

COMPETITIVENESS THROUGH ENTREPRENEURSHIP: A STRATEGY FOR U.S. INNOVATION

REPORT AND RECOMMENDATIONS TO THE SECRETARY OF COMMERCE



National Advisory Council
on Innovation and Entrepreneurship

DEPARTMENT OF COMMERCE
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ABOUT NACIE

The National Advisory Council on Innovation and Entrepreneurship (NACIE) is comprised of leading entrepreneurs, innovators, investors, academics, and economic development leaders. It is charged by the Secretary of Commerce to identify ways in which the United States may remain a source of paradigm-changing innovation and home to the companies that take them to market.

NACIE advises on issues relating to innovation, technology commercialization, and entrepreneurship. NACIE identifies and recommends policies that enable entrepreneurs and firms to successfully translate new ideas and technologies into innovative products and services, new businesses and jobs, and resilient, inclusive, globally competitive economies.

Over several terms since being established in 2009, the National Advisory Council on Innovation and Entrepreneurship (NACIE) has recommended policies that increase capital access and deployment, accelerate research and development at early and growth-stage companies, and better align science, technology, engineering, and math (STEM) talent demand and development. NACIE recommended policies embodied in the JOBS Act, the CHIPS and Science Act of 2022, and the authorization of Technical and Business Assistance for Small Business Innovation Research and Small Business Technology Transfer Programs' participating agencies.

NACIE is supported by the Department of Commerce's Tech Hubs Program and the Office of Innovation and Entrepreneurship (OIE). For more information about NACIE, see <http://www.eda.gov/NACIE>.

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LETTER TO THE SECRETARY

DEPARTMENT OF COMMERCE
NATIONAL ADVISORY COUNCIL ON INNOVATION AND ENTREPRENEURSHIP

Secretary Gina Raimondo
U.S. Department of Commerce
Washington, D.C. 20230

Dear Madam Secretary,

As co-chairs of the National Advisory Council on Innovation and Entrepreneurship, and on behalf of the full membership, we are pleased to submit our report to you: ***Competitiveness Through Entrepreneurship: A Strategy for U.S. Innovation.***

As we face a fast-paced age of technological change, the country is at an inflection point. Now more than ever, we need a roadmap to secure America as the most innovative and entrepreneurial nation. It is our hope that this report can serve as that guide.

The following pages set forth a series of 10 specific policy changes and actions that would collectively help ensure America's continued global entrepreneurial leadership in developing and commercializing advanced technologies.

Our recommendations are based on the challenges entrepreneurs face today, as well as ideas for improving pathways to entrepreneurship in the future. For example, we propose the establishment of a National Innovation Council to maintain a strategic focus on entrepreneurship and coordinate efforts across federal agencies. This then led to our recommendation to increase federal research and development (R&D) investments in critical technologies to build momentum for future entrepreneurs.

We also recognize the need to increase and expand access to growth capital for today's entrepreneurs and recommend a combination of novel federal support programs. These include expanding financial support mechanisms for new entrepreneurs, as well as broadening the base of capital providers through increased incentives and opportunities for emerging fund managers from a variety of demographic backgrounds, geographies, and expertise levels. We also offer suggestions for providing tax credits and incentives to companies and individuals that invest in R&D.

Lastly, and perhaps most importantly, we know that for any of our recommendations to succeed, we must enhance the ability for companies and communities to recruit and develop talent. For that, we underscore the need for a national commitment to educating and supporting new entrepreneurs. We recommend linking federal efforts to grow and support entrepreneurial hubs with infrastructure to enable ecosystems to multiply their collective impact. Along with that, we argue for more international talent to contribute their innovative ideas and businesses here in the U.S. versus seeing those benefits realized elsewhere.

It is not a given that America will continue to lead the world in innovation and the more we fail to address that fact with immediate and coordinated action, the more we risk losing ground to nations who have eagerly borrowed the American playbook. Entrepreneurship is at the very root of America's economic strength, but it is currently at a crossroads. We believe that collective implementation of the recommendations offered here can help propel us down the right path.

Sincerely,

Steve Case & Kristina M. Johnson
Co-Chairs
National Advisory Council for Innovation and Entrepreneurship

EXECUTIVE SUMMARY

ENHANCING AMERICAN ENTREPRENEURIAL OPPORTUNITY

America's entrepreneurs—risk-takers and venture-builders across the country—have not only built vibrant businesses, but they have also contributed to the United States' economic, technological, and military leadership on a global stage. We cannot take these contributions for granted nor can we accept the status quo. We must act now to remove the obstacles faced by both fledgling and mature companies to keep fostering game-changing innovations.

We have identified three critical areas for improving and assisting American entrepreneurship.

1) Addressing Changes in the Entrepreneurial Landscape

The COVID-19 pandemic highlighted how entrepreneurial the nation is. Large numbers of Americans dealt with the economic shocks of the pandemic—as well as the new opportunities it revealed—by starting businesses. New business applications surged, topping 5 million in both 2021 and 2022 and continuing at a furious pace since.¹ The manufacturing and logistics sectors have seen a recent swell in early-stage entrepreneurship.² At the same time, increased remote work enabled by new communications platforms has facilitated new opportunities for entrepreneurs of all kinds in a diverse range of environments and communities throughout the country.

Today, customers everywhere can be served by businesses anywhere, and firms are migrating from state to state at an increasing rate.³ A “donut pattern” has also been observed in entrepreneurship activity, with less growth in city centers than in the surrounding areas.⁴ Cities and towns in the heartland were devastated by “the China shock”—the loss of local manufacturing businesses that could not compete after China's accession to the World Trade Organization (WTO) in 2001—where it's been said that “we let places go to seed in a way that other countries don't.”⁵ Implementing NACIE's recommendations would help remedy the neglect of previous decades with additional energetic support for homegrown innovation.

NACIE's strategy recommendations focus on improving coordination and support for regional entrepreneurial ecosystems.

2) Filling the Gaps in Accessing Capital

While venture capital (VC) offers critical funding to companies with high-growth potential, investment is concentrated in just a few sectors, including software, healthcare, and biopharma, and VC

¹ United States Census Bureau, Business Formation Statistics:

[https://www.census.gov/econ/currentdata/?programCode=BFS&startYear=2004&endYear=2023&categories\[\]=TOTAL&dataType=BA_BA&geoLevel=US&adjusted=1¬Adjusted=1&errorData=0](https://www.census.gov/econ/currentdata/?programCode=BFS&startYear=2004&endYear=2023&categories[]=TOTAL&dataType=BA_BA&geoLevel=US&adjusted=1¬Adjusted=1&errorData=0).

² [Global Entrepreneurship Monitor 2022/2023 Global Report](#), Babson College.

³ Akbar Sadeghi, Kevin Cooksey, and Anthony Colavito, “Firm migrations in the United States: magnitude and trends,” *Monthly Labor Review*, U.S. Bureau of Labor Statistics, June 2023, <https://doi.org/10.21916/mlr.2023.11>

⁴ Ryan Decker and John Haltiwanger, “Surging Business Formation in the Pandemic: Causes and Consequences,” *Brookings Papers on Economic Activity*, Fall 2023. <https://www.brookings.edu/articles/surging-business-formation-in-the-pandemic-causes-and-consequences/>

⁵ Shawn Donnan, “Washington Hasn't Learned the Real Lesson of the China Shock,” *Businessweek*, December 20, 2021. <https://www.bloomberg.com/news/articles/2021-12-10/american-domestic-economic-policy-shows-failure-to-respond-to-china-shock>

overwhelmingly benefits companies located in a few large metropolitan areas, with the Bay Area, New York, Boston, and Los Angeles accounting for 64% of the U.S. venture dollars invested in 2022.⁶

Venture capital is also an industry notably lacking in demographic diversity, which may further narrow the pool of companies that benefit from venture investment. Just 4% of VC investment partners are Black and 5% are Hispanic; representation is even lower at the firm managing general partner level. Fewer than one in five of all VC investment partners is a woman, and companies founded by women receive a tiny slice of VC dollars invested nationwide—less than 2%.^{7 8}

Venture capital has been the traditional method for fueling business creation and innovation for a long time in the U.S. Solely depending on equity-based investors, however, may not be the right model for many businesses to scale up. Large amounts of money are wasted when businesses that cannot acquire funding using the venture capital model end up closing. In other words, there is enormous opportunity for the federal government to help enlarge the definition of 'venture capital' to capital provided by other investors, ones that consider future revenue or inventory or purchase orders as signs of viability. These types of early-stage capital providers would be particularly beneficial for regional businesses that do not have many local venture capital providers but still need alternative sources of capital. The federal government can assist in creating new financing options with incentives that can help entrepreneurs acquire direct capital through other means besides venture capital.

