021, 10:01 AM), <https://www.cato.org/blog/president-trump-reduced-legal-immigration-he-did-not-reduce-illegal-immigration> [https://perma.cc/2UPT-57QE].

21. Baxter & Nowrasteh, *supra* note 4.

22. Stuart Anderson, *New Data: Legal Immigration Has Declined under Trump*, FORBES (Jan. 13, 2020, 10:41 AM), <https://www.forbes.com/sites/stuartanderson/2020/01/13/new-data-legal-immigration-has-declined-under-trump/> [https://perma.cc/AGT3-VTXD].

23. Baxter & Nowrasteh, *supra* note 4.

III. THE CURRENT NEED FOR STEM WORKERS IN THE U.S. LABOR MARKET

The U.S. Labor Market has historically relied on foreign immigrants to fill labor shortages across the country—STEM jobs are no different. Between 2020 and 2030, it has been projected that STEM jobs will “increase by 10.5 percent (to almost 11.3 million jobs)[;] . . . the growth rate is greater than the 7.7 percent growth projected for all occupations during the same period.”²⁴ According to the Bureau of Labor Statistics, “the United States will need approximately one million more STEM workers in 2030 than it did in 2020.”²⁵ This statistic does not include STEM workers that will need to be replaced by retiring workers or workers that leave the field for other reasons.²⁶ The need for STEM workers has seen an increase in demand, however there appears to be no corresponding effort to actually obtain STEM workers.

Other countries have taken initiative to attract STEM workers.²⁷ China for instance has “increase[d] the STEM share of its workforce.”²⁸ The United States would have to increase the amount of STEM degrees or STEM worker recruitment “by four times as much in order to keep up” with China.²⁹ Countries like China have seized upon “the United States’s current immigration system as an opportunity to poach talent” from all over the world.³⁰ While the United States is still the world leader in cutting-edge research, China and other countries have “already caught up on numerous [other] important metrics.”³¹

The lack of STEM workers choosing the United States is not merely an issue for the technology industry, but it also impacts the United States’ position on the world’s stage. A “report by the National Security Commission on Artificial Intelligence recently noted: ‘for the first time in our lifetime, the United States risks losing the competition for talent on the scientific frontiers.’”³² While some may attempt to alleviate their concern by convincing themselves that the need for STEM workers is a Silicon Valley problem, it

24. *Foreign-Born STEM Workers in the United States*, AM. IMMIGR. COUNCIL (June 14, 2022), <https://www.americanimmigrationcouncil.org/research/foreign-born-stem-workers-united-states> [https://perma.cc/2C2E-XTEG].

25. *Id.*

26. *Id.*

27. See Katharina Buchholz, *Which Countries’ Students are Getting Most Involved in STEM?*, WORLD ECON. F. (Mar. 20, 2023), <https://www.weforum.org/stories/2023/03/which-countries-students-are-getting-most-involved-in-stem>.

28. Jeremy Neufeld, *STEM Immigration is Critical to American National Security*, INST. FOR PROGRESS (Mar. 30, 2022), <https://ifp.org/stem-immigration-is-critical-to-american-national-security/> [https://perma.cc/2PKB-Z7JV].

29. *Id.*

30. *Id.*

31. *Id.*

32. *Id.*

has greater implications than just technology (“tech”). America’s “defense industrial base . . . is heavily reliant on international STEM talent.”³³ In fact, 50% of STEM workers in the defense industry are foreign born.³⁴ The Department of Defense has considered the lack of STEM workers by concluding that the “‘workforce challenges and the availability of talent are a critical concern,’ finding that 82% of companies in the defense industrial base report that it is difficult to find qualified STEM workers.”³⁵ In other industries like semiconductor manufacturing, more than 50% of the workforce are STEM workers.³⁶ While “68% of job vacancies in quantum computing” and over “70% of machine learning and data science workforce” all require STEM workers.³⁷

Immigrant STEM workers tend “to possess skills that complement those of their U.S.-born co-workers” and “the presence of immigrants in the workplace increases the productivity (and therefore the wages) of all workers.”³⁸ STEM immigrant workers have been shown to “increase[] the revenue of the firms in which they work, which enables employers to hire more workers.”³⁹ This is largely due to the fact that immigrant workers are more likely to have advanced degrees than U.S.-born workers.⁴⁰ For example, “67.3 percent of U.S.-born STEM workers had at least a bachelor’s degree . . . [while] 86.5 percent of immigrant STEM workers” had at least a bachelor’s degree.⁴¹ Studies have shown that immigrant STEM workers are more likely to have advanced degrees compared to U.S.-born STEM workers, and “[m]any of these foreign-born advanced degree holders obtained their degrees in the United States.”⁴² But the attitude amongst those who view immigration as a hinderance to America’s growth have largely curtailed immigration reform, which has led to complications in immigration laws that can be hard to navigate for employers and employees.

IV. THE STEM IMMIGRANT AND NONIMMIGRANT VISAS

Immigration pathways for STEM employment in the United States can be complicated and time consuming for both employer and employee. Generally, a STEM worker can apply for an immigrant or nonimmigrant visas; an immigrant visa allows the worker to potentially obtain permanent

33. *Id.*

34. *Id.*

35. *Id.*

36. *Id.*

37. *Id.*

38. *Foreign-Born STEM Workers in the United States, supra* note 25.

39. *Id.*

40. *Id.*

41. *Id.*

42. *Id.*

residency, nonimmigrant visas do not allow the worker to obtain permanent residency and only allows the worker to enter the United States on a temporary basis.⁴³

The following are the nonimmigrant pathways for STEM employment in the United States:

- Optical Practical Training (OPT)
- H-1B Specialty Occupation
- O-1 Extraordinary Ability or Achievement
- TN Visa
- L-1B Intracompany transfer for a specialized knowledge worker of a multinational firm.
- L-1A Intracompany transfer – Manager or Executive⁴⁴

Each nonimmigrant pathway has its strengths and weaknesses; however, these pathways have not been reformed to address the needs of the United States' labor market.

A. OPTIONAL PRACTICAL TRAINING

Each pathway presents its own challenges and may not apply to every applicant. For example, Optical Practical Training (“OPT”) only applies to F-1 students that work in a position directly related to their major area of study.⁴⁵ For STEM-related occupations, an OPT can be extended for up to twenty-four months, which can prove beneficial for recent STEM graduates.⁴⁶ Previous studies have shown that “approximately 72 percent of international students . . . use their OPT after completing their degree.”⁴⁷ The utilization of OPT has grown since there is no cap on the amount of OPT visas

43. See generally *Immigration Pathways for STEM Employment in the United States*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/stem-employment-pathways/immigrant-pathways-for-stem-employment-in-the-united-states> [<https://perma.cc/DM6A-8Y9L>] (Sept. 3, 2024).

44. See generally *Nonimmigrant Pathways for STEM Employment in the United States*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/stem-employment-pathways/nonimmigrant-pathways-for-stem-employment-in-the-united-states> [<https://perma.cc/VLN4-9FAQ>] (Sept. 3, 2024).

45. See generally *Optional Practical Training Extension for STEM Students (STEM OPT)*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/students-and-exchange-visitors/optional-practical-training-extension-for-stem-students-stem-opt> [<https://perma.cc/Y5GG-VF9X>] (Aug. 27, 2024).

46. *Id.*

47. Pauline Khoo, *If You Extend It, They Will Come: The Effects of the STEM OPT Extension* 2 (Ctr. for Growth & Opportunity, Utah State Univ., Working Paper, 2023), https://www.thegeo.org/wp-content/uploads/2023/04/Effects-STEM-OPT-Extension_02.pdf [<https://perma.cc/3HYX-JZ8S>].

that the federal government can issue—but this is not without its drawbacks.⁴⁸ Notably, OPT applications can take a long time to process and if information is not correctly stated on the application, the application can be denied altogether. This can lead to many STEM workers to delay their start dates, or in the case of a denial, the applicant may have to leave the United States.

B. THE L-1 VISA CATEGORY

If the OPT visa pathway is not applicable for a STEM worker, some will opt to secure an L-1 visa. “L-1 visas are for employees of qualifying multinational organizations who hold positions as managers or executives (L-1A) or have specialized knowledge (L-1B)”⁴⁹ An L-1 visa allows foreign workers to work and live in the United States for the same organization for a maximum period of seven years (L-1A) or five years (L-1B).⁵⁰ An L-1 visa can often be a viable option for STEM applicants, but like most visa options, it also has its drawbacks and is likely not a long-term solution for a STEM worker who is looking to stay in the United States permanently.

Specifically, an L-1B visa is designated for a worker that has “[s]pecialized knowledge . . . of the petitioning organization’s product, service, research, equipment, techniques, management, or other interests and its application in international markets, or an advanced level of knowledge or expertise in the organization’s processes and procedures.”⁵¹ The L-1B visa allows for multinational companies to transfer STEM workers from another country to work in the United States, but it is not a viable option for STEM workers already based in the United States.⁵²

To qualify for the L-1 classification in this category, the employer must [h]ave a qualifying relationship with a foreign company (parent company, branch, subsidiary, or affiliate, collectively referred to as qualifying organizations); and [c]urrently be, or will be, doing business as an employer in the United States and in at least one other country directly or through a qualifying organization for the duration of the beneficiary’s stay in the United States as an L-1. While

48. Amy Nice, *Advanced International STEM Students Increasingly Anticipate Shorter-Term Work Stays After Graduation. The U.S. Can Do More to Retain Them*, FWD (Sept. 9, 2024), <https://www.fwd.us/news/stem-international-students/> [<https://perma.cc/6339-Y878>].

49. Nat’l Inst. Standards & Tech., *Global STEM Talent Pathways for Semiconductors, AI, and Emerging Technologies*, U.S. DEPT. COM. (Jan. 23, 2024), <https://www.nist.gov/system/files/documents/2024/03/11/1.22.24%20-%20STEM%20Pathways%20Webinar%20-%20CLEARED1-508C-updated.pdf> [<https://perma.cc/YX2E-FKLS>].

50. *Id.*

51. *L1-B Intracompany Transferee Specialized Knowledge*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/temporary-workers/l-1b-intra-company-transferee-specialized-knowledge> [<https://perma.cc/Y93X-KCBX>] (July 30, 2024).

