New Jersey

CSIT

Commission on Science, Innovation and Technology

Annual Report 2020

April 9, 2021

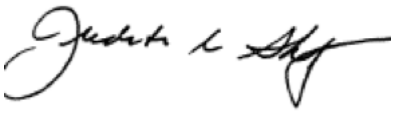
The Commission on Science, Innovation, and Technology (CSIT) is committed to advancing the state's innovation ecosystem to create a stronger, fairer economy for all New Jerseyans by keeping our state at the forefront of scientific and technological advances. During 2020, CSIT implemented programs to foster innovation that supports New Jersey entrepreneurs engaged with the federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. We also initiated collaborations with the New Jersey Economic Development Authority (NJEDA) and the New Jersey Board of Public Utilities to develop seed grant and voucher programs to support early-stage entrepreneurs in the clean tech / clean energy sector.

It is important that New Jersey continues to provide a robust and flexible innovation infrastructure and ecosystem to sustain and grow the invention to innovation pipeline, and that means ensuring that all New Jersey innovators bring their ideas and approaches to the table. Diversity and inclusivity MUST be the foundation of our state's innovation ecosystem. The more diverse the team, the better the economic outcome.

CSIT is committed to further developing and rolling out new programs aligned with the state's key strategic industrial sectors and encouraging collaboration and connectivity between industry and academia. We are working on new initiatives that will link to, and leverage, the knowledge and resources of other state agencies to keep NJ at the forefront of scientific and technological innovation.

The last year has been a challenging one on many dimensions and I am proud of the tenacity and accomplishments of the innovation-based life science and technology companies that CSIT serves through our various grant programs and knowledge sharing / support initiatives.

I thank each and every one of you for your contributions to developing and growing the New Jersey's innovation economy.



Judith Sheft
CSIT Executive Director

April 9, 2021

From his first moments in office, Governor Phil Murphy has made creating the most diverse and inclusive innovation ecosystem in the nation and reclaiming New Jersey's role as a national leader in innovation key focal points of his administration. In late 2018, Governor Murphy re-established the Commission on Science, Innovation and Technology (CSIT) to bolster innovation within the Garden State and to enhance collaboration across the public sector, academia, and private industry. I was honored to be named Chairman of CSIT in February 2019.

At CSIT, we are committed to furthering the Governor's visions and creating opportunities for entrepreneurs, researches and technology businesses of all sizes.

During 2020, CSIT implemented a strong set of programs that will serve as the foundation for supporting New Jersey's innovation economy for years to come. As you will read within the following annual report, highlights included continuing the successful New Jersey Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Direct Financial Support Program, implementing two new initiatives in collaboration with the New Jersey Economic Development Authority and the New Jersey Board of Public Utilities in the clean technology / clean energy space (via the creation of a seed grant program and a voucher program), and working with the New Jersey Office of the Secretary of Higher Education on academic commercialization. You will also read about how we launched a new CSIT newsletter - #CSITInnovates – in early 2021.

I would like to thank the many business leaders, university leaders, scientists, and public and private sector partners that comprise the CSIT Board for their hard work and dedication.

As we look ahead to 2021, and a post-COVID-19 landscape, CSIT's mission and work will be more important than ever. Stay tuned for new programs and initiatives that will benefit businesses and researchers throughout the industry.

Gunjan Doshi
CSIT Chair

Governor Phil Murphy and the Legislature re-established the New Jersey Commission on Science, Innovation and Technology (CSIT) in August 2018. The Commission is responsible for strengthening the innovation economy within the State, encouraging collaboration and connectivity between industry and academia, and the translation of innovations into successful high-growth businesses.

CSIT members include business leaders, university leaders, and scientists, along with representatives of the New Jersey Economic Development Authority (NJEDA), the Secretary of Higher Education, the Commissioner of Education, and members of the state Legislature.