There is tremendous opportunity for the U.S. if we can expand the definition of venture capital and the range of companies that benefit from venture investment.

Our strategy recommendations are intended to address these equity issues in funding.

3) Overcoming the Challenges in Accessing Talent

U.S. businesses of all types, and particularly those requiring technology skills, are constantly in need of sufficiently educated and trained talent. Entrepreneurial success means acquiring the right business know-how, as well: financial, organizational, and managerial skills needed to grow and scale new businesses. There is an opportunity to widen the onramps by which millions of Americans come to see themselves as aspiring entrepreneurs, and streamline the path to high-growth entrepreneurship for those most ready to succeed here while coming from abroad. This includes a reconsideration of the immigration policies in place and what we are doing to attract the entrepreneurs of tomorrow globally.

In order to build talent everywhere, there needs to be many additional support services, such as access to affordable childcare and eldercare, to remove the barriers that keep potential entrepreneurial talent on the sidelines. Despite its “solo sport” reputation, entrepreneurship often relies on family, community, or public resources to allow entrepreneurs to flourish and “take shots on goal,” where periodic failure means learning and pivoting, not disaster. Private, public, and social infrastructure, such as affordable transportation and housing close to industry hubs, is also vital for developing the workforce levels needed for high-growth entrepreneurship.

NACIE has developed its strategy recommendations to enable the development of skilled talent and emerging entrepreneurs, as well as the infrastructure required for new businesses to thrive, across every sector and size—from venture scale technology innovators to community scale business owners.

⁶ Pitchbook, *Venture Monitor Q4 2022*. <https://pitchbook.com/news/reports/q4-2022-pitchbook-nvca-venture-monitor>

⁷ Deloitte, *Venture Forward*, and the National Venture Capital Association, *VC Human Capital Survey*, fourth edition, April 2023. <https://www2.deloitte.com/us/en/pages/audit/articles/diversity-venture-capital-human-capital-survey.html>

⁸ Pitchbook, “US VC Female Founders Dashboard,” December 5, 2023. <https://pitchbook.com/news/articles/the-vc-female-founders-dashboard>



The following four principles underlie NACIE's national strategy recommendations:

- It is crucial for our economy and national security that we continue generating new companies that leverage cutting-edge science and engineering, and that will require increasing federal support for research. We need to “prime the pump” for entrepreneurship by advancing and applying new knowledge.
- Access to capital, mentorship, new technologies, intellectual property protection, and other resources is critical regardless of market sector, founding team demographics, or company size. The role of venture capital is key, but the form of venture capital may be profoundly different for a biotech startup than for others where revenue-based financing could be the type of capital that enables startup businesses to scale.
- Disadvantaged communities, both urban and rural, will benefit from increasing entrepreneurship. Both venture scale technology-centric innovation and community scale technology-enabled entrepreneurship are critically important platforms of American innovation. The U.S. needs an inclusive approach to innovation that engages, connects, and supports business owners in places that have been left behind by the economic trends of recent decades, to invigorate local economies and help restore and sustain a strong working class.
- Entrepreneurship is a skill that can be developed. To maintain our global advantage and competitive edge, the U.S. must recruit, cultivate, and train a diverse set of future innovators as the implementers of this strategy. To sustain the entrepreneurial businesses of tomorrow, the US must also provide the infrastructure and support services to unlock more of its skilled talent workforce nationwide.

NACIE offers 10 recommendations to strengthen US entrepreneurship based on these principles, organized in this report under the following three pillars:

Pillar 1: Growing the Industries of the Future

Pillar 2: Accessing Capital

Pillar 3: Developing Entrepreneurial Talent

In 2026, America will celebrate its 250th anniversary. The recommendations that we present herein are based in the spirit of celebrating American entrepreneurship so it will continue to flourish in the decades to come.

NACIE RECOMMENDATIONS

1. Establish a National Innovation Council, chaired by the Director of the Office of Science & Technology Policy and comprised of relevant Cabinet secretaries, Director of the National Science Foundation (NSF), Director of the U.S. Patent & Trademark Office (USPTO), and U.S. Chief Technology Officer (CTO), to champion innovation and entrepreneurship across the country and coordinate relevant federal government activities.
2. Restore and expand the national investments that make innovation moonshots possible – substantially increase federal R&D investment in critical technologies to enable US leadership in the growth industries of the future.
3. Launch a National Innovation Accelerator Network (NIAN) — a virtual “network of networks” of accelerator, mentoring, and investment programs and entrepreneurial support organizations to empower inclusive entrepreneurship across all aspects of society at scale.
4. Provide intellectual property (IP) incentives for federally funded research and development; develop policies and incentives for robust dissemination and commercialization of federally funded innovations; and promote broader domestic manufacturing of federally funded innovation.
5. Proactively work with innovators, entrepreneurs, and funders to ensure they have adequate intellectual property and cyber security education and resources to protect their ideas and businesses and are trained to be able to identify and prevent potential IP theft from foreign companies or states.
6. Expand the pipeline for growth capital to entrepreneurs through the creation of novel federal programs to support more entrepreneurs everywhere, and especially those that are typically underserved.
7. Increase funding and provide opportunities to emerging fund managers through the expansion of direct funding and incentive-based federal programs so that there are more VC investors, of a variety of demographic backgrounds and expertise, in more places across the country.
8. Provide annual tax credits and incentives to companies and individuals that invest in R&D, in startups at the Seed or A round of financing, to women and minority-owned startups, and for protecting and licensing IP.
9. Comprehensively support new high-potential entrepreneurs by supplying mentors, funding for support services and assistance with attracting and developing key talent, all designed to increase the number and impact of new startup companies in the U.S.
10. Systematically provide tools and resources to enable entrepreneurship, breaking down the barriers for anyone, anywhere, to contribute to new entrepreneurial enterprises so the U.S. can innovate at a faster pace going forward.

PILLAR 1: GROWING THE INDUSTRIES OF THE FUTURE

FINDINGS AND RECOMMENDATIONS FOR ACTION

The United States has enormous strengths in innovation and entrepreneurship. The astonishing advances in generative artificial intelligence released in the last few years confirm that American entrepreneurs continue to create transformative products in emerging fields ahead of the rest of the world.⁹

This innovation comes from startups as well as established companies and from government investments due to the importance of dual-use technologies that have both military and commercial applications. U.S. economic security and national security are both dependent on innovation at the leading edge—in fields that include energy, automation, artificial intelligence, quantum sciences, and biotechnology—innovation that has led to enormous commercial successes in the market. However, research has revealed at least four significant threats to maintaining, much less expanding, the level of advancement—the lack of national coordination, a persistent decline in research and development investment, stunted commercialization of university research products, and the risks posed by offshore manufacturing.

This is no time for complacency. Under some metrics, China now leads the United States in knowledge- and technology-intensive manufacturing and is the equal of the U.S. in terms of knowledge- and technology-intensive output overall.¹⁰ Supporting innovation and entrepreneurship in the industries of the future is a national imperative. We cannot afford to fall behind.