52. 8 C.F.R. § 214.2(l)(1)(ii)(A).

the business must be viable, there is no requirement that it be engaged in international trade.⁵³

If the company does not have an affiliated U.S. office, an L-1 visa allows the company to send an employee with specialized knowledge to the United States to help establish a U.S. office.⁵⁴ This method is one way for technology workers to work in the United States, but it is not specific to STEM or technology workers. This stream focuses on the company/employer; it is not specific to the employee or their qualifications. Therefore, this option is not solely focused on the recruitment of technology or STEM workers and is a general visa classification that any company can use for an intra-company transfer.

C. O-1 VISA: INDIVIDUALS WITH EXTRAORDINARY ABILITY OR ACHIEVEMENT

The O-1 visa classification is for individuals with extraordinary ability or achievement in their field. It is notoriously hard to obtain because of the high threshold applicants must overcome. An O-1 Extraordinary Ability classification is primarily “reserved for those who are among the small percentage of experts who have risen to the top of their field.”⁵⁵ One important consideration of the O-1 visa is that it is only available for a certain class of individuals and not just for STEM workers or even highly specialized STEM workers.⁵⁶ The O-1 classification specifies that the individual must “possess[] extraordinary ability in the sciences, arts, education, business, or athletics, or who has a demonstrated record of extraordinary achievement in the motion picture or television industry.”⁵⁷ They must be “recognized nationally or internationally for those achievements.”⁵⁸

The application process suggests the applicant obtain recommendation letters.⁵⁹ A “written advisory opinion” states that the individual providing the recommendation must come “from a peer group (including labor

53. *L-1A Intracompany Transferee Executive or Manager*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/temporary-workers/l-1a-intra-company-transferee-executive-or-manager> [https://perma.cc/PMQ3-P753] (July 29, 2024).

54. *Id.*

55. *O-1 Extraordinary Ability Visa Process for Administrators*, HARVARD INT’L OFF., <https://www.hio.harvard.edu/o-1-visa-individuals-extraordinary-ability> [https://perma.cc/HPT7-NFR9] (last visited Oct. 28, 2024).

56. *See id.*

57. *O-1 Visa: Individuals with Extraordinary Ability or Achievement*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/temporary-workers/o-1-visa-individuals-with-extraordinary-ability-or-achievement> [https://perma.cc/DFP8-HKZG] (Mar. 3, 2023).

58. *Id.*

59. *Chapter 4 – O-1 Beneficiaries*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/policy-manual/volume-2-part-m-chapter-4#3> [https://perma.cc/5K8D-XXDX] (Nov. 26, 2024).

organizations) or a person with expertise in the beneficiary's area of ability."⁶⁰ While United States Citizenship and Immigration Services ("USCIS") advises that the applicant should obtain advisory opinions from their peer group, it is not a requirement.⁶¹ The main purpose of recommendations is for others to weigh in on the achievements and qualifications of the applicant.⁶²

Recall, an O-1 visa is a nonimmigrant visa classification, valid for up to three years, that can be renewed by the applicant's employer.⁶³ The O-1 visa permits U.S. employers or agents to petition for the applicant, and a U.S. job offer is required.⁶⁴ While there is no hard cap on the number of O-1 visas that can be issued, it is a rarely used visa option for most STEM workers and their employers due to its complicated application process and the high level of scrutiny that most applicants are subject to. It is also very expensive; the application fees are several thousand dollars and can be very time-consuming. An O-1 applicant is required to submit extensive documentation to show their extraordinary ability, which can result in numerous Requests for Evidence (RFE), or in some cases, a Notice of Intent to Deny (NOID).

D. TN NAFTA/UMSCA VISA

As previously mentioned, the North American Free Trade Agreement ("NAFTA") created the TN nonimmigrant classification that permits workers from only Canada and Mexico to "seek temporary entry into the United States to engage in business activities at a professional level."⁶⁵ The TN nonimmigrant classification specifies that only Canadian and Mexican citizens can apply, which essentially disqualifies permanent residents of either country from obtaining a TN visa.⁶⁶ While there are no caps or limits on the number of TN visas that can be issued per year, TN nonimmigrant visas still do not solve the overarching problem of attracting and retaining STEM professionals and highly skilled workers.

United States-Mexico-Canada Agreement ("UMSCA") and NAFTA describe professionals that can apply for TN nonimmigrant classifications, but professions such as computer programmers, software developers, web designers and web developers are not included.⁶⁷ Additionally, visa status can

60. Peter D. Guattery, *O-1 Visa Issues*, WHITEFORD L. (Oct. 24, 2022), <https://www.whitefordlaw.com/news-events/o-1-visa-issues> [[https:// perma.cc/L7FX-REKV](https://perma.cc/L7FX-REKV)].

61. *Id.*

62. *Id.*

63. *O-1 Visa: Individuals with Extraordinary Ability or Achievement*, *supra* note 60.

64. *Id.*

65. *TN NAFTA Professionals*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/temporary-workers/tn-nafta-professionals> [[https:// perma.cc/DDY8-NGWL](https://perma.cc/DDY8-NGWL)] (Feb. 24, 2021).

66. *Id.*

67. *Id.*

only be granted for up to three years, but there are no limitations on how many times it can be extended.⁶⁸ TN visas are also not capped and there are no limitations on how many the federal government can grant per year.⁶⁹ For Canadians, a TN nonimmigrant visa can be particularly attractive because it can be applied for at a port of entry and typically granted at the time of the application.⁷⁰ There are typically very few delays and the fees are relatively low when compared to other visa alternatives.

However, the TN nonimmigrant visa classification is not without its drawbacks. For instance, this visa only applies to Mexican and Canadian citizens. Therefore, STEM and other highly skilled workers from other countries are unable to use this option and will likely have to turn to more complicated pathways. Notably, Canada has a considerable number of permanent residents living in the country who may want to work in the United States, whether it be temporarily or permanently.⁷¹ However, TN nonimmigrant visas are not available to those individuals.⁷² Permanent residents of Canada will likely have to turn to other immigrant pathways that may cost more money and be more time consuming compared to their Canadian counterpart.

More importantly, the TN nonimmigrant visa classification does not provide a pathway to permanent residency or citizenship.⁷³ By its very nature as a nonimmigrant visa, the longer the stay in the United States, the greater the issue an applicant may have when renewing their visa.⁷⁴ A nonimmigrant is only permitted to live in the United States temporarily.⁷⁵ It does not grant a nonimmigrant worker the ability to live in the United States without restrictions.⁷⁶ At the time of admission, a nonimmigrant worker must show that they do not have the intent to use their visa to remain in the United States permanently. If the nonimmigrant worker displays an intent to remain in the United States, their application can be denied and they are no longer permitted to remain in the United States.⁷⁷

Some TN nonimmigrants may have families that they wish to immigrate with, which can present issues for their spouse or dependents.⁷⁸ Spouses are permitted to accompany a TN nonimmigrant to the United States, but they

68. *Id.*

69. *See id.*

70. *Id.*

71. Adiba Hasan, *Exploring Citizenship and Permanent Resident Data on the ICC's Immigration Dashboard*, INST. FOR CAN. CITIZENSHIP (Jan. 19, 2023), <https://inclusion.ca/article/exploring-citizenship-and-permanent-resident-data/> [<https://perma.cc/H2HU-P35K>].

72. *See TN NAFTA Professionals*, *supra* note 69.

73. *Id.*

74. U.S. DEP'T OF STATE, 9 FOREIGN AFFAIRS MANUAL § 401.1-3 (2023).

75. *Id.*

76. *Id.*

77. *Id.*

78. *See id.*

are not permitted to work while in the country.⁷⁹ Additionally, their status can only be granted for the period of time granted to the principal TN nonimmigrant.⁸⁰ Moreover, children of a TN nonimmigrant can only be granted dependent status if they are under the age of twenty-one.⁸¹ They are not permitted to work while in the United States.⁸² While dependents of a TN nonimmigrant can apply to extend their stay along with the principal TN nonimmigrant, they may encounter issues if they display the intention to live in the United States permanently.⁸³

E. H-1B NONIMMIGRANT VISA

The H-1B nonimmigrant visa is likely the most popular visa for STEM and highly skilled workers due to its versatility and applicability; it is also the reason why this pathway is widely used. H-1B visas “provide a pathway for individuals with at least a bachelor’s degree in a specific specialty (or equivalent) to work in a job that is related to their degree and that qualifies as a ‘specialty occupation.’”⁸⁴ A specialty occupation is defined as “one that requires the application of a body of highly specialized knowledge and the attainment of at least a bachelor’s degree or its equivalent.”⁸⁵ Pursuant to the U.S. Department of Labor, the current cap on H-1B visas is “65,000 with an additional 20,000 under the H-1B advanced degree exemption.”⁸⁶ The H-1B advanced degree exemption is “for beneficiaries who have earned a U.S. master’s degree or higher and is available until the number of beneficiaries who are exempt on the basis exceeds 20,000.”⁸⁷ Not all H-1B visas are subject to the annual cap, but most are.⁸⁸ Along with being an extremely difficult and costly process, the H-1B process is notoriously time-consuming. Prior to 2020, an employer was “required to submit [an] H-1B petition[] without knowing whether a visa number would be available.”⁸⁹

79. *Id.*

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.*

84. Nat’l Inst. Standards & Tech., *supra* note 52.

85. *H-1B Program*, U.S. DEP’T OF LAB., <https://www.dol.gov/agencies/whd/immigration/h1b> [<https://perma.cc/YZL3-TMJQ>] (last visited Oct. 28, 2024).

86. *H-1B, H-1B1, and E-3 Specialty (Professional) Workers*, U.S. DEP’T OF LAB., <https://www.dol.gov/agencies/eta/foreign-labor/programs/h-1b> [<https://perma.cc/WS7K-8YZ3>] (last visited Oct. 28, 2024).

87. *H-1B Cap Season*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/temporary-workers/h-1b-specialty-occupations-and-fashion-models/h-1b-cap-season> [<https://perma.cc/D5TA-UVSR>] (June 29, 2024).