MISSION

CSIT is committed to advancing innovation-based economic development and job growth, and to creating a stronger, fairer economy for all New Jersey citizens by keeping the Garden State at the forefront of scientific and technological innovations. Innovation alone is not enough to drive sustained economic activity. It requires the translation of innovation into commercial application in the marketplace. This, in turn, results in new firm formation and high-wage jobs that can improve and save lives and change the world for the better. Support for early-stage entrepreneurs and innovation-based entrepreneurial companies is a key underpinning to achieving a robust, diverse and inclusive innovation economy.

CSIT links and leverages resources and collaborates with other NJ agencies to implement programs and policies to address the challenges faced by entrepreneurs, especially gaps in services and support for early-stage startups focused on technology commercialization with the potential for high growth and further investment.

PROGRAMS

SUPPORT AND COORDINATE activities to assist early stage science, innovation and technology entrepreneurs;

STIMULATE AND PROMOTE strong academic/industrial cooperation to accelerate the commercialization of new technologies from public and private research institutions;

ENCOURAGE AND PROPEL the development of scientific and technological programs in areas of strategic importance;

ENHANCE science, innovation and technology policy decision making at all levels of State government.

CSIT BOARD MEMBERS

VOTING MEMBERS

PUBLIC MEMBERS APPOINTED BY GOVERNOR

Gunjan Doshi, Chair | *Founder and CEO, InRhythm*
Debbie Hart, Vice Chair | *President and CEO, BioNJ*
David Pascrell, Treasurer | *Co-Chair, Government and Regulatory Affairs, Gibbons P.C.*

PUBLIC MEMBERS APPOINTED BY GOVERNOR WITH RECOMMENDATION OF SENATE PRESIDENT

Dr. Joel Bloom | *President, NJIT*
Charlene Brown | *Retired AT&T New Jersey President*

PUBLIC MEMBERS APPOINTED BY GOVERNOR WITH RECOMMENDATION OF SPEAKER OF ASSEMBLY

Dr. Alain Kornhauser | *Professor, Operations Research & Financial Engineering / Director, Transportation Program, Princeton University*
Dr. Brian Bridges | *Secretary of Higher Education, Ex-officio, or Designee*
Dr. Angelica Allen-McMillan | *Commissioner of Education, Ex-officio, or Designee*
Tim Sullivan | *CEO , NJEDA, Ex-officio, or Designee*

NON-VOTING MEMBERS

MEMBERS OF THE SENATE APPOINTED BY THE PRESIDENT OF THE SENATE, EX-OFFICIO

The Honorable Paul Sarlo
The Honorable Robert Singer

MEMBERS OF THE GENERAL ASSEMBLY APPOINTED BY THE SPEAKER OF THE GENERAL ASSEMBLY, EX-OFFICIO

The Honorable Andrew Zwicker
The Honorable Christopher DePhillips

PRESIDENTS OF THE STATE'S PUBLIC AND PRIVATE RESEARCH INSTITUTIONS OF HIGHER EDUCATION, APPOINTED ANNUALLY BY THE GOVERNOR, EX-OFFICIO

Dr. Jonathan Holloway | *President, Rutgers University*
Dr. Nariman Farvardin | *President, Stevens Institute of Technology*

HIGHLIGHTS

The Commission on Science, Innovation and Technology (CSIT) spent 2020 in 'startup-mode,' with key grant and program initiatives focused on the execution of its strategic vision and its plan to support emerging companies within New Jersey's innovation ecosystem.

CSIT is positioned to play a critical long-term role in supporting the NJ innovation economy as New Jersey and the nation re-emerge from the COVID-19 pandemic and life sciences and technology-based businesses re-ignite their operations. CSIT's target focus is on the small and earlier-stage innovation-based companies that have been negatively impacted by the COVID-19 crisis. The types of support that CSIT can deliver complement the other federal and state incentive initiatives.

Innovation will continue to be an important ingredient to the future success of the country as a driver of economic growth, national security, and the health and wellbeing of New Jerseyans, and the programming and funding that CSIT is poised to offer fills an important need in this priority sector of the economy.