Finding 1: The United States has multiple federal agencies and offices that offer entrepreneurs numerous resources to guide and assist the challenging transition from promising idea to commercialization. However, we lack a coordinating body overseeing the health of our national innovation ecosystem. *There are no common portals entrepreneurs can use* to find information, resources, and mentorship.

Finding 2: America's hundreds of diverse and distinctive research-intensive universities represent a great national strength, developing both the foundational knowledge and the talent to seed high-growth companies.¹¹ In fact, the knowledge generated by universities is key to invention in all sectors. Of the science and engineering articles cited in patents, the greatest number and proportion are by academically based authors.¹² However, the long downward trend in federal funding for research and development as a percentage of GDP is also inhibiting the formation of new enterprises that could help the United States maintain its technological leadership.¹³ A recent study confirms the strong connection between increases in federal research support to a university and the formation of companies nearby with significant potential for growth.¹⁴ Despite recent notable investment efforts including the American Rescue Plan Act (ARPA), Infrastructure Investment and Jobs Act (IIJA), Inflation Reduction Act (IRA), and the CHIPS and

⁹ Che Pan, "OpenAI's ChatGPT took the AI world by storm a year ago and China is still playing catch-up as US piles on the pressure," *South China Morning Post*, December 9, 2023.

<https://www.scmp.com/tech/article/3244420/openais-chatgpt-took-ai-world-storm-year-ago-and-china-still-playing-catch-us-piles-pressure>

¹⁰ National Science Board, National Science Foundation, "Production and Trade of Knowledge- and Technology-Intensive Industries," *Science and Engineering Indicators 2022*. NSB-2022-6. <https://ncses.nsf.gov/pubs/nsb20226>.

¹¹ Tartari, Stern. <https://www.nber.org/papers/w28846>

¹² National Science Board, National Science Foundation, "Invention, Knowledge Transfer, and Innovation," *Science and Engineering Indicators 2022*, p. 31. <https://ncses.nsf.gov/pubs/nsb20224/>

¹³ G Anderson, F Moris, "Federally Funded R&D Declines as a Share of GDP and Total R&D," NSF National Center for Science and Engineering Statistics (NCSES), 2023. <https://ncses.nsf.gov/pubs/nsf23339/>

¹⁴ Valentina Tartari, Scott Stern, "More than an Ivory Tower: The Impact of Research Institutions on the Quantity and Quality of Entrepreneurship," National Bureau of Economic Research, May 2021. <https://www.nber.org/papers/w28846>.

Science Act, as a percentage of GDP, *federal support for R&D has fallen* from its Cold War high in 1964 of 1.86% of GDP to 0.76% in 2023.¹⁵

Finding 3: Universities also contribute to innovation by licensing their own patents and spinning out entrepreneurial ventures based on this IP. But the gap between their research activity and IP generation shows lost opportunities. There are challenges in moving the discoveries and inventions that occur in university laboratories into the marketplace. First, these innovations often arise out of the pursuit of fundamental understanding rather than commercial applications and are at an early stage. Getting them further along towards commercialization has been difficult because use-inspired and translational research at universities has been underfunded. The new NSF Directorate for Technology, Innovation, and Partnerships¹⁶ (TIP) established by the CHIPS and Science Act is designed to address this gap.

Although the Bayh-Dole Act of 1980 granted universities ownership of the inventions they generate with federal funding, *individual universities often lack the resources required to commercialize* such inventions. In particular, many university technology transfer offices are under-funded and do not have access to relevant industry licensees to be able to successfully transfer their technology. At most universities, licensing revenue does not even cover the legal and administrative costs of their technology transfer offices. While a few universities have made forward-looking investments in technology transfer and collect most of the licensing income, others simply do not have the resources to commercialize their intellectual property.¹⁷

We often do not capture the full value of the technologies we invent. Too many advanced products invented in the U.S. are now largely manufactured elsewhere.

Finding 4: Another problem is at the entrepreneurial ecosystem level. We often do not capture the full value of the technologies we invent. Too many advanced products invented in the United States are now largely manufactured elsewhere, everything from solar photovoltaics to smartphones to laptops to semiconductor chips. *The pandemic demonstrated that offshoring the manufacturing of critical technologies is a national security risk.*¹⁸ The loss of manufacturing expertise and talent is costly in other ways too, limiting our ability to innovate, since process innovations often contribute to product innovations.¹⁹

Since the pandemic, new laws that include the CHIPS and Science Act and the IIJA reflect broad bipartisan agreement in Congress to support American manufacturing. The Biden Administration has taken a whole-of-government approach to supporting our industrial base, ensuring that taxpayers dollars spent on federal procurement and on research and

development that benefits American manufacturers.²⁰ It has asked research funding agencies “to consider domestic manufacturing in their R&D award solicitations.”

¹⁵ G Anderson G, F Moris, National Center for Science and Engineering Statistics (NCSES), *Federally Funded R&D Declines as a Share of GDP and Total R&D*, 2023. <https://ncses.nsf.gov/pubs/nsf23339/>; AAAS, “Historical Trends in Federal R&D.” <https://www.aaas.org/programs/r-d-budget-and-policy/historical-trends-federal-rd>

¹⁶ <https://new.nsf.gov/tip/latest>

¹⁷ Jon Marcus, “Think universities are making lots of money from inventions? Think again,” *The Hechinger Report*, January 17, 2020. <https://hechingerreport.org/think-universities-are-making-lots-of-money-from-inventions-think-again/>

¹⁸ Yang Jie, Stephanie Yang, Asa Fitch, “The World Relies on One Chip Maker in Taiwan, Leaving Everyone Vulnerable,” *Wall Street Journal*, June 19, 2021.

¹⁹ Gary Pisano, Willy Shih, “Restoring American Competitiveness,” *Harvard Business Review*, July-August 2009. <https://hbr.org/2009/07/restoring-american-competitiveness>

²⁰ White House, Executive Order 14005, “Ensuring the Future is Made in America by All of America’s Workers”; Executive Order 14104, “Federal Research and Development in Support of Domestic Manufacturing and United States Jobs.” <https://www.whitehouse.gov/omb/management/made-in-america/>;

Additional policies to support U.S. entrepreneurs—including those launching capital-intensive manufacturing businesses—will ensure that the industries of the future are not just invented in the United States, but also will grow here in ways that benefit the nation at large.

RECOMMENDATION 1

Establish a National Innovation Council, chaired by the Director of the Office of Science & Technology Policy and comprised of relevant Cabinet secretaries, Director of the National Science Foundation (NSF), Director of the U.S. Patent & Trademark Office (USPTO), and U.S. Chief Technology Officer (CTO), to champion innovation and entrepreneurship across the country and coordinate relevant federal government activities.

A proposed new entity—the National Innovation Council—would have visibility across the entire federal government, as well as the ability to implement strategic federal policy and direct funding to support U.S. entrepreneurs and innovators.

This Council would report to the Executive Office of the President to ensure a coordinated federal policy effort. Council members would work with stakeholders within and outside of government to evolve the national strategies on innovation and entrepreneurship and to determine prioritization of efforts related to critical technologies.

The President or their delegate would convene the Council at least twice per year and would have the responsibility for overseeing the coordination and implementation of the recommendations included in a bi-annual National Entrepreneurship Strategy, as well as other identified national innovation and entrepreneurship priorities.