88. *See id.*

89. AM. IMMIGR. COUNCIL, *THE H-1B VISA PROGRAM AND ITS IMPACT ON THE U.S. ECONOMY*

However, USCIS changed its policy beginning October 1, 2020, which required employers to “register electronically for each foreign national for whom the employer intends to file an H-1B petition” prior to submitting an application and supporting documents.⁹⁰ This is an attempt to lessen the burden on employers and agencies to submit complete applications for employees that may not receive a visa number.⁹¹ However, it limits the amount of information that a U.S. employer can provide to USCIS to show the foreign national’s qualifications.⁹² There are no limitations on the number of registrations that a U.S. employer may file.⁹³

Despite the attempts to update the H-1B system, the American Immigration Council noted that in FY 2018, denials of new H-1B petitions reached “twenty-four percent before dropping to twenty-one percent in FY 2019.”⁹⁴ More recently in FY 2022, the denial rate was only two percent, which is the lowest denial rate ever recorded.⁹⁵ This may largely be due to the amount of denials that were overturned in 2018 and 2019 by the USCIS Administrative Appeals Office.⁹⁶ Despite denials and continuous issues with processing, there has not been a precipitous decrease in the number of applicants.⁹⁷ In FY 2022 USCIS received 308,613 registrations, which increased substantially in FY 2023, when the agency received 483,927 registrations.⁹⁸ In contrast, FY 2025 has stayed consistent with the number of registrations totaling 470,342.⁹⁹ The steady number of applications may have slowed down during the COVID-19 Pandemic and Trump Administration, but it certainly has not lead to a significant decrease in applications, nor demand for the H-1B visa.¹⁰⁰

The H-1B visa was not designed for its current volume of applicants. Its original purpose was to operate as a “short-term guest worker program, and the many skilled foreign professionals who want[ed] to permanently migrate and settle in the US were supposed to transition onto an immigrant visa

https://www.americanimmigrationcouncil.org/sites/default/files/research/he_h-1b_visa_program_and_its_impact_on_the_u.s._economy_102024.pdf [<https://perma.cc/TX8U-UUFJ>].

90. *Id.*

91. *See id.*

92. *Id.*

93. *Id.*

94. *Id.* at 3.

95. *Id.*

96. *Id.*

97. *Id.* at 5.

98. *Id.*

99. *Id.*

100. *See id.*

offering a route to permanent residency.”¹⁰¹ But it has slowly started to operate as a remedy for many foreign workers because the employer-sponsored green card applications were time consuming.¹⁰² Currently, for certain employer-sponsored green card applications, the backlog is up to 90 years for an application to be adjudicated.¹⁰³ Some analysts estimate that approximately 215,000 petitions for permanent residency “will expire with the applicant’s death before ever being processed.”¹⁰⁴ The backlog has led to an increase in H-1B applications and not enough slots to meet the needs of the labor force or the number of applicants.¹⁰⁵

Statistically, most H-1B visas granted between 2005 and 2018 were to those in computer-related occupations, but that only represents a small number of STEM-related occupations that require additional workers.¹⁰⁶ According to Gordon Hanson, an economist and Academic Dean for Strategy and Engagement at the Harvard Kennedy School, “foreign-born workers accounted for 54.6% of the increase in hours worked in AI-related activities” which is just “a small subset of total jobs in computer-related occupations.”¹⁰⁷ This leaves other STEM fields like biology, engineers, and teachers in higher education without the workers to fill gaps in the labor force.¹⁰⁸ This has unfortunately led to many seeking other alternatives such as the Diversity Lottery.

F. DIVERSITY LOTTERY

The Department of State conducts a random selection of Diversity Immigrant Visa applicants based on allocations of available visas in each region and country from all the registered entries. Although this visa type ensures that people from certain countries and regions are accepted into the U.S., this in no way ensures that technology workers are being selected. This is a random draw, and thus, people from various types of work are selected and given

101. Miranda Dixon-Luineburg, *America Has an Innovation Problem. The H-1B Visa Backlog is Making it Worse.*, VOX (July 13, 2022, 6:00 AM), <https://www.vox.com/future-perfect/23177446/immigrants-tech-companies-united-states-innovation-h1b-visas-immigration> [<https://perma.cc/N3AG-XUHM>].

102. *Id.*

103. *Id.*

104. *Id.*

105. *Id.*

106. *Id.*

107. Gordon H. Hanson, *Immigration and Regional Specialization in AI 4* (Nat’l Bureau of Econ. Rsch., Working Paper No. 28671, 2021), <http://nber.org/papers/w28671> [<https://perma.cc/THC4-32UB>].

108. Dixon-Luineburg, *supra* note 105.

visas. This stream does not help to fill technology worker quotas, but rather fills the U.S. quota with people who are likely not technology workers.¹⁰⁹

G. IMMIGRANT VISAS ARE NOT THE ANSWER EITHER

With the many different nonimmigrant visas available to foreign nationals, some may ask why foreign nationals do not utilize immigrant visas, since it may be beneficial to use an option that allows foreign nationals the ability to become U.S. permanent residents and eventually American citizens. However, obtaining an immigrant visa is also fraught with issues, specifically long wait times. An Employment-Based visa (EB visa) is a type of U.S. visa that allows the foreign national to live and work in the United States with an expectation that they will receive permanent residency.¹¹⁰ There are different types of immigrant visas that are divided based on preference categories, with EB-1 being of the highest priority.¹¹¹ Some EB visas are capped however, which limits the number of immigrants from any single country.

The difficulty with immigrant visas is the processing times; “[f]oreign nationals . . . can only apply for an immigrant visa, or apply to adjust status, if an immigrant visa number is immediately available.”¹¹² This can be months or often years for some individuals. In 2022, the Congressional Research Center hypothesized that an Indian National “could expect to wait about nine years to acquire a green card.”¹¹³ Unfortunately, wait times have increased since 2022. For EB-2 and EB-3 visa categories, it is estimated that wait times for an Indian national can be up to “134 years for a green card to become available.”¹¹⁴ The number of applicants for EB-2 and EB-3 visas globally has grown to approximately 180,000 applicants, but only 40,000 visas are available.¹¹⁵ The previously mentioned number of applicants also includes dependents and other family members, which explains why delays in processing times are so staggering. Moreover, EB visas are not specifically meant for only STEM and highly skilled tech workers.¹¹⁶ Despite the USCIS

109. *Diversity Visa Program*, U.S. DEP’T OF STATE, <https://travel.state.gov/content/travel/en/us-visas/immigrate/diversity-visa-program-entry/diversity-visa-submit-entry1/diversity-visa-selection-of-applicants.html> [https://perma.cc/UE44-YUNZ] (last visited Oct. 28, 2024).

110. *Permanent Workers*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/permanent-workers> [https://perma.cc/7H6J-T8VJ] (Aug. 13, 2024).

111. *Id.*

112. WILLIAM A. KANDEL ET AL., CONG. RSCH. SERV., U.S. EMPLOYMENT-BASED IMMIGRATION POLICY 6 (2022), https://tracfed.syr.edu/tracker/dynadata/2022_09/R47164.2.pdf [https://perma.cc/3GFY-TMTW].

113. *Id.* at 8.

114. *How Can Indian Nationals Bypass Extreme Wait Times of Up To 134 Years for EB-2 and EB-3 Visa Category Green Cards?*, EB5AN, <https://eb5visainvestments.com/2024/02/20/how-can-indian-nationals-bypass-extreme-wait-times-for-eb-2-and-eb-3-visas/> [https://perma.cc/P833-S3UQ] (last visited Oct. 29, 2024).

115. *Id.*

116. *See Permanent Workers*, *supra* note 114.

guidance that “giv[es] ‘strong, positive’ consideration to those with advanced STEM degrees,” it still does not alleviate the staggering wait times for many applying for EB visas.¹¹⁷ This leaves most STEM and highly skilled workers still searching for pathways that will grant them the ability to work and the stability to start a life in the United States.

V. CURRENT INDUSTRY NEED AND OVERARCHING ISSUES WITH CURRENT NONIMMIGRANT VISA SYSTEMS

Notwithstanding recent layoffs in the U.S. technology industry, there is a general battle to recruit technology workers in countries like the United Kingdom, Australia, France, and Canada. The U.S. does not currently have any STEM or technology specific visas available to attract workers. H-1Bs visas are often used to attract technology workers to the U.S. temporarily for long-term work assignments. “H-1B is a temporary (nonimmigrant) visa category that allows employers to petition for highly educated foreign professionals to work in ‘specialty occupations’ that require at least a bachelor’s degree or equivalent.”¹¹⁸ However, the H-1B is not a STEM or technology specific foreign worker stream but a more general stream for specialty occupations. Specialty occupations can include almost any employee who holds a bachelor’s degree; this category is used by numerous employers to attract and retain foreign workers to the U.S. in many non-STEM occupations as well. To date, the U.S. has not developed a tech-specific stream to accommodate the employment gaps in the marketplace. “The U.S. Bureau of Labor Statistics confirms that the shortage of available talent will grow to 1.2 million by 2026 in the United States alone.”¹¹⁹

Additionally, the number of H-1B applicants has dramatically decreased from 758,994 in FY 2024 to 470,342 in FY 2025.¹²⁰

117. Karen Aho, *STEM-Related Petitions Increase Following USCIS’ Updated Policy Guidance*, IMMIGR. IMPACT (Mar. 29, 2024), <https://immigrationimpact.com/2024/03/29/stem-petitions-increase-uscis-policy-guidance/> [<https://perma.cc/3JAD-KLBU>].

118. AM. IMMIGR. COUNCIL, *supra* note 93, at 2.

119. Sandra Loughlin, *The Tech Talent Shortage: Global Report Addresses Today’s Critical Hiring and Retention Challenges*, EPAM (Feb. 22, 2024), <https://www.epam.com/about/newsroom/in-the-news/2024/the-tech-talent-shortage-global-report-addresses-todays-critical-hiring-and-retention-challenges> [<https://perma.cc/5T6L-MJQR>].

120. AM. IMMIGR. COUNCIL, *supra* note 93, at 5.

Fiscal year	Number of unique employers	Number of unique beneficiaries	Number of eligible registrations
2024	Approx. 52,000	Approx. 446,000	758,994
2025	Approx. 52,700	Approx. 442,000	470,342 ¹²¹

“Ultimately, USCIS selected 114,017 unique beneficiaries, resulting in 120,603 selected H-1B registrations during the initial FY 2025 H-1B Lottery. This represents a selection rate of approximately 25.6 percent.”¹²²

While the U.S. increased the annual cap H-1B cap for temporary visas for highly skilled workers from 65,000 per year to 85,000 per year in 2004, the H-1B remained open to all “specialty occupations.”¹²³ It does not appear that the federal government will increase the H-1B cap anytime soon. Moreover, the development of a specific visa for STEM workers never occurred.