CSIT links and leverages resources and collaborates with other New Jersey agencies to implement programs and policies to address the challenges faced by entrepreneurs. These programs and policies particularly address gaps in services and support for early-stage startups focused on technology commercialization with the potential for high growth and further investment. Emphasis is also placed on programs that drive increased academic industrial cooperation and accelerate the commercialization of new technologies from New Jersey's public and private research institutions.

It is important that New Jersey continues to provide a robust and flexible innovation infrastructure and ecosystem to sustain

KEY GAPS IN THE STATE'S INNOVATION ECOSYSTEM THAT CSIT SUPPORTS INCLUDE:

FEDERAL SMALL BUSINESS INNOVATION RESEARCH (SBIR) AND SMALL BUSINESS TECHNOLOGY TRANSFER (STTR) SUPPORT PROGRAM

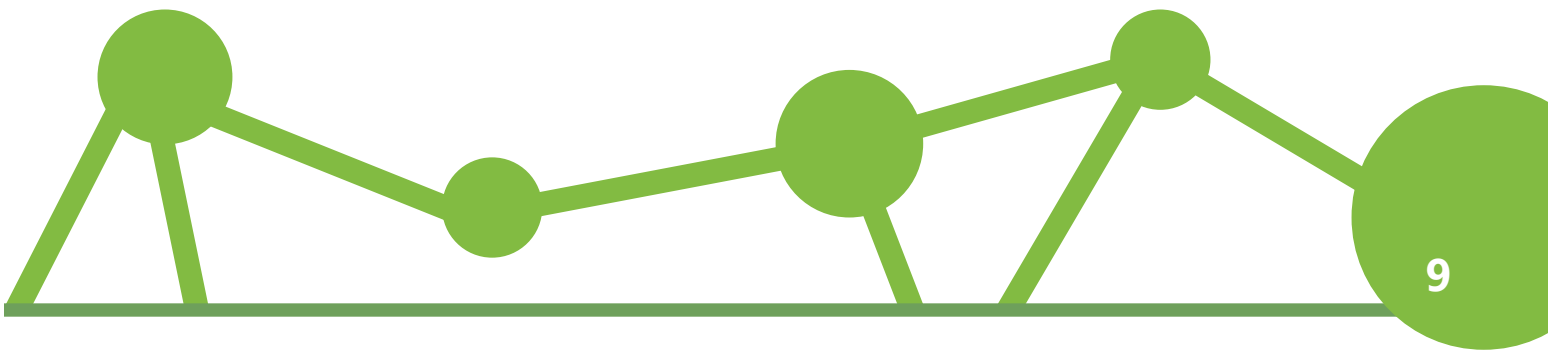
DIRECT EARLY-STAGE TECHNOLOGY PROOF OF CONCEPT AND SEED FUNDING GRANTS

UNIVERSITY SUPPORT FOR COMMERCIALIZATION ACTIVITIES BY FACULTY, STAFF AND STUDENTS

FEDERAL GRANT-MATCHING SUPPORT

and grow the invention to innovation pipeline. CSIT is working hard to ensure that all New Jersey innovators bring their ideas and approaches to the table. Governor Murphy has prioritized creating the most diverse and inclusive innovation ecosystem in the nation and CSIT is committed to helping achieve this goal. In order to bring new ideas and innovations to the market and fuel New Jersey's recovery from the pandemic, everyone needs to be able to contribute. Consistent with this approach, a major pillar of all CSIT programs is increased outreach to female and minority-entrepreneurs and communities that have had historically limited participation in the innovation economy.

COVID-19 has had a significant impact on New Jersey's innovation economy, including innovators and entrepreneurs that receive support from CSIT. In addition to grant program financial assistance, CSIT has supported these entrepreneurs through direct one-on-one counseling and



information, collaborative technical assistance programs, and webinars with other organizations. These initiatives have helped NJ entrepreneurs navigate the incentive landscape during the past year.

In 2019, CSIT had established a high-level Program Roadmap based on a gap analysis and benchmarking of New Jersey's innovation programs against peer state's including New York, Massachusetts, Pennsylvania, Maryland and California. In late 2019, CSIT launched the first program from the Roadmap, the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Support Program, which provides direct financial assistance grants to eligible companies and technical assistance support in conjunction with a third-party service provider.