ACTIONS

- Collaborate with stakeholders in and outside of government to evolve the national strategies on innovation and entrepreneurship and to determine prioritization of efforts related to critical technologies. Construct a means for the various agencies of the federal government to collaboratively identify, support, and catalyze innovation and entrepreneurship for growth in critical industry segments.
- Launch and direct the National Innovation Accelerator Network (NIAN) activities (see Recommendation 3 below). The Chief Technology Officer or other presidential Cabinet Member appointees would be responsible for developing and managing NIAN. The CTO would report NIAN's status, results, and insights to the National Innovation Council at its biannual meetings.
- Partner with the private equity and venture capital industries to leverage more of the country's intellectual capital in expanding entrepreneurship activity, and to implement evidence-backed best practices for the equitable deployment of capital to a population representative of the nation. Mandate the use of evidence-backed frameworks for evaluating fund managers and startups across all government programs that are directly or indirectly providing funding for entrepreneurs.

<https://www.whitehouse.gov/briefing-room/presidential-actions/2023/07/28/executive-order-on-federal-research-and-development-in-support-of-domestic-manufacturing-and-united-states-jobs/>

- Establish and measure the appropriate local and national performance metrics for entrepreneurship ecosystem success, inclusion, and capital allocation. The U.S. Patent & Trademark Office has recently launched its Diversity Information Platform,²¹ which shares best practices and allows organizations to review USPTO demographic information and to compare their own data to industry benchmarks. Further expansions of this platform to improve data collection/sharing on innovation and entrepreneurship participation should be made, with capital allocation analyses (including reporting as in California Senate Bill 54 that requires reporting of demographic data by investors, described in the next bullet point), should be added to track the variety of capital resources being deployed to entrepreneurs.
- Require mandatory reporting of demographics of VC investments. Much like the California law that now requires VC funds to annually report demographics of their portfolios, VC funds should have to report demographics of their invested companies and the compositions of their management teams. Provide subsidies or reimbursement for collection and reporting of data as outlined in the recently passed California SB 54.²²
- Support the development of best practices and standards for evaluating the effectiveness of entrepreneur support programs (accelerators, etc.), and publishing data to provide transparent information to entrepreneurs on which programs are most appropriate for their sector, stage, and growth goals. Measure performance against the most recent census demographic data so that entrepreneurship support program requirements can be modified over time to incorporate evolving capital mechanisms that increase inclusion accordingly to look like the demographics of each state.

RECOMMENDATION 2

Restore and expand the national investments that make innovation moonshots possible – substantially increase federal R&D investment in critical technologies to enable US leadership in the growth industries of the future.

Even with the recent enactments of ARPA, IIJA, IRA, and the CHIPS and Science Act, annual U.S. national research and development investment remains far below the levels in the decades after World War II when American innovation helped create much of the technologies that underpin life today. To remain competitive in a world where the pace of change is only accelerating, a recommitment to this national scientific investment at a greatly increased scale will be necessary, and sooner rather than later.

ACTIONS

- Congress should increase federal R&D funding as a percentage of U.S. GDP to 2% by 2030, with consideration of an immediate doubling in the next annual appropriations as a necessary “down payment” to start addressing this shortfall.
- Congress should fully fund the EDA Tech Hubs Program in the amount of \$9.5 billion and the Collaborative Innovation Resource Centers (CIRCs) outlined in the CHIPS and Science Act.

²¹ <https://developer.uspto.gov/diversity-data/home>

²² https://leginfo.ca.gov/faces/billStatusClient.xhtml?bill_id=202320240SB54

RECOMMENDATION 3

Launch a National Innovation Accelerator Network (NIAN) — a virtual “network of networks” of accelerator, mentoring, and investment programs and entrepreneurial support organizations to empower inclusive entrepreneurship across all aspects of society at scale.

The proposed National Innovation Accelerator Network (NIAN) would connect, create and weave together the entrepreneurial activities across the most innovative and leading-edge industries, universities, for profits and nonprofits. NIAN’s purpose would be to facilitate startups, state, and federal agencies to provide open access to assets necessary to accelerate the commercializing of our national innovation efforts.


NIAN would organize federal agencies that are currently investing in new technologies and offer support and services through partnerships, special assets, and a range of additional novel programming to increase innovation adoption and entrepreneurship. NIAN would also play a role in implementing the forthcoming USPTO’s Council for Inclusive Innovation (CI2)’s National Inclusive Innovation Strategy across federal agencies involved with innovation and entrepreneurship.²³

With this cross-government structure in place to support innovation and entrepreneurship nationwide, NIAN should also be used as a catalyst for developing public-private partnerships to address societal grand challenges. Mitigating and adapting to climate change is just one example where a wider-ranging network of organizations will be needed to address many facets of a complex problem, and NIAN could be that hub organization that also works on moonshot-type efforts to better the living standards and future prospects for all Americans.

ACTIONS

- Establish NIAN as an independent entity that may receive funds and technical assistance from federal agencies, companies, universities, and foundations.
- Coordinate and ensure information flows efficiently to and from federal agencies involved in innovation and entrepreneurship, including, but not limited to, the NSF’s TIP Directorate and the Regional Innovation Engines, Department of Commerce (DOC) Technology and Innovation Hubs, Department of Energy (DOE) Regional Innovation Program Clusters, DOE Hydrogen Hubs, Department of Defense (DOD) Defense Innovation Unit (DIU), Small Business Administration (SBA) Regional Innovation Clusters, and other departments and agencies that support entrepreneurs and innovators in creating and enabling the high-growth industries of the future.
- Provide loans and/or loan guarantees for innovative technology startups, and technical assistance to help founders access existing public financing programs. These measures would allow specific applicants to secure funding and support for projects that otherwise would not and could eventually provide a history of commercial viability for such technologies, reducing the perceived risk among commercial lenders.
- Create and manage the comprehensive online entrepreneurship resource hub and collaboration platforms and other awareness programs for entrepreneurship and innovation support proposed by the USPTO’s Council for Inclusive Innovation.
- Manage, implement, and legislate equitable guidelines and policies for institutional investors and other federal government ‘fund of funds’ support programs for startups (e.g. Small Business

²³ <https://www.uspto.gov/initiatives/equity/ci2/about>



Investment Company (SBIC), State Small Business Credit Initiative (SSBCI), AFWERX, Build to Scale (B2S)). Implement data collection efforts across these federal government funders to build equitable and inclusive best practices based on evidence and metrics.

- Assist the Council for Inclusive Innovation (CI2) in implementing the additional recommendations from the forthcoming National Inclusive Innovation Strategy.

RECOMMENDATION 4

Provide intellectual property (IP) incentives for federally funded research and development; develop policies and incentives for robust dissemination and commercialization of federally funded innovations; and promote broader domestic manufacturing of federally funded innovation.

The research and development (R&D) ecosystem includes institutions of higher learning (from community colleges to universities), nonprofits, government-funded research institutions, and private sector entrepreneurs. More than half of all federally funded R&D is carried out by universities.²⁴ It is essential for all those in the R&D ecosystem to have the resources, and efficient, effective processes for filing, protecting, promoting, and commercializing intellectual property (IP). IP is an important bridge to deploying crucial innovation to the public and the commercial marketplace, thus securing IP protection is a critical component of a successful national innovation strategy.

To further support this recommendation, the USPTO has been exploring the lost opportunities between university research activity, the resulting IP generation, and will be issuing a Request for Comments in early 2024 to seek public input on ways to use the U.S. intellectual property system to improve the translation of research into commercial products and companies.

ACTIONS

- Provide resources to build the capabilities for R&D and commercialization operations at nonprofits, institutions of higher learning, and small- and medium-sized entities in industry, to expand and help deploy innovations in broader communities, including those that are underserved. These resources could include grants for hiring innovation managers and incentives to develop and implement research commercialization plans.
- Stimulate the deployment and commercialization of federally funded R&D by streamlining the licensing process. This includes simplifying documentation requirements, enhancing the transparency of the licensing process, and providing entrepreneurs and others in the marketplace with greater access and visibility to licensing opportunities. In addition, the federal government should periodically facilitate targeted, industry-specific in-person technology transfer/licensing expos. The objective of these events would be to bring together federal licensors and industry licensees to facilitate licensing agreements and for federal licensors to receive industry feedback on their research strategy.
- Incentivize educational institutions receiving federal funding to develop and implement research commercialization plans. These policies and incentives should provide for educating and

²⁴ Josh Trapani, "[National Science Board, Science & Engineering Indicators – Academic Research and Development](#)," September 14, 2021.

equipping their students, faculty, and workforces with the skills to move R&D from conception to commercial success.