There are very few incidences where the U.S. specifically strategized evolving its immigration system to recruit STEM workers. For instance, NAFTA was renegotiated in 2018; the U.S., Canada, and Mexico had the opportunity to change the list of professionals who could obtain preferential visas and work statuses to work in each country. At the time of the negotiations, the list of professionals remained unchanged since the original NAFTA took effect in 1994.¹²⁴ In fact, the list of professionals in the original NAFTA was for STEM occupations, which was identical to the list of professionals in the original Canada-U.S. Free Trade agreement that came into force in 1989.¹²⁵ The changes to the NAFTA turned out to be nominal and did not change the list of professionals.

As a result, in order for U.S. employers to employ Canadian and Mexican STEM workers under the current U.S.-Mexico-Canada Agreement (“USMCA”), these workers must fit within the following occupations:

- Accountant
- Architect
- Computer Systems Analyst
- Economist

121. *Id.* at 5, 10.

122. James N. Garilas, *USCIS Data Shows Dramatic Decrease in H-1B Registrations for FY 2025*, OGLETREE DEAKINS (May 7, 2024), <https://ogletree.com/insights-resources/blog-posts/uscis-data-shows-dramatic-decrease-in-h-1b-registrations-for-fy-2025> [https://perma.cc/62U5-LBQL].

123. AM. IMMIGR. COUNCIL, *supra* note 93, at 2.

124. *North American Free Trade Agreement*, U.S. CUSTOMS & BORDER PROT., <https://www.cbp.gov/trade/north-american-free-trade-agreement> [https://perma.cc/7VC3-3KDF] (June 28, 2023).

125. *U.S.-Canada Free Trade Agreement (FTA)*, GEO. L. LIBR., <https://guides.ll.georgetown.edu/c.php?g=363556&p=3662927> [https://perma.cc/VP6H-CLHN] (last visited Nov. 25, 2024).

- Engineer
- Landscape Architect
- Mathematician
- Scientific Technician or Technologist
- Geographer¹²⁶

Absent from the above list are occupations such as computer programmers, software developers, web designers, and web developers.¹²⁷ The above-mentioned list is missing key occupations, and more importantly, STEM occupations, that are experiencing shortages. Overall, the renegotiation of USMCA (formerly NAFTA) was marginal at best and did very little to impact the current need for STEM workers in the United States.¹²⁸ In fact, the most USMCA did was bolster some short-term economic gains but it caused more international tumult than the renegotiation seemed to be worth.¹²⁹

In 2004, the U.S. Government did expand opportunities for U.S. businesses to hire 5,400 Singaporeans and 1,400 Chileans by creating the H-1B1 after free trade agreements were signed with these countries.¹³⁰ However, H-1B1s for Singaporeans and Chileans just created a category similar to the regular H-1B visa for these specific foreign nationals. In 2005, the E-3 visa was created specific to Australians.¹³¹ Like the H-1B and the H-1B1, the E3 allows for U.S. employers to hire Australians in a variety of occupations and is not restricted to STEM occupations.¹³²

As noted throughout, while there are immigration pathways available to technology workers to immigrate to the U.S., there is no dedicated stream. The H-1B, H-1B1, and E-3 visas allow for professional workers to come to the U.S., but technology workers are competing with other workers for the

126. For the purposes of this particular analysis, we have used the ONET listing of STEM occupations. Please note that we have not included in this listing STEM occupations in medical or allied professions. *All STEM Occupations*, ONET ONLINE, <https://www.onetonline.org/find/stem?t=0> [https://perma.cc/QU5N-NJWG] (last visited Oct. 29, 2024).

127. Computer programmers, software developers, web designers and web developers who meet the qualifications of another USMCA category may be able to enter the U.S. to work under that category. U.S. DEP'T OF STATE, 9 FOREIGN AFFAIRS MANUAL § 402.17(A)(c) (2023).

128. See Phil Levy, *The Verdict on Trump Trade Policy, Part 1: Fixing NAFTA*, FORBES (Aug. 9, 2020, 6:10 AM), <https://www.forbes.com/sites/phillevy/2020/08/09/the-verdict-on-trump-trade-policy-part-1-fixing-nafta/> [https://perma.cc/A8R6-LEJN].

129. *See id.*

130. *Singapore Free Trade Agreement (SGFTA)*, U.S. CUSTOMS & BORDER PROT., <https://www.cbp.gov/trade/free-trade-agreements/singapore> [https://perma.cc/9NVK-ZEVC] (June 1, 2023); *Chile Free Trade Agreement*, U.S. CUSTOMS & BORDER PROT., <https://www.cbp.gov/trade/free-trade-agreements/chile> [https://perma.cc/ESM2-VSUN] (May 31, 2023).

131. *E-3 Specialty Occupation Workers from Australia*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/temporary-workers/e-3-specialty-occupation-workers-from-australia> [https://perma.cc/U2LJ-YCLT] (July 29, 2024).

132. *Id.*

allotted number of spots imposed by quotas for those visa pathways. These are simply general immigration streams with technology workers competing for limited spots with anyone who has theoretical and practical application of a body of highly specialized knowledge that has attained at least a bachelor's degree, or its equivalent, in the specific specialty.¹³³ Due to this competition for the H-1B visas, technology workers are losing out on coveted spots, and shortages in the field continue.

The H-1B has had quotas imposed since the 1990s to ensure that American workers can still find jobs in the designated occupations.¹³⁴ This may be due to a perceived threat that foreign workers will be taking American jobs often perpetuated by politicians driven by self-interest.¹³⁵ This is overwhelmingly not the case, as applications are self-regulating. When the economy is strong, and the unemployment rate is low, the demand is high, when the economy is weak and unemployment is high, the demand for H-1B visas is low. This self-regulation shows that there is no need for quotas.¹³⁶

VI. DIFFICULTY RETAINING HIGHLY SKILLED FOREIGN-BORN GRADUATES

While China, Canada, Japan, Korea, and the United Arab Emirates continue to attract the world's talent, the United States has remained reticent to initiate immigration reform. This has far-reaching consequences. Countries are not just poaching foreign workers; they are also attracting highly skilled graduates educated in the United States.

It is notable that more countries are luring “international students [who have been] educated at U.S. universities to work in tech and other high-demand fields,” which may be enticing for most students considering the lack of visa options available to them upon graduation.¹³⁷ It is no wonder that “only 11 percent of foreign-born U.S. university bachelor's degree recipients

133. *H-1B Specialty Occupations*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/h-1b-specialty-occupations> [https://perma.cc/D33K-U29H] (July 18, 2024).

134. U.S. GOV'T ACCOUNTABILITY OFF., GAO 11-26, H-1B VISA PROGRAM: REFORMS ARE NEEDED TO MINIMIZE THE RISKS AND COSTS OF CURRENT PROGRAM 2 (2011) https://tracfed.syr.edu/tracker/dynadata/2011_01/dl126.pdf [https://perma.cc/RNH4-HRLH].

135. Brennan Hoban, *Do Immigrants “Steal” Jobs from American Workers?*, BROOKINGS INST. (Aug. 24, 2017), <https://www.brookings.edu/articles/do-immigrants-steal-jobs-from-american-workers/> [https://perma.cc/J4R7-EWD8].

136. See *H-1B Electronic Registration Process*, U.S. CITIZENSHIP & IMMIGR. SERVS., <https://www.uscis.gov/working-in-the-united-states/temporary-workers/h-1b-specialty-occupations/h-1b-electronic-registration-process> [https://perma.cc/D8LX-BDLU] (Aug. 5, 2024) (outlining the process for electronic registration and comparing total and eligible registrations).

137. Jon Marcus, *With New ‘Talent Visas,’ Other Countries Lure Workers Trained at U.S. Universities*, HECHINGER REP. (June 17, 2023), <https://hechingerreport.org/thwarted-by-the-u-s-immigration-system-highly-skilled-workers-find-welcomes-elsewhere/> [https://perma.cc/GB4B-87V4].

and 23 percent who get master's degrees manage to stay and work in the United States" upon graduation.¹³⁸ Countries like the United Kingdom have capitalized on the United States' lack of enthusiasm to retain foreign-born post-secondary graduates by "offering a two-year stay to new graduates."¹³⁹ Canada has also taken initiative by recruiting "[n]early 40,000 foreign-born graduates from U.S. universities" to live and work in Canada.¹⁴⁰ The trends over the last several years show an increase in active efforts to recruit highly skilled workers by countries from all over the world, while the United States seems unphased.

VII. CANADA'S APPROACH TO ATTRACTING STEM AND SKILLED WORKERS

Canada has fared better with attracting STEM and skilled workers because Canada's immigration policies allow for increased numbers of new immigrants from other countries. Canada has increased its overall immigration numbers, aiming to reach "485,000 new permanent residents in 2024 [and] 500,000 in 2025."¹⁴¹ Although these numbers are not specific to the technology industry, the Canadian government has developed initiatives specifically designed to bring in skilled workers beyond the creation of the category specific STEM occupations in its Express Entry system.

On July 16, 2023, the government of Canada, in an effort to attract more highly-skilled workers to Canada, launched a program to allow 10,000 H-1B visa holders from the U.S. to work in Canada.¹⁴² Canada allowed these H-1B visa holders to receive an open work permit, a work permit that allows them to work for any employer in Canada, of up to three years.¹⁴³ This program was so successful that it closed the following day because it reached the 10,000-application cap.¹⁴⁴

Canada is also launching its "'digital nomad strategy,' [which will] allow people who work for a foreign employer to live in Canada for up to six

138. *Id.*

139. *Id.*

140. *Id.*

141. *Notice – Supplementary Information for the 2024-2026 Immigration Levels Plan*, GOV'T OF CAN. (Nov. 1, 2023), <https://www.canada.ca/en/immigration-refugees-citizenship/news/notices/supplementary-immigration-levels-2024-2026.html> [<https://perma.cc/D8UH-JB9F>].

142. Hon. Sean Fraser, *Temporary Public Policy to Exempt Holders of Certain American H-1B Work Visas from Work Permit Requirements*, GOV'T OF CAN. (June 23, 2023), <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/mandate/policies-operational-instructions-agreements/public-policies/h1b-work-permit.html> [<https://perma.cc/NLH9-2FQD>].