In June 2020, CSIT awarded 13 early-stage companies (see Appendix A for company descriptions) a total of $375,000 through this first round of SBIR/STTR Direct Financial Assistance program funding. These companies were predominately in the life sciences or technology areas, with their federal support coming from the National Science Foundation (NSF), the Department of Defense (DOD), the Department of Energy (DOE) and the National Institutes of Health (NIH). Seventy percent of these companies had five or fewer employees and 85 percent had 10 or fewer employees. Additionally, the majority of the awardees were engaged with New Jersey's world-class universities - 62 percent were using university facilities, licensing technology, hiring students or collaborating with faculty.

The COVID-19 pandemic has impacted the nation's research and development (R&D) programs. Many of the federal agencies released new funding solicitations specifically related to COVID-19: prevention, detection, and treatment. At the same time, deadlines have been extended to allow awardees to complete work in challenging times with limited access to resources and facilities. Decisions on new awards have been delayed in some instances. These national trends have had an impact on New Jersey's startup and scaleup innovators that depend on federal funding. The CSIT SBIR/STTR Direct Financial Assistance program has

provided much-needed support, enabling the awardees to continue their development activity and retain staff.

During this period, CSIT has also worked with NJ startup and entrepreneurial ecosystem partners from the government, academia, and the private sector on virtual initiatives (showcases and conferences) to help maintain the momentum of the NJ innovation economy.

The CSIT grant to a third-party provider to implement a technical assistance program to support companies in the SBIR/STTR application process was not awarded in 2020 due to budgetary considerations. This program, known as the CSIT Technical Assistance Matching Grant Program, launched in February 2021.

A second round of the SBIR/STTR Direct Financial Assistance grants was launched in November 2020. Direct financial assistance awards of $450,000 were made to 16 companies (see Appendix B for company descriptions) in February 2021. As with the first round, the companies were predominately in the life sciences and technology fields and were located throughout the state. In this cycle, 62 percent had five or fewer employees and 94 percent had 10 or fewer employees. During this round, 68 percent of awardees were engaged with New Jersey universities.

In September 2020, the New Jersey Board of Public Utilities (NJBPU) entered into a Memorandum of Understanding (MOU) with the New Jersey Economic Development Authority (NJEDA) to provide $1,250,000 in funding from the NJBPU to the NJEDA to support early-stage, New Jersey-based cleantech companies. The NJBPU-supported program consists of a seed grant program focused on assisting local clean tech businesses during critical proof of concept and prototyping stages, empowering them to attract outside investors and begin generating revenue. The support also includes the creation of a research and development asset mapping and voucher initiative to increase awareness, access, and utilization of the State's cleantech innovation-related assets.

Given the role of CSIT in working with universities and early-stage technology companies, in October 2020, NJEDA and CSIT entered into an MOU to allocate $1,187,500 of the NJBPU funds to CSIT to support the development and operation of a Clean Tech Seed Grant Program and a Clean Tech R&D asset mapping and voucher program. The Clean Tech Seed Grant Program began accepting applications in February 2021 and the Clean Tech R&D Voucher Program began accepting applications in early April 2021. In February 2021, CSIT collaborated with NJEDA and NJBPU on a grid modernization dialog with the German group SINTEG that included participation by NJ early-stage companies.

In October of 2020, CSIT co-hosted the virtual event: New Jersey's Opportunities in the COVID-19 Innovation Economy Conference, during which leaders from New Jersey government, industry, academia, and the investment community discussed strategies and resources for accelerating innovation in the Garden State during the COVID-19 economy. In this virtual event, speakers provided the latest information on financial resources, government programs and strategies, inclusive innovation, academic innovation and entrepreneurial resources, all with a goal to keep the innovation ecosystem in New Jersey growing.
Throughout the year, CSIT has partnered with BioNJ, the New Jersey Business and Industry Association, local chambers, and university student entrepreneurial centers on training initiatives. CSIT has been collaborating with the NJEDA and the New Jersey Israel Commission on several international programs to increase the awareness of New Jersey innovators, entrepreneurs and startups to international funding and collaboration opportunities.