- The federal government, working with industry partners in a public-private partnership, should create developmental investment funds designed to further develop promising university inventions and bring them up the Technology Readiness Level scale closer to commercialization. The funding, earmarked for research expenses to further develop these technologies, would be a mix of private sector and federal funding.
- The USPTO, in coordination with the Department of Commerce, should create an IP commercialization task force (the “IPCTF”) for the purposes of commercializing federal technologies across the federal government. The proposed IPCTF would be comprised of experienced technology transfer professionals in critical and emerging technologies. After reviewing the federally owned cross-agency portfolio as a whole and receiving industry feedback, the IPCTF would develop an overall commercialization strategy and liaison with the respective agency technology transfer professionals to implement this strategy.
- As most university technology transfer offices in the United States are under-resourced, the federal government should incentivize technology transfer coalitions so that universities can pool their resources. In the United States and internationally, there are examples of universities creating a coalition to pool resources to increase technology transfer of their patented technologies.²⁵

RECOMMENDATION 5


Proactively work with innovators, entrepreneurs, and funders to ensure they have adequate intellectual property and cyber security education and resources to protect their ideas and businesses and are trained to be able to identify and prevent potential IP theft from foreign companies or states.

Without timely and proper intellectual property protection, the revenue generated from U.S. innovation will quickly be lost and offshored. The likelihood that innovators and entrepreneurs will be able to bring their innovations to market is measurably lessened. Businesses also need strong cyber protection to protect themselves from having their IP and other key data stolen. Entrepreneurs need to be trained not to solicit or accept meetings, assistance, funding, or partnerships from organizations that may be foreign state actors intending to either steal the entrepreneurs’ IP or to invest with the entrepreneur to acquire or control the IP.

ACTIONS

- Provide specific resources, including establishing best practices for protecting IP generated from federal R&D funding, and require training in these best practices for recipients of federal funding. Such training should include domestic and international patent protection, which will provide access to broader innovation deployment and marketplaces.

²⁵ For example, the California Institute of Technology and several prominent universities have recently created a coalition, the University Technology Licensing Program, and pooled resources to increase technology transfer of their patented technologies. <https://www.utlp.net/>

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- Link intellectual property, cyber and suspicious entity education and resources to SBA and other business resources for entrepreneurs and build those resources into the introductory materials used by startups.
 - Work with funding institutions and sources, as well as incubators and accelerators, to prioritize IP and cybersecurity education and to encourage entrepreneurs to assess and protect their IP and data before receiving funding.

PILLAR 2: ACCESSING CAPITAL

FINDINGS AND RECOMMENDATIONS FOR ACTION

That old proverb, “it takes money to make money,” still holds true for 21st century entrepreneurs. The ability to attract investment capital is often the key differentiator between companies that can grow and thrive and those that languish in the “valley of death” on the road to commercialization.

The venture capital industry has been particularly important to U.S. entrepreneurship and innovation, especially since a Department of Labor rule clarification in 1979 that allowed pension funds to invest in venture capital funds as part of a diversified portfolio.²⁶ In the subsequent 45 years, venture capital has come to be the dominant source of financing for high-potential startups commercializing risky new ideas and technologies.²⁷

However, research reveals many ways in which venture capital in its current form is insufficient to spur a broader expansion of U.S. entrepreneurship that will be needed to keep the innovation pipeline flowing and enable more widespread economic growth. Venture capital is an inaccessible resource for a significant portion of the U.S. population of entrepreneurs. There are tremendous opportunities if we can expand the definition of venture capital to include alternative financing structures for innovative, growth-oriented companies. To do this we need to broaden the types of businesses and entrepreneurs that can obtain the capital they need to grow and scale, as VC investments are currently heavily concentrated in a few industry sectors such as information technology (both hardware and software), biotechnology, and healthcare.²⁸

Venture capital has lagged behind nearly every other industry in including women and people of color, or to deploy capital and resources equitably – at the ultimate cost of lost potential for U.S. innovation.

Finding 1: The seven largest publicly traded companies today in the U.S. were all VC-backed.²⁹ While employment in the private sector overall has grown 40% between 1990 and 2020, employment at VC-backed companies has grown 960% over the same period.³⁰ At the same time, equity and equity-based compensation (known drivers of wealth) are increasingly consolidated in a handful of larger firms and traditional founders, leaving a lot of entrepreneurs and firms “left out” of the prime funding avenues needed to scale potentially successful businesses.³¹

In the U.S., VC remains the dominant source of capital enabling risky new business ideas to commercialize and scale.³² VC investments in the United States dwarf all other countries.³³ Some American cities have more investment than those of entire nations. New York City had as much VC investment as the entire nation of India in 2021. Regardless of the magnitude of the aggregate amounts, venture capital has lagged behind nearly every other industry in including women and people of color, or to deploy capital and resources equitably – at the ultimate cost of lost potential for U.S. innovation in

²⁶ Paul A. Gompers, Josh Lerner, “What Drives Venter Capital Fundraising?” National Bureau of Economic Research, January 1999, p. 7-8. https://www.nber.org/system/files/working_papers/w6906/w6906.pdf

²⁷ Josh Lerner and Nanda Ramana, “Venture Capital’s Role in Financing Innovation: What We Know and How Much We Still Need to Learn,” *Journal of Economic Perspectives*, 34 (3): 237-61. doi: 10.1257/jep.34.3.237

²⁸ NVCA, p. 21.

²⁹ National Venture Capital Association (NVCA), *2023 Yearbook*, p. 11.

³⁰ NVCA, p. 10.

³¹ <https://www.mckinsey.com/~media/mckinsey/featured%20insights/diversity%20and%20inclusion/diversity%20wins%20how%20inclusion%20matters/diversity-wins-how-inclusion-matters-vf.pdf>

³² Josh Lerner and Nanda Ramana, “Venture Capital’s Role in Financing Innovation: What We Know and How Much We Still Need to Learn,” *Journal of Economic Perspectives*, 34 (3): 237-61. doi: 10.1257/jep.34.3.237

³³ Joanna Glasner, “These Countries Have the Most Startup Investment for Their Size” Crunchbase News, Nov. 2, 2021. <https://news.crunchbase.com/startups/countries-most-startup-investment>

overlooked sectors, regions, and demographics that represent huge market potential (e.g. women's health, inclusive finance, etc.).

Finding 2: Venture capital investing has been demographically concentrated with more than 98% being allocated to male founders. Other forms of startup financing also remain unbalanced in terms of funded entrepreneurs' demographics. Funding remains a challenge beyond the startup phase for entrepreneurs of color. While 34% of White business owners receive all the funding they ask for, just 14% of Black business owners and 19% of Hispanic business owners receive the full amount requested.³⁴ When businesses fail, 55% of White owners say an inability to access capital to cover business operations was at fault in the business closure. This contrasts with 95% percent of Hispanic and 68% of Black business owners who closed because of lack of funding.³⁵

Finding 3: Lastly, VC investments are also constricted in terms of geography. VC funding is overwhelmingly concentrated in a few metropolitan areas, so that 79% of all U.S. VC deal values come from just four states: California, Massachusetts, New York, and Texas. Before the pandemic, innovation was increasingly becoming concentrated in a few "superstar" cities, with preeminent research universities nearby. However, the increase in remote work during the pandemic resulted in the beginnings of diffusion of technology investment and employment.³⁶ Over the last decade, there has been an increase in the number of small regional venture capital firms nationwide, but these firms and their communities will need further support if that trend is to continue.³⁷

Federal policies are also encouraging the geographic spread of venture growth capital. For example, the bipartisan CHIPS and Science Act authorized several programs designed to broaden access to innovation-fueled growth, including the Department of Commerce's Regional Technology Hubs and the National Science Foundation's Regional Innovation Engines, both of which are helping more regions across the country become centers of innovation in fields significant to the economy and national security.