143. *Id.*; see also AM. IMMIGR. COUNCIL, *supra* note 93, at 1.

144. *H-1B Visa-Holder Work Permit*, GOV'T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/services/work-canada/permit/h1b.html> [<https://perma.cc/F7XS-L3FY>] (Nov. 19, 2024).

months.”¹⁴⁵ If these nomads receive a job offer, they will be allowed to stay in Canada.¹⁴⁶ These strategies are a result of labor shortages, with average job vacancies totaling 942,000 in 2022.¹⁴⁷ The digital nomad strategy is particularly appealing for technology workers because it allows them to immerse themselves into communities and affords them time to look for employment opportunities once they have settled. It not only allows for a greater number of workers but a strong likelihood that they will live in their communities long-term and continue to invest themselves in growing the economy.

Many visa holders from China and India have been in North America for years, or even decades, and are now at risk of having to return home after being laid off with no other visa pathway. Bear in mind that most foreign nationals only have sixty days following termination to find another job, so unemployment imposes a significant hardship on most foreign workers.¹⁴⁸ Most foreign workers will also have to find another job along with an employer who will agree to sponsor them.¹⁴⁹

In May 1997, Canada introduced the Software Development Workers Pilot Project, which was one of the country’s first attempts to directly recruit STEM workers in the information technology sector.¹⁵⁰ This project, effective until 1999, was specifically designed to attract the following workers to Canada:

- Senior Animation Effects Editor
- Embedded Systems Software Designers
- Management Information Systems Software Designers
- Multimedia Software Developers
- Software Developers – Services

145. Naimul Karim, *Canada Gets ‘More Aggressive,’ Launches Bid to Attract High-Tech Nomad Workers from U.S., Abroad*, YAHOO! FIN. (June 27, 2023), https://ca.finance.yahoo.com/news/canada-gets-more-aggressive-launches-191404429.html?guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAN7volL5Kr_50iM10CYSnHOMCR8vfgPboD-NBmd4WI_icjqgBbVeG29EzUT2666p1XkNITboB8KvI7spm3OyI1IOTXDT-ZcT9Fj_hVF0QIyYIWN60328sJtxQjSGy-HCOot5MSJgbZU_q2Y18RWB55CWNISa1G0tUFVh_bAJ85yzDOP&guccounter=2.

146. *Id.*

147. *Id.*

148. *See Options for Nonimmigrant Workers Following Termination of Employment*, U.S. IMMIGR. & CITIZENSHIP SERVS., <https://www.uscis.gov/working-in-the-united-states/information-for-employers-and-employees/options-for-nonimmigrant-workers-following-termination-of-employment> [https://perma.cc/NJ2P-7FUE] (Apr. 1, 2024).

149. Roy Maurer, *Tech Layoffs Put Extra Strain on H-1B Workers*, SHRM (Dec. 5, 2022), <https://shrm.org/topics-tools/news/talent-acquisition/tech-layoffs-put-extra-strain-h-1b-workers> [https://perma.cc/Y2HD-2MPC].

150. *See Facilitated Processing of Employment Authorizations for Information Technology Workers*, WEB ARCHIVE (Dec. 21, 1999), <https://web.archive.org/web/20010807034541/http://www.cic.gc.ca/manuals-guides/english/om-web/1999/fw/fw99-03e.html> [https://perma.cc/2RQV-PH5Y].

- Software Products Developers, and
- Telecommunications Software Designers.¹⁵¹

Employers looking to use the Pilot Project to hire these types of workers were not required to make domestic Canadian recruitment attempts before hiring foreign nationals for these positions since the government of Canada identified ongoing shortages for workers in the listed occupations. Essentially, Canadian companies were free to hire the candidate they felt best fit the position, rather than advertising the job to domestic applicants and waiting before offering the position to a foreign worker.

Individuals using this program must complete the prescribed post-secondary program, prove language proficiency in one of Canada's official languages (English or French), and have at least two years of experience working in their fields. Depending on the occupation, there could also be requirements for the work experience in various data structures, operating systems, computer languages, software, hardware, applications, and protocols.

In 1999, a Pilot Project evaluation found:

1. That the pilot project contributed to alleviating the skills shortage problem;
2. [There was] no evidence that Canadian workers were being displaced;
3. [There was] no downward pressure on wages paid to Canadian workers in the same industry;
4. [There was] evidence of skill transfer from foreign workers to existing [Canadian-based] staff.¹⁵²

As a result, in December 1999, the Pilot Project became the Facilitated Processing of Employment Authorization for Information Technology Workers.¹⁵³ This facilitated process continued until September 30, 2010.¹⁵⁴ After this date, facilitated processing ended in all Canadian provinces and territories except for British Columbia and Quebec.¹⁵⁵ While employers were still permitted to hire individuals in these occupations, they were first required to attempt recruitment of Canadian citizens and permanent residents for these jobs.¹⁵⁶ The thirteen-year run of the Pilot Project and Facilitated Process

151. *Id.*

152. *Facilitated Processing for Information Technology Workers*, WEB ARCHIVE (Dec. 23, 1999), <https://web.archive.org/web/20000510083507/http://www.cic.gc.ca/english/visit/itw-e.html> [<https://perma.cc/H9PW-W8PM>].

153. *Id.*

154. *End of Simplified Entry Process for Information Technology (IT) Specialists – Temporary Foreign Worker Program*, GOV'T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/bulletins-2010/210-june-4-2010.html> [<https://perma.cc/BT8Z-CQRK>] (June 4, 2010).

155. *Id.*

156. *Id.*

coincided with the dot com boom of the 2000s and ended during the Great Recession. This program allowed for numerous technology employees to work in Canada throughout this period.

After NAFTA came into effect in 1994, Canada began to enter several additional bilateral and multilateral free trade agreements that contained immigration provisions to allow for expedited entry to Canada for work. Like NAFTA (currently USMCA), these agreements set up rules for various professionals to be able to enter Canada without Canadian employers having to establish attempts to recruit Canadian citizens or Canadian permanent residents for the jobs first. One of these early agreements, the Canada-Chile Free Trade Agreement, came into effect in 1997.¹⁵⁷ Like NAFTA (currently USMCA), this agreement contained a list of professionals given preferential access to Canada.¹⁵⁸ Like NAFTA (currently USMCA), the list of professionals in that treaty was a “positive list”—a list of occupations that a person had to be on for preferential immigration treatment to be granted. It was not until 2008 that Canada began to sign additional free trade agreements with specific immigration provisions. By that time, Canada’s approach to the immigration provisions in these treaties switched from pursuing “positive lists” to “negative lists” of occupations.

A negative list is a list of occupations for which a person will *not* get preferential immigration treatment. If the person meets the general qualifications of this immigration category and their occupation is not on the negative list, the person’s occupation would qualify for immigration. The first example of this negative list came with the Canada-Peru Free Trade Agreement which was signed in 2008 and went into effect in 2009.¹⁵⁹ In this agreement, Canada and Peru agreed to a general definition as to who would be a “professional.” From the Canadian perspective, a professional would include anyone who fit within a specific Training, Education, Experience and Responsibility (“TEER”) of Canada’s National Occupational Classification

157. *Canada-Chile Free Trade Agreement*, GOV’T OF CAN., <https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/chile-chili/index.aspx?lang=eng> [https://perma.cc/5G3H-JNSS] (June 28, 2024).

158. *Canada-Chile Free Trade Agreement (CCFTA) Overview – Agreements or Arrangements – International Mobility Program*, GOV’T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/temporary-residents/foreign-workers/international-free-trade-agreements/canada-chile.html> [https://perma.cc/98VB-TW4K] (Oct. 3, 2024).

159. *Canada - Peru Free Trade Agreement – R204(a) – Agreements and Arrangements - International Mobility Program*, GOV’T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/temporary-residents/foreign-workers/international-free-trade-agreements/internationals-ftas-canada-peru.html> [https://perma.cc/DS4B-U32H] (Oct. 3, 2024).

(“NOC”).¹⁶⁰ For the Canada-Peru agreement, TEERs 0 and 1 would apply.¹⁶¹ TEER 0 includes “management occupations” while TEER 1 is defined as occupations that “usually require a university degree.”¹⁶² An advantageous feature of the negative list to STEM and IT workers is the expansion of “new” covered occupations that do not require amendment to the treaties.

Under the Canada-Peru Free Trade agreement, the “negative list” is as follows:

All Health, Education, and Social Services occupations and related occupations:

- Managers in Health/Education/Social & Community Services;
- Physicians/Dentists/Optometrists/Chiropractors/Other Health Professions;
- Pharmacists, Dietitians & Nutritionists;
- Therapy & Assessment Professionals;
- Nurse Supervisors & Registered Nurses;
- Psychologists/Social Workers;
- University Professors & Assistants;
- College & Other Vocational Instructors; and
- Secondary/Elementary School Teachers & Counsellors.

All Professional occupations related to Cultural Industries, including:

- Managers in Libraries, Archives, Museums and Art Galleries;
- Managers in Publishing, Motion Pictures, Broadcasting and Performing Arts; and
- Creative & Performing Artists.

[Other Professional Occupations]

- Recreation, Sports and Fitness Program and Service Directors.
- Managers in Telecommunication Carriers.
- Managers in Postal and Courier Services.

160. *Teer Category*, GOV'T OF CAN., <https://noc.esdc.gc.ca/Training/TeerCategory> [https://perma.cc/2DWJ-KGUZ] (June 2, 2023).

161. *Id.*

162. *View Matrix – NOC 2021 Version 1.0*, GOV'T OF CAN., <https://noc.esdc.gc.ca/Structure/Matrix> [https://perma.cc/NWH6-NPGW] (June 2, 2023).

- Managers in Manufacturing.
- Managers in Utilities.
- Managers in Construction and Transportation.
- Judges, Lawyers and Notaries except Foreign Legal Consultants.¹⁶³

VIII. HOW DOES THE NEGATIVE LIST IMPACT IT PROFESSIONS?

The NOC has been revised five times, in 2001, 2006, 2011, 2016, and 2021, since its creation in 1992. The purpose of these revisions is to ensure that its listing of occupations is current. In the 2001 version of the NOC, Canada added the following new IT occupations that were not in the original 1992 version:

- Database analysts and data administrators
- Web designers and developers
- User support technicians
- Systems testing technicians¹⁶⁴

The negative list approach benefits IT and other industries in emerging occupations. In other words, occupations in the IT field that do not exist at the present time can be added to free trade agreements that use negative lists if those occupations meet the general definition of professional. While the negative list approach was used for professionals under the Canada-Peru Trade Agreement, the positive list approach is still being used by Canada for technician occupations. So, for occupations at this level, individuals still need to be working in an occupation on the specified list.