CSIT is leading a joint initiative with the Office of the Secretary of Higher Education (OSHE) to enhance the outcomes of academic technology commercialization building on the prior work of the OSHE Working Group

on Research, Innovation and Talent. The Ad Hoc Working Team established in early 2021 includes representatives from the state's universities and it anticipated that recommendations will be implemented as part of CSIT's program activities for the upcoming fiscal year. CSIT has been a catalyst for NJ universities to collaborate on major multi-institution initiatives.

On the administrative side, CSIT implemented grant management process improvements and standard operating policies based on lessons learned from the 2019/2020 initial round of the SBIR/STTR Direct Financial Assistance Grant program. Online applications, enhanced applicant outreach, and information webinars were instituted to reduce challenges faced by applicants in the initial round of the program and provide opportunities to correct missing documentation, thereby reducing denials of applications. These concepts have been included in other CSIT grant programs, including Round 2 of the SBIR/STTR Direct Financial Assistance Program and clean technology initiatives. CSIT is bringing national best practices and new program concepts to New Jersey by participating in monthly federal Small Business Administration SBIR/STTR roundtable sessions.

Communication and outreach have been increased with #CSITInnovates – the Commission's new e-newsletter. CSIT is also working with the New Jersey Office of Information Technology to develop a robust, standalone CSIT website. Since COVID-19 resulted in CSIT Board meetings being held virtually, CSIT has implemented virtual tours of innovation resources in New Jersey (research locations, entrepreneurial hubs) to allow CSIT board members and the public the opportunity to connect with innovation resources and capabilities in the state.

PRESS RELEASES

COMMISSION ON SCIENCE, INNOVATION AND TECHNOLOGY ANNOUNCES RECIPIENTS OF NEW JERSEY SBIR/STTR FUNDING SUPPORT

CSIT TO COLLABORATE ON VIRTUAL CONFERENCE SPOTLIGHTING OPPORTUNITIES FOR NJ'S INNOVATION ECONOMY DURING COVID-19

CSIT OPENS APPLICATION FOR SECOND ROUND OF NJ SBIR/STTR DIRECT FINANCIAL ASSISTANCE PROGRAM

CSIT OPENS APPLICATION FOR CLEANTECH SEED GRANT PROGRAM
PROGRAM MAKES UP TO $75,000 AVAILABLE TO COMPANIES FURTHERING CLEAN TECH R&D

CSIT AWARDS $450,000 THROUGH SECOND ROUND OF NJ SBIR/STTR DIRECT FINANCIAL ASSISTANCE PROGRAM

CSIT ANNOUNCES COMPETITIVE STATE GRANT PROGRAM FOR TECHNICAL ASSISTANCE PROVIDERS VYING FOR FEDERAL FUNDING

CSIT ANNOUNCES CLEAN TECH R&D VOUCHER PROGRAM TO CONNECT EMERGING COMPANIES WITH AMENITIES AT NJ UNIVERSITIES & FEDERAL LABORATORIES

KEY CSIT TIMELINE OF ACTIVITIES:

JUNE 2020
Award of first round of SBIR/STTR Direct Financial Assistance grants

JUNE 2020
Election of Vice Chair (Debbie Hart) and Treasurer (David Pascrell) for second terms at CSIT's Annual Meeting

JULY - NOVEMBER 2020
Development of new CSIT Seed Grant Program concepts

OCTOBER 2020
Signing of MOU with NJEDA on Clean Tech Programs

OCTOBER 2020
Hosting of New Jersey's Opportunities in the COVID-19 Innovation Economy Conference

NOVEMBER 2020
Opening of second round of SBIR/STTR Direct Financial Assistance Grant Program approved

JANUARY 2021
Clean Tech Seed Grant Program Approved

JANUARY 2021
CSIT / EDA MOU extended for hiring additional staff

JANUARY 2021
CSIT e-newsletter launched #CSITInnovates

FEBRUARY 2021
Award of 2nd round of SBIR/STTR Direct Financial Assistance Grants

FEBRUARY 2021
Clean Tech Voucher Program Approved

FEBRUARY 2021
CSIT Technical Assistance Matching Grant (FAST) Program Approved

FEBRUARY 2021
CSIT / OSHE Ad Hoc Tech Commercialization Working Group Established