RECOMMENDATION 6

Expand the pipeline for growth capital to entrepreneurs through the creation of novel federal programs to support more entrepreneurs everywhere, and especially those that are typically underserved.

The federal government has established grant programs to assist in the startup process, enabling the lab to market transition and seed funding to lead to expanded equity investments and broader commercial partnerships as startups gain viability. The SBIR (Small Business Innovation Research) and STTR (Small Business Technology Transfer) grant programs are referred to as "America's Seed Fund", providing early seed capital for new technologies through multiple federal agencies.

Such federal programs have been very successful. A study of the Department of Defense SBIR program showed a 22:1 return on the DOD's investment, with \$347 billion in total economic output nationwide resulting from investing \$14.4 billion in 4,412 companies from 1995 to 2018.³⁸ This program has been particularly impactful in moving companies across the so-called "valley of death" where innovation that requires additional conceptualizing cannot survive without financial support to achieve commercial viability.

³⁴ Cosgrove, B., Gaskin, P., Goff, T., Kenney, E., Milli, J., and Vassell, H. (2023) "[Access to Capital for Entrepreneurs: Removing Barriers: 2023 Update](#)," Ewing Marion Kauffman Foundation: Kansas City, p. 12.

³⁵ Cosgrove, Gaskin, et al., p. 49.

³⁶ Danielle Abril, "Where are all those tech workers going?" *Washington Post*, April 12, 2023.

³⁷ <https://www.washingtonpost.com/technology/2023/04/12/silicon-valley-bay-area-tech/>

³⁷ <https://revolution.com/beyond-silicon-valley-report/assets/files/Beyond-Silicon-Valley.pdf>

³⁸ [National Economic Impacts from the DOD SBIR/STTR Program, 1995-2018](#).

The Department of Defense³⁹ broadly and the Air Force⁴⁰ branch specifically have a proven track record of seeding and then tracking innovation responsibly across the capital spectrum by providing capital for entrepreneurs from seed to growth stage. These examples are good starts. The federal government can take this methodology and expand it to areas where the private capital markets have consistently left out entrepreneurs. These overlooked entrepreneurs offer unique opportunities for the federal government to assist these underserved, and undercapitalized, entrepreneurs in their venture growth process, thereby growing the economy in areas all across the U.S.

ACTIONS

- Create a variety of incentives to build broader venture capital offerings and alternatives to venture capital that serve a wider range of companies founded by entrepreneurs from underrepresented communities. Technical assistance is a start, but it needs to come with capital. By developing an incentive for banks to create local venture capital programs with alternative venture capital structures, the federal government can launch a new model of expanding regional venture capital options. By crafting incentives for equity and other early-stage capital providers, entrepreneurs will be able to identify and seek the right size and type of capital they need, rather than relying solely on the current, limited and often inaccessible private market paradigm.
- Change the parameters of SBA/government contracting and SBIR/STTR award parameters for percentages regarding ownership – so that women- and minority-owned businesses would still qualify even if their ownership were diluted thereby preventing them from obtaining seed/VC investment. When women and minorities raise capital for their businesses and their ownership becomes diluted, it doesn't indicate they have raised enough capital to grow their businesses sufficiently. The ability to raise some initial funds should not disqualify women-owned business designations for government contracts and other non-dilutive federal funding mechanisms that require a great effort and money to achieve these certifications. Establish a quota for first-time applicants or those that are considered a small business.
- Create new 'venture capital' federal funded programs or incentives to create growth capital for entrepreneurs through a revenue-based financing (RBF) capitalization strategy. By funding investors who offer capital by considering the value of a company's future revenue, inventory or purchase orders, the variety of early-stage capital providers opens up for regional businesses who may lack the opportunity for acquiring pure equity-based VC funders due to geography, demography, or industry.

RECOMMENDATION 7

Increase funding and provide opportunities to emerging fund managers through the expansion of direct funding and incentive-based federal programs so that there are more VC investors, of a variety of demographic backgrounds and expertise, in more places across the country.

Tremendous progress has been made to streamline and modify the SBA SBIC program to encourage participation by emerging managers. There have been additional venture capital support programs across the federal government including EDA's Build to Scale Program and Treasury's SSBCI funds. Much more capital could be acquired by more and diverse entrepreneurs if the variety and scope of venture capital providers increases. By changing the investor profile, access to capital can be broadened from its current

³⁹ <https://www.defense.gov/News/Releases/Release/Article/3233377/secretary-of-defense-establishes-office-of-strategic-capital/>

⁴⁰ <https://afwerx.com/divisions/afventures/stratfi-tacfi/>

limited, exclusive network / introduction-based club through a variety of federal government actions to assist new fund managers in their own fundraising process. These steps would also strengthen and expand the pipeline of venture and growth capital investors by offering incentives for training and developing the investors of tomorrow.

ACTIONS

- Increase funding thresholds for venture capital and types of “fund of funds” investors – or limited partner designations – allowing federal funds to directly invest in venture funds, particularly those by new investors – similar to legislation proposed in the Expanding American Entrepreneurship Act.⁴¹ This legislation would expand parameters of section 3(c)(1) of the Investment Company Act to permit emerging fund managers to raise larger amounts with a higher number of permitted investors – including more accredited women investors and investors of color – diversifying the investor base and thereby directing equity capital more broadly.
- Establish capital fundraising training programs for new fund managers of venture funds and other investment funds offering alternatives to venture capital, particularly in regions with Regional Innovation Engines and Regional Tech Hubs. Grant funding programs would educate and train women and minority emerging fund managers, while offering a capped matching element for limited partner investments to jumpstart fundraising efforts of first-time fund managers. Incorporating funding for the investor or offering matched funding would be a requirement of the grant.
- Provide an incentive for the creation of a venture capital fellowship program across federal grants to venture capital funds. This program would offer a way to diversify who is managing the money – and create a more distributed demographic representation of fund managers. Taking on a fellow would be required for venture capital funds receiving federal grants. This effort would offer training and a temporary position for women and underrepresented minorities to apprentice or shadow a fund manager to learn the business, building out the pipeline of diverse, trained investors.
- The Department of Commerce should create a state representative group to meet quarterly or bi-annually to share learnings, best practices, demographic outcomes, goals, and emerging trends. These meetings could be organized at the Regional Tech Hubs; members could conduct research and track venture investment in their areas. This group will report back to their respective state agencies as well as publish learnings and shared practices for improving collaboration, drafting implementing legislation, and increasing the deployment efficiency of the expansion of startup capital in their region.

RECOMMENDATION 8

Provide annual tax credits and incentives to companies and individuals that invest in R&D, in startups at the Seed or A round of financing, to women and minority-owned startups, and for protecting and licensing IP.

The federal government can incentivize private individuals, companies, and corporations to invest in R&D, by providing tax incentives that motivate the translation of innovation into new products, processes, and industries of the future.