The use of negative lists for professions and positive lists for technicians has been used in Canada's free trade agreements with Columbia and with Australia, Chile, Japan, Mexico and Peru through the Comprehensive and Progressive Agreement for Trans-Pacific Partnership ("CPTPP").¹⁶⁵ As

163. *Canada-Peru Free Trade Agreement*, GOV'T OF CAN., <https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/peru-perou/fta-ale/12.aspx?lang=eng> [<https://perma.cc/T6R9-52B6>] (Feb. 5, 2018).

164. *Changes to the National Occupational Classification*, GOV'T OF CAN., <https://noc.esdc.gc.ca/Versions/ChangesNoc?objectid=7S%2F0oJX%2BwJJDdtK3AZ1AbA%3D%3D> [<https://perma.cc/LSE3-NUZN>] (June 2, 2023).

165. *Canada-Colombia Free Trade Agreement (CCOFTA) Overview – Agreements or Arrangements – International Mobility Program*, GOV'T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/temporary-residents/foreign-workers/international-free-trade-agreements/canada-colombia.html> [<https://perma.cc/G8DX-SBHE>] (Oct. 3, 2024); see also *Comprehensive and Progressive*

Chile, Mexico and Peru are parties to other bilateral and multilateral free trade agreements, they are able to use either the negative list under the CPTPP or the positive list under the other agreements.

While Canada attempts to negotiate negative lists, there are still treaties in which the countries agree to positive lists. These agreements include Canada's agreements with Korea, the European Union, the United Kingdom, Panama, and the CPTPP countries of Brunei and Malaysia. However, as these agreements were entered in the last fifteen years, the positive lists in many of these agreements include a list of STEM and IT occupations that is much broader than USMCA.

In 2017, the government of Canada introduced the Global Talent Stream program.¹⁶⁶ Like the former Software Development Workers Pilot Project and Facilitated Processing of Employment Authorization for Information Technology Workers, the Global Talent Stream is an immigration program that allows Canadian employers, specifically technology companies and those who employ IT workers, to expedite the hiring of foreign workers without first recruiting domestically in Canada.¹⁶⁷ This allows employers to fill specialized IT roles to attract and retain skilled tech professionals creating a faster, more streamlined process.¹⁶⁸ The applications for the Global Talent Stream program are processed under the Canada Temporary Foreign Worker Program.¹⁶⁹ For the applications to be processed, an LMIA (Labour Market Impact Assessment) must be obtained.¹⁷⁰ Unlike the regular LMIsAs, the Global Talent Stream LMIsAs are devoted to highly skilled workers in specialized fields, with priority given to those in technology and engineering.¹⁷¹

Agreement for Trans-Pacific Partnership (CPTPP), GOV'T OF CAN., <https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/cptpp-ptpgp/index.aspx?lang=eng> [<https://perma.cc/6VDX-4NR8>] (Feb. 26, 2024).

166. *Program Requirements for the Global Talent Stream*, GOV'T OF CAN., <https://www.canada.ca/en/employment-social-development/services/foreign-workers/global-talent/requirements.html> [<https://perma.cc/SR8V-2MEU>] (Aug. 7, 2024).

167. *Id.*

168. *Tech Worker Migration USA vs. Canada*, CONNECT CAN. IMMIGR. (Jan. 27, 2024), <https://connectcanada.com/tech-worker-migration-usa-vs-canada> [<https://perma.cc/XQ9C-TZ7Y>].

169. *Program Requirements for the Global Talent Stream*, *supra* note 170.

170. A LMIA is a document that an employer must obtain to show that there is a need for a foreign worker to fill the job and no Canadian worker or permanent resident is available to do the job.

171. *See Program Requirements for the Global Talent Stream*, *supra* note 170.

The Global Talent Stream allows Canadian employers to hire two types of foreign workers.¹⁷² Under what is called Category B, the Global Talent Stream lists the following occupations that are eligible for the expedited process:

- computer and information systems managers
- civil engineers
- electrical and electronics engineers
- mining engineers
- aerospace engineers
- computer engineers
- mathematicians and statisticians
- data scientists
- cyber security specialists
- business systems specialists
- information systems specialists
- web designers
- database analysts and data administrators
- software engineers and designers
- computer systems developers and programmers
- software developers and programmers
- web developers and programmers
- electrical and electronics engineering technologists and technicians
- computer network technicians
- information systems testing technicians
- producers, technical, creative and artistic directors and project managers visual effects and video game
- digital media designers¹⁷³

This list of occupations is more expansive than the original pilot project and facilitated process. In addition, the Global Talent Stream process allows for expedited processing in a manner that is normally faster than processing other types of Canadian work permits.

172. *Id.*

173. *Id.*

For instance, an employer may be required to obtain an LMIA, which is a document needed before hiring a foreign worker.¹⁷⁴ These are currently being processed in a few business days, while other highly paid occupations are normally processed in 40–60 business days.¹⁷⁵ The work permit part of the process, the second step that needs to be completed before the foreign national can work in Canada, is normally completed in less than two weeks, while processing times for other occupations can extend two weeks or months.¹⁷⁶

The Global Talent Stream is one of Canada's main pillars for its current recruitment of IT professionals. While there is no guarantee that an individual who works in Canada pursuant to the global talent stream will eventually obtain Canadian permanent residence, those who are eligible can see the issuance of permanent residency in as little as five months. This is compared to the six-to-eight-month process for first employment-based preference categories in the United States, while other individuals from countries such as India or China may take years.¹⁷⁷

In addition to implementing different programs to allow Canadian businesses to attract technology workers on a temporary basis, Canada also implemented several additional strategies to make Canada attractive to these individuals by offering routes to permanent residency. The economic immigration routes of the Canadian permanent residency system allow for individuals to immigrate to Canada in one of two ways. The first allows foreign nationals to apply directly to the Canadian federal government for permanent residency to settle in any Canadian province or territory outside of Quebec—express entry, as described above.¹⁷⁸ The second allows for foreign nationals to apply directly to a Canadian province or territory that has an agreement

174. See generally *What is a Labour Market Impact Assessment?*, GOV'T OF CAN., <https://ircc.canada.ca/english/helpcentre/answer.asp?qnum=163> [https://perma.cc/ED8N-6YPR] (June 10, 2024).

175. *Id.*

176. See generally *Work Permit: About the Process*, GOV'T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/services/work-canada/permit/temporary/work-permit.html> [https://perma.cc/S3XN-SZ22] (Jan. 24, 2024).

177. *Permanent Residence (Green Card)*, U. MICH. INT'L CTR., <https://internationalcenter.umich.edu/fsis/pr#:~:text=Applications%20under%20the%20first%20employment,preference%20categories%20will%20take%20years> [https://perma.cc/G8E4-GBAV] (last visited Oct 29, 2024).

178. See *How Express Entry Works*, GOV'T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/express-entry/works.html> [https://perma.cc/BNL9-8LMY] (July 18, 2024); *Quebec-Selected Skilled Workers*, GOV'T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/quebec-skilled-workers.html> [https://perma.cc/KUP5-LENC] (Oct. 25, 2024).

with the Canadian federal government for the selection of immigrants—Provincial Nominee Programs.¹⁷⁹

Before the introduction of the STEM category for express entry, the Canadian government’s immigration system was generally slanted to highly skilled workers including technology workers. Canada’s federal immigration system for skilled workers assesses individuals by awarding them “points” depending on a variety of characteristics. Essentially, younger adults with higher level post-secondary degrees and proficiency in one of Canada’s official languages will often be chosen for permanent residency as long as they have a certain amount of work experience in Canada. Individuals who are proficient in both official languages, have close relatives in Canada, and have completed post-secondary school in Canada, will have their points augmented further. Generally, most IT workers are younger, have higher education, and higher levels of language proficiency.

While there are exceptions to these generalizations, most IT and technology workers will find that they are often eligible for permanent residency. For those eligible for permanent residency under the federal government’s express entry program, permanent residency can sometimes be obtained in as little as five months after becoming eligible. This can be compared with green card processing of each H-1B applicant, which can sometimes take years or even decades. The promise of quick Canadian permanent residency, which may result in quicker Canadian citizenship approval, is an enticing prospect for individuals looking to immigrate to North America, as well as bring their families from their home countries.

On the provincial and territorial side, most Canadian provinces and territories have agreements with the federal government for the selection of immigrants to their provinces and territories. The only exception to this is the Nunavut territory where less than 0.01 percent of Canada’s population resides.¹⁸⁰ While most provincial and territorial nominee programs are general in nature, and do not necessarily target one type of occupation or another, there are several programs that specific provinces and territories have used to target IT and STEM workers. These include:

1. The British Columbia Technology Sector Stream: British Columbia has a technology sector stream in its immigration program.

179. *Immigrate as a Provincial Nominee*, GOV’T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/provincial-nominees.html> [https://perma.cc/T77M-VTZ2] (Aug. 8, 2024).

180. *Population Estimates, Quarterly*, STAT. CAN. (Oct. 25, 2024), <https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1710000901> [https://perma.cc/VJ74-CVUT].

In total, 35 technology occupations, including almost all of those under the global talent stream are eligible for this program.¹⁸¹

2. The Alberta Accelerated Tech Pathway: Alberta has an accelerated technology pathway for 44 occupations. Like British Columbia, the accelerated technology pathway includes almost all the occupations under the Global Talent Stream.¹⁸²
3. The Saskatchewan Tech Talent Pathway: Saskatchewan has a Technology Talent Pathway with 16 occupations, most of which are occupations under the Global Talent Stream.¹⁸³
4. The Ontario Human Capital Priorities Stream: Ontario has a Human Capital Priorities stream that covers a wide-variety of occupations. The province periodically issues invitations to apply for permanent residency specifically for technology occupations. So far this year, Ontario has invited individuals in 15 occupations to apply. Most of these occupations fit within the Global Talent Stream list.¹⁸⁴
5. The Quebec Permanent Immigration Pilot Program for Workers in Artificial Intelligence, Information Technologies and Visual Effects:¹⁸⁵ Since 2021, Quebec has had a pilot project targeting AI workers and other IT workers. Like other provincial

181. See *Skills Immigration*, WELCOMEBC (Nov. 17, 2023), <https://www.welcomebc.ca/migrate-to-b-c/skills-immigration#Tech> [<https://perma.cc/83GZ-H7TR>]; see also *BC Stats Report: Profile of the British Columbia Technology Sector, 2017 Edition*, GOV'T OF B.C. (Feb. 19, 2018, 5:40 PM), <https://news.gov.bc.ca/factsheets/bc-stats-report-profile-of-the-british-columbia-technology-sector-2017-edition-1> [<https://perma.cc/5ZFW-BSDG>].