CSIT SBIR/STTR DIRECT FINANCIAL ASSISTANCE GRANT PROGRAM

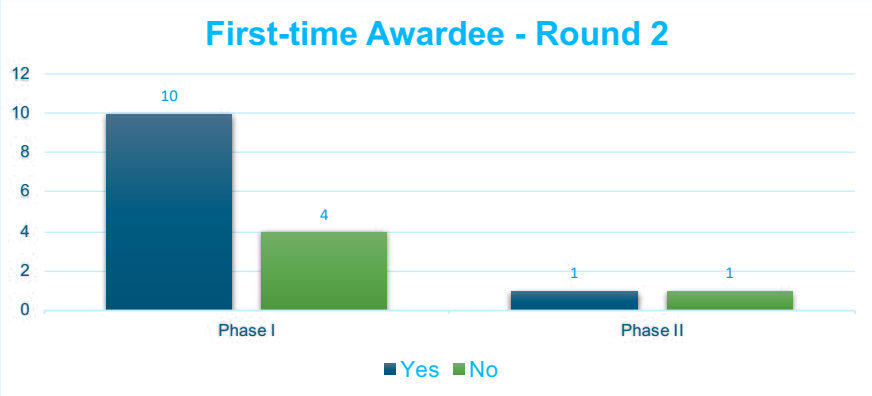
In November 2020, CSIT ran a second round of the SBIR/STTR Direct Financial Assistance grant program. (See Appendix C for details on the Federal SBIR/STTR programs.) This program addressed challenges faced by New Jersey innovation-based entrepreneurs and builds on the CSIT's mandate of creating a vibrant innovation economy by supporting high-potential innovation-based entrepreneurs. The program complements other programs, including the New Jersey Small Business Development Centers' (NJSBDC's) technology commercialization support. Feedback from the 13 entrepreneurs that received support from the initial SBIR/STTR Direct Financial Assistance funding round in the summer of 2020 was positive. The financial support enabled those companies to maintain their operations and staff during challenging economic times brought on by COVID-19.

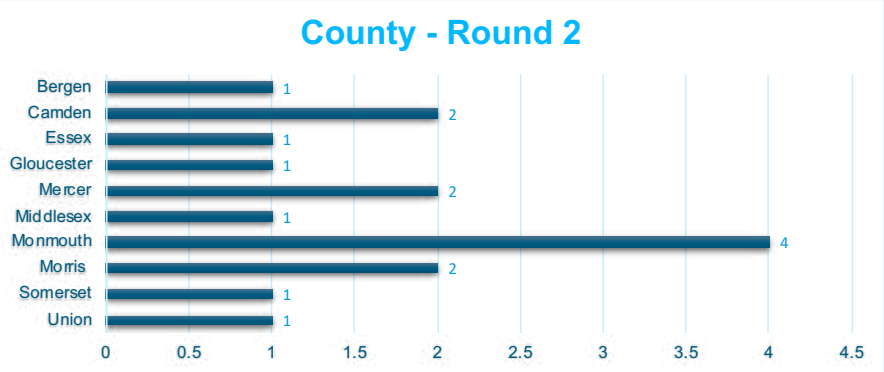
CSIT SBIR/STTR DIRECT FINANCIAL ASSISTANCE GRANT PROGRAM- IMPLEMENTATION OUTCOMES

The second round of the CSIT SBIR/STTR Direct Financial Assistance Grant program opened in late November 2020 with a seven-week open application period. Changes to the application process made it easier for prospective applicants to complete their applications successfully.
The Direct Financial Assistance component aimed to provide Phase I grants of $25,000 to New Jersey small businesses that had receive a federal Phase I SBIR/STTR awards and Phase II grants of $50,000 to New Jersey small businesses that have successfully completed Phase I and have applied for Phase II of the Federal SBIR/STTR program. The program was targeted to provide twelve Phase I grants ($300,000) and five Phase II grants ($250,000).