⁴¹ <https://www.congress.gov/bill/117th-congress/senate-bill/3976>

ACTIONS

- Provide tax incentives for investing in women or minority-owned startups, similar to the New Markets Tax Credit Program.⁴² Consider including language that incentivizes funds focused on community growth to distressed communities or entrepreneurs in protected classes. This type of regional effort would assist in attracting private capital to the area as well as attracting limited partners to first time fund managers in specific focused demographic categories.
- Restore first-year expensing of startups' R&D investments from taxable income. For nearly 70 years, this favorable tax treatment promoted innovation by powerfully incentivizing critical investments in research and technological advancement. When Congress passed the Tax Cuts and Jobs Act in 2017, it changed the tax treatment of R&D in order to partially offset the revenue impact of the tax cuts, requiring businesses, beginning in tax-year 2022, to amortize their R&D investments over five to fifteen years. The nation's startups are hit disproportionately by the change, as they tend to have little income in the critical early years, while investing heavily in developing, testing, and improving their new product or service.
- Expand the SBIC program to bridge the gap between where emerging manager funds are typically capitalized (sub \$50MM) and the \$350MM+ funds that have access to traditional wealth management platforms and capital sources. This should be limited to funds under a certain size who seek to expand or for first-time fund managers.
- Incentivize financial institutions to pool smaller funds into a right-sized fund of funds as a product on their financial platforms. This could be done through government matching funds and tax credits. This product should also be limited to funds under a certain size who seek to expand or for first-time fund managers.
- Encourage Limited Partners (pensions, endowments, family offices, wealthy individuals, etc.) to invest in emerging (first-time) fund managers with a documented gender or demographic lens. This could be based on data collected from California's new law that requires reporting of demographics by venture investors. The federal government could use data from that effort to understand the demographics and related outcomes from these investments to aggregate and promote best practices nationwide.

⁴² <https://www.cdfifund.gov/programs-training/programs/new-markets-tax-credit>

PILLAR 3: DEVELOPING ENTREPRENEURIAL TALENT

FINDINGS AND RECOMMENDATIONS FOR ACTION

In passing the American Rescue Plan Act, the Infrastructure Investment and Jobs Act, the Inflation Reduction Act, and the CHIPS and Science Act, the federal government has unleashed a historic \$3 trillion in investments to bring to market and scale a wide array of technologies and build the infrastructure needed to support it. These investments and technologies will create millions of new jobs over the next decade, and the ability to fill these roles as they come to fruition in urban and rural communities across the nation will be one of the biggest challenges to solve for successfully leveraging these investments.

Developing a talent pipeline by recruiting, training, and supporting a more diverse ecosystem of entrepreneurs will ... require building the skills of our existing U.S. workforce far more broadly than today's workforce educational systems deliver.

The federal government has a once-in-a-generation chance to align entrepreneurship and innovation needs for the industries of the future with workforce funding. Regional actors will be key to deploying these federal investments according to a skills-based talent strategy and should receive national level guidance in tandem with local input (e.g. federal training and resources, regional-led workforce and talent initiatives, entrepreneurship resources, etc.). Skills-driven mobility strategies for emerging industries must be complemented with access to affordable childcare, eldercare, housing and transportation, and by addressing occupational discrimination and segregation by gender, race, and ethnicity.

Developing the skills of U.S. workers through alternative routes will be a key source of incremental talent in crucial technology industries, and for the entrepreneurial ventures that will support the resulting innovations. Tens of millions of workers already gain

their skills from on-the-job work experience as well as through formal training routes, such as community college, bootcamps, and apprenticeships. Emerging industries can speed up talent development by sending clear signals of the skills they need, then using inclusive labor market analytics to source by skills proximity. Investment in a range of alternative routes can unlock growth talent in all U.S. communities.

Developing a talent pipeline by recruiting, training, and supporting a more diverse ecosystem of entrepreneurs will be vital. Doing this at scale requires tapping into and building the skills of our existing U.S. workforce far more broadly than today's workforce educational systems deliver. To accomplish this will take numerous talent development mechanisms—including apprenticeships, work-based learning, community college-industry partnerships, military transition, etc. —in different regions, industries, or even outside the U.S. These may be supported by voluntary standards or codification of effective models of career pathways, hiring practices, and industry collaborations.

Finding 1: Parents who lack affordable, reliable, quality childcare can't work in ways they want, disproportionately reducing women's labor force participation. Even prior to the COVID-19 pandemic, the number of licensed family childcare providers was falling. Childcare is often left to women. To ensure women can choose to work as entrepreneurs and in emerging industries of tomorrow, childcare access is critical for U.S. entrepreneurship to thrive in the years ahead. The World War II-era Lanham Act⁴³ funded childcare so millions of mothers could move into working in critical industries. We need similar action today to unlock the talent needed for millions of new skilled jobs in growth industries, which is supported by public incentives in ARPA, IJJA, IRA, and CHIPS legislation. In much of this legislation, access to childcare is an eligible use of federal funds⁴⁴, and in some cases may be a requirement to receive major federal grants.

⁴³ <https://www.cnn.com/2023/04/09/politics/biden-child-care-chips-law/index.html>

⁴⁴ <https://www.nytimes.com/2023/02/27/us/politics/child-care-chip-makers-biden.html>

Finding 2: Alongside domestic talent development, there is an opportunity to develop America’s talent pipeline with help from overseas. Over half of U.S. startup companies valued at greater than \$1 billion were started by immigrants, with two-thirds of all “unicorns” or U.S. billion dollar valued companies founded or co-founded by immigrants or the children of immigrants. Twenty five percent of these company founders came to America as international students.⁴⁵ Immigrants are more likely to start companies than others even when lacking social structure or infrastructure support. To maintain this incredible success in leveraging global talent, immigrant entrepreneurs who want to launch their high-growth startups in America need rapid access to work visas, permanent residency, and immigration policy stability and certainty to best grow and scale their workforces and businesses.

Encouraging and supporting Americans to enter entrepreneurship also helps the U.S. economy. Small businesses account for 44% of U.S. GDP,⁴⁶ with minority-owned small businesses on a steady increase. The risk assumed by becoming an entrepreneur is greater for those first-generation Americans or those in multicultural families, with these underrepresented entrepreneurs more at risk of having to abandon their new enterprises to find a more stable income or reassume a caregiving role. To make sure anyone with the will and talent to start a business can do so, we need to reduce the financial and familial risk to these individuals.

Finding 3: Networks, physical space, and specialized equipment are also important for entrepreneurs to start their businesses. The economic shocks of recent decades—from offshoring to the pandemic—have left the United States with an enormous portfolio of abandoned, unused, and underused structures. With the changes in working patterns precipitated by the pandemic, office vacancy rates topped 18% in 2023.⁴⁷ Offshoring has resulted in abandoned factories across the country and changing retail shopping patterns have given rise to the phenomenon of “dead malls.” According to a 2020 estimate, the federal government itself owns 45,000 unused or underused buildings.⁴⁸ By repurposing some of these physical assets to benefit entrepreneurs, the nation can encourage job formation in communities that have suffered in the past from the loss of regional industries.

RECOMMENDATION 9

Comprehensively support new high-potential entrepreneurs by supplying mentors, funding for support services and assistance with attracting and developing key talent, all designed to increase the number and impact of new startup companies in the U.S.

ACTIONS

- Establish a national entrepreneurial corps, or E-Corps, of experienced and successful entrepreneurs and business leaders who spend a year working with diverse entrepreneurs. Support first-time and early-stage entrepreneurs/founders navigating the challenges of company building with a stable of experienced and vetted “boomerang entrepreneurs” who would get a one-year stipend to advise and mentor in urban and rural communities.


⁴⁵ <https://nfap.com/wp-content/uploads/2022/07/2022-BILLION-DOLLAR-STARTUPS.NFAP-Policy-Brief.2022.pdf>

⁴⁶ “Small Businesses Generate 44 Percent of U.S. Economic Activity,” U.S. Small Business Administration, Office of Advocacy, January 30, 2019.

⁴⁷ CBRE, “Soft Office Market Fundamentals,” Q3 2023. <https://www.cbre.com/insights/figures/q3-2023-us-office-figures#:~:text=of%20new%20supply%20pushed%20the,quarterly%20decrease%20since%20Q2%202021>

⁴⁸ Sheila Botting, “What Should We Do with 45,000 Half-Empty Public Buildings?” *Harvard Business Review*, July 10, 2020.