182. See *Alberta Express Entry Stream – Eligibility*, ALTA., <https://www.alberta.ca/aaip-alberta-express-entry-stream-eligibility#jumplinks-5> [<https://perma.cc/NJX5-KK7D>] (last visited Oct. 29, 2024); see also ALBERTA ADVANTAGE IMMIGRATION PROGRAM – ACCELERATED TECH PATHWAY ELIGIBLE NATIONAL OCCUPATIONAL CLASSIFICATION (NOC) CODES (EFFECTIVE AS OF NOVEMBER 16, 2022), ALTA. 1-2 (2022), https://www.alberta.ca/system/files/custom_downloaded_images/lbr-aaip-tech-pathway-nocs-codes-list.pdf [<https://perma.cc/4T75-VBQZ>].

183. See *Tech Talent Pathway*, SASK. <https://www.saskatchewan.ca/residents/moving-to-saskatchewan/live-in-saskatchewan/by-immigrating/saskatchewan-immigrant-nominee-program/browse-sinp-programs/applicants-international-skilled-workers/sinp-tech-talent-pathway> [<https://perma.cc/NLZ7-DRS7>] (last visited Oct. 29, 2024).

184. Colin R. Singer, *Canada's Global Talent Stream: Full List of In-Demand Jobs*, IMMIGRATION.CA (Oct. 17, 2017), <https://immigration.ca/canadas-global-talent-stream-full-list-demand-jobs/> [<https://perma.cc/75FP-K3CT>]; see also *2024 Ontario Immigrant Nominee Program Updates*, GOV'T OF ONT. (Nov. 4, 2024), <https://www.ontario.ca/page/2024-ontario-immigrant-nominee-program-updates> [<https://perma.cc/8AST-GAPD>].

185. *Permanent Immigration Pilot Program for Workers in the Artificial Intelligence, Information Technologies and Visual Effects Sectors*, QUE. (Apr. 18, 2024), <https://www.quebec.ca/en/immigration/permanent/skilled-workers/artificial-intelligence> [<https://perma.cc/7PHP-8TM9>]; see also *Quebec Skilled Worker Areas of Training*, QUE. IMMIGR., <https://www.quebecimmigration.org/list.php> [<https://perma.cc/9DNY-5NWW>] (last visited Nov. 26, 2024).

programs, Quebec includes almost all the occupations on the Global Talent Stream list.¹⁸⁶

IX. CANADA’S START-UP VISA:

In addition to various immigration programs to attract technology workers to Canada, since 2013, Canada has offered a “Start-up Visa” for immigrant entrepreneurs to build a business in Canada.¹⁸⁷ These businesses must be innovative, create jobs for Canadians, and must be able to compete on a global scale. To qualify, the business idea must get the support of one or more venture capital funds, angel investor groups, and business incubators from a government list.

The Start-up Visa program was initially created as a pilot project. Before making this program permanent, an evaluation of the pilot project was released in 2016.¹⁸⁸ Among other things, the evaluation found the following:

1. Start-up visa applicants “brought more human capital to Canada in terms of age, education and the knowledge of [one of Canada’s] official language[s] compared to immigrants under the previous [general business] program.”¹⁸⁹
2. The start-up visa program “successfully facilitated the access to Canada for innovative entrepreneurs who ha[d] secured business commitments” in Canada.¹⁹⁰
3. Admitted start-up visa entrepreneurs were “actively pursu[ing] [innovative] business ventures in Canada” and positive progress was made by these “entrepreneurs in either business growth, obtaining additional investment, increasing networks and business connections, or selling their businesses for a profit.”¹⁹¹

The creation of the Start-up Visa program represented a deviation from Canada’s normal immigration strategy. Generally, Canada stresses the importance of immigration of skilled workers to the country as opposed to entrepreneurs. Traditionally, when entrepreneurs were processed through

186. *Program Requirements for the Global Talent Stream*, GOV’T OF CAN., <https://www.canada.ca/en/employment-social-development/services/foreign-workers/global-talent/requirements.html> [<https://perma.cc/X827-9T3P>] (Aug. 7, 2024).

187. *See generally Start-up Visa Program*, GOV’T OF CAN., <https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/start-visa.html> [<https://perma.cc/X586-97AV>] (Aug. 20, 2024).

188. IMMIGR., REFUGEES & CITIZENSHIP CAN., *EVALUATION OF THE START-UP VISA (SUV) PILOT* (2016), <https://www.canada.ca/content/dam/ircc/migration/ircc/english/pdf/pub/e5-2015-suv-execsumm-eng.pdf> [<https://perma.cc/M77M-5CGX>].

189. *Id.* at 3.

190. *Id.*

191. *Id.* at 3-4.

previous business immigration programs, they were required to demonstrate significant previous business track records that, by definition, would not allow start-up entrepreneurs to apply. However, the implementation of the start-up visa allowed individuals who may not have a significant business track record, but experience in other fields, to be able to access this entrepreneurial program to Canada.

One of the features of this program is that selected entrepreneurs must be first approved by a designated organization. Designated organizations are third parties approved by, but separate from, the Canadian government who provide either angel funding, venture capital funding, or business incubator services. These designated organizations help guide and counsel start-up visa applicants in the establishment and the running of their business. While these organizations do not run the business, they provide additional business support. While Canada has curtailed the number of startup visa applicants it will be accepting until 2026, the program does allow Canada to attract foreign entrepreneurs who may find challenges to U.S. immigration options.¹⁹²

X. CANADA'S APPROACH TO RECRUITING TECHNOLOGY WORKERS THROUGH ITS IMMIGRATION SYSTEM

The Express Entry system is a self-filed Canadian permanent residency application. An applicant is assessed a point score based on their qualifying credentials. The Express Entry system periodically nominates applicants for permanent residence from the pool of applicants with a certain numerical point threshold. Significantly, the Express Entry system in Canada does not require an employer sponsor. This allows applicants to seek permanent residency in Canada without having to secure an employment offer, potentially translating to more skilled workers choosing to bring their talents to Canada and filling the needs of the work force once they begin residing in the country. Another attractive selling point to applications is that application fees are also roughly six times less in Canada than in the U.S.

The goal of attracting workers to Canada is to maintain a competitive advantage on the world's stage; the only way to do that is to attract highly skilled workers. Without technology workers, the U.S. will fall behind countries like China, India, and Singapore who are producing new STEM graduates from highly regarded technical institutions, ready to take on the field and enter the workforce. By 2030, it is approximated that 85 million technology

192. See *Changes to the Start-up Visa and Self-Employed Persons Programs to Help Reduce Backlogs and Improve Processing Times*, GOV'T OF CAN. (Apr. 29, 2024), <https://www.canada.ca/en/immigration-refugees-citizenship/news/2024/04/changes-to-the-start-up-visa-and-self-employed-persons-programs-to-help-reduce-backlogs-and-improve-processing-times.html> [<https://perma.cc/FAW3-PXUJ>].

jobs worldwide will be vacant, resulting in a \$8.5 trillion dollar loss.¹⁹³ If the United States does not increase the number of technology workers it is producing or bringing in as foreign workers or immigrants, it will fall behind other countries. Without expanding existing pathways or creating designated pathways in the U.S., North America as a continent will fall behind Europe, Asia, and other areas of the world.

XI. WHAT SHOULD THE UNITED STATES DO TO REGAIN ITS ABILITY TO RECRUIT STEM AND SKILLED WORKERS?

Changes to existing immigration systems will allow the United States to regain its retention and recruitment of foreign workers. The need to evolve and innovate existing systems is not only for the benefit of workers, but also for the benefit of the United States. The following suggestions focus on how to best innovate existing systems by strengthening and building on existing nonimmigrant and immigrant options.

A. EXPAND O-1 VISAS SO THEY CAN BE USED REGULARLY BY STEM PHDS AND OTHER SKILLED WORKERS

The O-1 visa could be used more broadly for STEM PhDs and potentially other highly skilled workers for nonimmigrant purposes.¹⁹⁴ By allowing a broader array of applicants to use the O-1 visa, it could open the classification to many within STEM. The benefit of opening the O-1 classification is that the visa does not have a cap, meaning there is no limitation on how many visas the federal government can grant. Additionally, the O-1 visa classification could be specifically used for highly skilled STEM applicants.

B. PROVIDE IMMIGRANT PATHWAYS FOR STEM FOREIGN STUDENTS THAT GRADUATE FROM A U.S. BASED POST-SECONDARY INSTITUTION

It has often been proposed that foreign students should have an incentive to stay in the U.S. if they graduate from a post-secondary institution in the United States. From the Obama to Trump administrations, it has been suggested that this may be an effective way to retain STEM international student

193. MIT Tech. Rev. Insights, *New Approaches to the Tech Talent Shortage*, MIT TECH. REV. (Sept. 21, 2023), <https://www.technologyreview.com/2023/09/21/1079695/new-approaches-to-the-tech-talent-shortage> [<https://perma.cc/UJR6-UNHX>].

194. See Jake Leffew, *How to Reform High-Skilled Immigration*, STATECRAFT (Nov. 15, 2023), <https://www.statecraft.pub/p/how-to-reform-high-skilled-immigration> [<https://perma.cc/8GPJ-WB8Q>].

graduates.¹⁹⁵ It cannot be understated that “[w]ithout a long-term path to working in the United States, these students ultimately return to their home countries and contribute to the growth of their own domestic economies—often in competition with the United States.”¹⁹⁶

The United States can provide incentives for foreign students to stay in the United States for a definite or indefinite period of time by requiring the foreign student to graduate from a qualifying bachelor’s, master’s, or PhD program. The program can also require that the foreign students use their OPT or CPT for a maximum allowable period. If the foreign national is able to continue employment in their field and can show a positive impact in their community, then options toward legal permanent residency should be made available.