<https://hbr.org/2020/07/what-should-we-do-with-45000-half-empty-public-buildings#:~:text=it's%20entirely%20possible,-The%20U.S.%20government%20alone%20owns%20an%20estimated%2045%2C000%20underused%20or,to%20ge t%20our%20work%20done.>

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- The E-Corps, like the Peace Corps, AmeriCorps VISTA, and Teach for America programs, would establish entrepreneurs-in-residence in communities, leveraging their business connections and networks, and connect small business owners to larger networks. These connections are particularly important for diverse and first-time entrepreneurs who may not have access to serial and successful entrepreneurs. The E-Corps would be linked to NIAN, e-Hubs and Climate Corps to focus efforts on mentoring startups in national critical technologies.⁴⁹
 - Create non-dilutive competitive funding opportunities for entrepreneurs starting and growing businesses. Examples include income replacement for a year, or grants to fund childcare and healthcare, which would mitigate some of the personal financial risk entrepreneurs experience when trying to grow their businesses. Many underrepresented founders start their businesses after a layoff because they have a safety net of unemployment payments, or while earning a degree because housing is subsidized. There is a great need for a supportive, stable foundation for starting a business.
 - Provide grants for an Entrepreneurial Sabbatical (ES) program primarily, but not exclusively, for academic innovators who are critical to the early development of technology that launch high-growth, startup companies. The ES program should ensure that tenure consideration is not at risk, impeded, or delayed by the decision to launch a company and support the early development in a startup to commercialize. The ES would encourage risk-taking by providing a program to support (financial, tenure) time away from academic/industry/NGO obligations.
 - Promote targeted policies that afford international students with advanced degrees from U.S. universities a direct path to permanent residency when they meet documented workforce needs and are paid fair market wages. Prioritize and simplify the processing of visas for startup founders and individuals with skills supporting company growth through innovation. Consider giving priority for startup visas for applicants with credible investment plans in U.S. regions with lower entrepreneurship rates (perhaps in tandem with universities). Build public awareness of the value of attracting global talent to the United States.
 - Develop a prestigious post-graduate fellowship program, like the Rhodes Scholars or Knight-Hennessey Scholars, to attract the best and brightest college graduates locally and globally to study entrepreneurship and develop a plan for starting their high-growth businesses in the US.
 - Create new Innovation Awards that reward eligible entrepreneurs through recognition and prizes that include mentoring and networking opportunities through public/private partnerships.
 - The U.S. Departments of Commerce and Education should co-establish a “U.S. Business-Education Workforce Dialogue,” as a framework of ongoing discussion and collaboration. This dialogue would have business and education leaders regularly examine K-12 learning opportunities, Career and Technical Education, community colleges, university curricula, and union training programs, to ensure that the nation’s CTE (broadly defined) serves the needs of American students, as well as the skill requirements of 21st century businesses.

⁴⁹ Chris Shipley and Heather E. McGowan, “The Adaptive Advantage,” Wiley, 2020


RECOMMENDATION 10

Systematically provide tools and resources to enable entrepreneurship, breaking down the barriers for anyone, anywhere, to contribute to new entrepreneurial enterprises so the U.S. can innovate at a faster pace going forward.

ACTIONS

- Provide federal support, matched by local funds, to establish Entrepreneurial Hubs (E-Hubs) in communities to repurpose abandoned spaces into collaborative, innovative and entrepreneurial resource centers that share common infrastructure such as high-speed internet, administrative function support, and rapid prototyping equipment.
 - Where available and consistent with statutory mandates, repurpose federal space for use by early-stage innovators and entrepreneurs who can directly benefit from federal programs and assistance, and provide programming and/or support for those working there.
 - Link these E-Hubs to the Regional Innovation Engines, the Regional Tech Hubs and CIRCAs (as proposed in Section 10391 of the CHIPS and Science Act)⁵⁰ through NIAN, thus strengthening local entrepreneurial ecosystems and building a national network for accelerating innovation. E-Hubs should include I-Corps training opportunities currently offered by I-Corps Hubs nationwide.
 - Provide childcare and other support services at each E-Hub for entrepreneurs with young children and be welcoming to all entrepreneurs of any gender identity, race, ethnicity, or sexual orientation.
- To assist with improving childcare support access, the Department of Commerce should develop program markers to determine that employers ensure childcare program integrity and accountability standards, including wage and benefit requirements (including paid sick and family leave, and continuing education and training opportunities).
- Provide incentives and grant funding to K-12 schools, community colleges, and technical schools to add entrepreneurship and intellectual property courses to their curriculum. Exposing all students of all ages and backgrounds to innovation and entrepreneurship curriculum will increase the population that embraces and takes advantage of entrepreneurial career opportunities. Furthermore, those completing the coursework, but choosing more traditional career ladders, will be more apt to be part of an innovation culture and/or intrapreneur in their organizations.
- Universities should also be incentivized to play an active role in dispersing entrepreneurship geographically and demographically by being anchors in their communities. This could include connecting emerging entrepreneurs with mentors, investors, and service providers through executive-in-residence programs and providing space for startup ecosystem incubators and accelerators. Universities can also integrate into the community by partnering with local high schools or relief efforts to reach individuals who wouldn't typically attend traditional universities.
- Extend the reach of upskilling/reskilling initiatives inside labor unions with workforce/DEIAB efforts to support future workforce needs. Union members are an excellent resource for talent as technology companies grow, especially those in manufacturing. Retraining empowers individuals

⁵⁰ <https://autm.net/about-tech-transfer/advocacy/legislation/chips-act>



to transition to these companies, armed with the skills and understanding of the culture in these fast-growing, high-tech enterprises.

- Lower the cost of entrepreneurial education by making it available locally at community colleges or adopting a pay-it-forward or pay-it-back model adopted by other professions such as healthcare workers, teachers, and military service members. Provide entrepreneurial training at community colleges for established small business owners who need to transform and modernize their businesses.

APPENDIX: ABBREVIATIONS

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|----------------|---|
| ARPA | American Rescue Plan Act |
| B2S | Build to Scale |
| CDFI | Community Development Financial Institution |
| CHIPS | Creating Helpful Incentives to Produce Semiconductors |
| CI2 | Council for Inclusive Innovation |
| CIRC | Collaborative Innovation Resource Center |
| CTE | Career and Technical Education |
| CTO | Chief Technology Officer |
| DEIAB | Diversity, Equity, Inclusion, Access and Belonging |
| DOC | Department of Commerce |
| DOD | Department of Defense |
| DOE | Department of Energy |
| DIU | Defense Innovation Unit |
| E-Corps | Entrepreneurial Corps |
| E-Hub | Entrepreneurial Hub |
| EDA | Economic Development Administration |
| ES | Entrepreneurial Sabbatical |
| GDP | Gross Domestic Product |
| I-Corps | Innovation Corps |
| IIJA | Infrastructure Investment and Jobs Act |
| IP | Intellectual Property |
| IPCTF | Intellectual Property Commercialization Task Force |
| IRA | Inflation Reduction Act |
| JOBS | Jumpstart Our Business Startups |
| NGO | Non-Governmental Organization |
| NIAN | National Innovation Accelerator Network |
| NSF | National Science Foundation |
| OIE | Office of Innovation & Entrepreneurship |
| PI | Principal Investigator |
| R&D | Research and Development |
| RBF | Revenue Based Financing |
| SBA | Small Business Administration |
| SBIC | Small Business Investment Company |
| SBIR | Small Business Innovation Research |
| SSBCI | State Small Business Credit Initiative |
| STEM | Science, Technology, Engineering, and Math |
| STTR | Small Business Technology Transfer |
| TIP | Technology, Innovation and Partnerships |
| USPTO | United States Patent & Trademark Office |
| VC | Venture Capital |
| WTO | World Trade Organization |