Specifically, the United States can create another category of H-1B visas that will allow foreign students to apply for an immigrant visa. An allocation of resources would be necessary for the expansion of an H-1B visa category, but it would allow for an already established pathway for permanent residency to be used for qualified STEM and skilled foreign nationals.

C. EXPAND TN VISA AVAILABILITY TO STEM AND SKILLED WORKERS

The renegotiation of USMCA brought minimal changes, but its reorganization opened the possibility of renegotiating its terms. The United States may elect to re-open negotiations with Canada and Mexico and attempt to include STEM and skilled worker occupations on the list of qualified employment. This would include occupations such as computer programmers, software developers, web designers and web developers. If the United States wishes to go further, it could also renegotiate its terms with Canada to allow Canadian permanent residents to qualify for TN visas.

D. REFORM THE H-1B VISA PATHWAY AND ESTABLISH AN H-1B VISA FOR SKILLED AND STEM WORKERS

Another important measure the United States should consider is reforming the H-1B pathway and establishing an H-1B visa for skilled and STEM

195. See Dan Thomas, *Obama: “Extend Work Rights for Internationals”*, THE PIE (Feb. 2, 2012), <https://thepienews.com/obama-extend-overseas-work-rights/> [<https://perma.cc/T2AQ-HKYJ>]; Alexandra Ulmer & Gram Slattery, *Trump Says Foreigners Who Graduate from US Colleges Should Get Green Cards*, REUTERS (June 21, 2024), <https://www.reuters.com/world/us/trump-says-foreign-college-graduates-should-automatically-get-green-cards-2024-06-20/>.

196. Nicole Hemenway, *Retaining More International Students Would Help U.S. Innovate*, NAT’L IMMIGR. F. (July 12, 2016), <https://immigrationforum.org/article/retaining-international-students-help-u-s-innovate> [<https://perma.cc/8F35-WE58>].

workers.¹⁹⁷ Changes to the current H-1B visa would need to be extensive. However, two changes may most effectively improve the visa's workability. First, the U.S. could remove caps on the number of H-1B visas the federal government is permitted to grant each year. This change would be considerable. It would likely reduce the heavy backlog that plagues the system annually and curbs the incentive for employers to try to game the system. It would also allow immigrant officials to do the work of vetting applicants who are qualified for the visa. More importantly, it would allow immigrant officials to choose the best applicants and grant those individuals a visa, as opposed to the first ones who apply.

However, if this move may prove to be too radical, the United States could consider creating an H-1 visa solely for skilled and STEM workers. The new visa category could use existing systems, but the required occupations must be in the STEM field.

E. REFORM BUSINESS STRUCTURE AND PRACTICES

In 2013, President Barack Obama gave a speech on immigration reform, which the White House supported with a Fact Sheet regarding his proposed immigration reform.¹⁹⁸ Among the proposed changes, President Obama highlighted the need for increased immigration reform aimed at attracting the STEM workforce to the United States.¹⁹⁹

This prompted a bipartisan bill called the Bipartisan I-Squared Act, which was backed by high profile legislators such as Senators Orrin Hatch (R-Utah), Amy Klobuchar (D-Minn.), Marco Rubio (R-Fla.), Richard Blumenthal (D-Conn.), Chris Coons (D-Del.), and Former Senator Jeff Flake (R-Ariz.).²⁰⁰ Its purpose was to "allow U.S. employers to hire more of the skilled foreign professionals they need and would give those employees more job security and flexibility."²⁰¹ The bill also allowed for "employers to hire skilled employees . . . [subsequently allowing] employers to hire and retain more highly-qualified foreign nationals for [a] long[er] term, in particular those with advanced STEM degrees from U.S. universities or other outstanding credentials."²⁰² It would also require companies that employed foreign workers to fund "education efforts . . . for science, engineering, technology,

197. Richard M. Jones, *Immigration Reform Would Enhance STEM Workforce*, AM. INST. PHYSICS (Jan. 31, 2013), <https://ww2.aip.org/fyi/2013/immigration-reform-would-enhance-stem-workforce> [<https://perma.cc/NA84-P62D>].

198. *Id.*

199. *Id.*

200. *Bipartisan I-Squared Act Introduced to Reform Business Immigration System*, OGLETREE DEAKINS (Jan. 22, 2015), <https://ogletree.com/insights-resources/blog-posts/bipartisan-i-squared-act-introduced-to-reform-business-immigration-system> [<https://perma.cc/Z6U7-WHER>].

201. *Id.*

202. *Id.*

and math.”²⁰³ It ultimately would provide “\$300 million a year and . . . \$3 billion in 10 years” for STEM education in the United States.²⁰⁴ The financing mechanism “would be available to the Department of Education. Five percent of the funding could be used for ‘national research, development, demonstration, evaluation, and dissemination activities carried out directly or through grants, contracts, or cooperative agreements.’”²⁰⁵

The bill was introduced by Senator Hatch on January 29, 2013. It was read twice and referred to the Judiciary Committee but never went before the House or the Senate for a vote.²⁰⁶ The bill has not been taken up by either political party since 2013, and it essentially died in committee.²⁰⁷ While the bill’s fate is unfortunate, it does exemplify the willingness on the part of some legislators to work with each other to craft bipartisan legislation that may significantly improve current immigration systems in the United States.

F. CREATE THE STARTUP VISA OR REINTRODUCE THE STARTUP VISA ACT OF 2013

Currently, the United States does not have a startup visa for entrepreneurs to start businesses in the United States. Essentially, the StartUp Visa would provide a structure for foreign business entrepreneurs or “immigrant college graduates to start entrepreneurial ventures in the United States.”²⁰⁸ Canada announced its Start-Up Visa pilot program in 2013, and it has since been successful with 69% “US-based immigrants[, holders of H-1B, F-1 visas, etc.,] . . . more likely to start businesses in Canada.”²⁰⁹ Canada however, was not the only country to introduce a startup visa; the United States also attempted to introduce a similar program but failed to enact it.

In 2013, “Senators Mark Udall (D-CO), Jeff Flake (R-AZ), Kirsten Gillibrand (D-NY), Mark Warner (D-VA), and Sheldon Whitehouse (D-RI) introduced” a bill that created “a StartUp visa for sponsored immigrant entrepreneurs and highly skilled graduates of U.S.-based universities.”²¹⁰ The bill

203. Jones, *supra* note 197.

204. *Id.*

205. *Id.*

206. *S.169 – I-Squared Act of 2013*, CONGRESS.GOV, <https://www.congress.gov/bill/113th-congress/senate-bill/169/text> (last visited Oct. 29, 2024).

207. *See id.*

208. Abigail Houseal & Jonah Feigleson, *Should the United States Invest in a Start-Up Visa Program for Immigrants?*, CTR. FOR GROWTH & OPPORTUNITY (May 14, 2024), <https://www.thecgo.org/research/should-the-united-states-invest-in-a-start-up-visa-program-for-immigrants> [<https://perma.cc/FPB9-BZSB>].

209. *Id.*

210. *A Bipartisan Bridge to Prosperity: High Skilled Immigration Legislation in the 113th Congress*, AM. IMMIGR. COUNCIL (Mar. 1, 2013), <https://www.americanimmigrationcouncil.org/research/bipartisan-bridge-prosperity-high-skilled-immigration-legislation-113th-congress> [<https://perma.cc/9HJS-CF7Z>].

amended “the Immigration and Nationality Act to establish an employment-based, conditional immigrant visa (Startup visa) for sponsored immigrant entrepreneurs.”²¹¹ The proposed qualifications included having a required amount of financial backing, “not less than \$100,000,” and creating “at least five non-family, full-time positions in the U.S., rais[ing] at least \$500,000 in capital investment for a commercial entity in the U.S., and generat[ing] at least \$500,000 in revenue during an initial two-year period.”²¹²

The StartUp Act 3.0 was subsequently amended to “create[] a new visa for up to 75,000 immigrant entrepreneurs who hold an H-1B or F-1 visa and would create jobs in the United States.”²¹³ The bill proposed that the “entrepreneur visa recipient would, during the first year, register a new business and create two new full-time jobs for non-family member citizens or legal permanent residents in the U.S. and raise investments of at least \$100,000.”²¹⁴ This would allow for an additional three years in which the visa-holder must employ at least five full-time, non-family member workers for the business in the U.S.²¹⁵ The bill would also eliminate “per-country caps for employment-based immigrant visas and adjust[] family-based limitation from seven percent to fifteen percent.”²¹⁶ This increase in visas would not actually increase the total number of available visas.²¹⁷ The StartUp Visa Act was introduced by Senator John Kerry (D-MA) but saw the same fate as the Bipartisan I-Squared Act.²¹⁸ The StartUp Visa Act was read twice and referred to the Judiciary Committee but died thereafter.²¹⁹

XII. CONCLUSION

The efforts by countries like Canada, China, United Arab Emirates, and the United Kingdom have been successful at recruiting and retaining highly skilled workers, recognizing that skilled immigrants often create jobs, fill critical labor gaps, and can help drive a country’s growth. Currently, the United States Congress has been unable to pass any immigration reform making “it difficult for international talent to come to and remain in the U.S., particularly high-skilled foreign students after graduation . . . [stifling]

211. *Id.*

212. *Id.*

213. *Id.*

214. *Id.*

215. *Id.*

216. *Id.*

217. *Id.*

218. *S. 565 – StartUp Visa Act of 2011*, CONGRESS.GOV, <https://www.congress.gov/bill/112th-congress/senate-bill/565> (last visited Oct. 29, 2024).

219. *Id.*

America's skilled labor supply."²²⁰ The current system's inadequacies and the lack of motivation to adjust is causing more American companies to "relocate[e their] skilled immigrants . . . to countries like Canada."²²¹ It is apparent that the United States needs to innovate its current immigration system so it can start improving its stake in the world. The first place the United States can start is by updating its current immigration pathways and possibly looking to Canada.

220. Natalie Butler, *Unlocking Potential of High Skilled Immigrants to Support the U.S. Economy*, BIPARTISAN POL'Y CTR. (June 1, 2023), <https://bipartisanpolicy.org/blog/unlocking-potential-high-skilled-immigrants>.

221. *Id.*