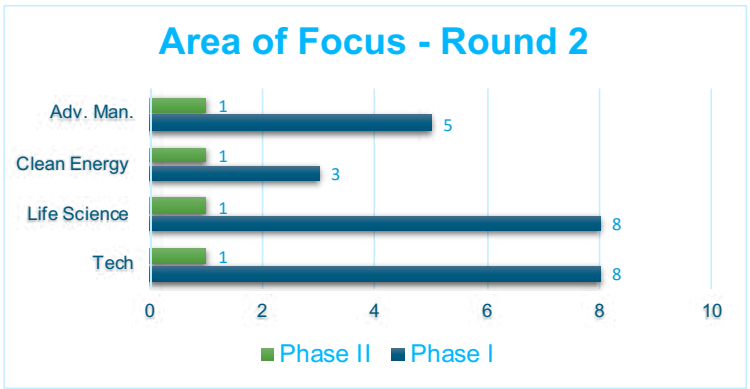
A total of 16 complete applications were received – 14 Phase I applications and two Phase II applications (See Appendix B for company descriptions.) CSIT was able to fund all of the applications. The companies had projects

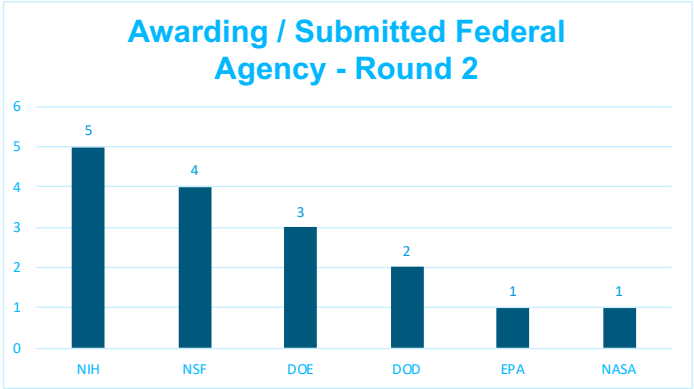
across a range of areas, with life sciences and technology having the highest followed by advanced manufacturing and clean energy. The supporting federal agencies NIH, NSF, DOE, DOD, the Environmental Protection Agency and the National Aeronautics and Space Administration. This is consistent with overall federal funding where approximately 75 percent of the SBIR/STTR awards are given out by DOD and NIH.



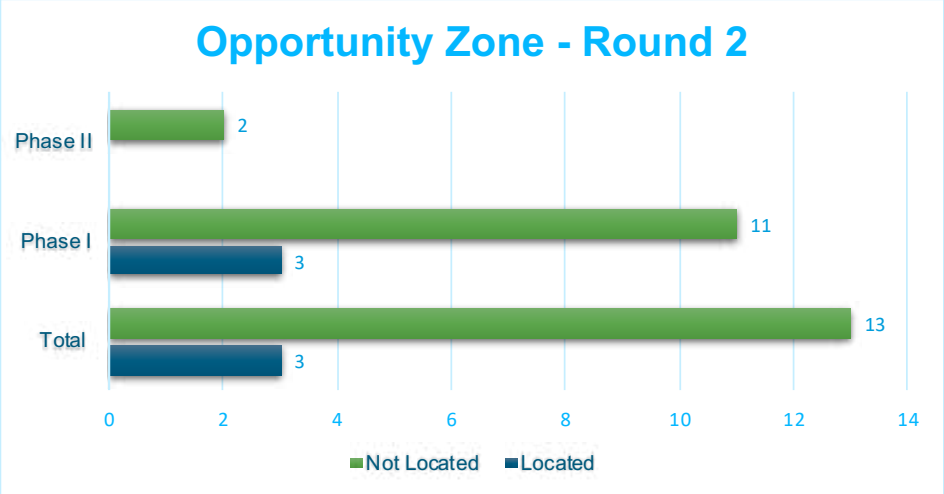


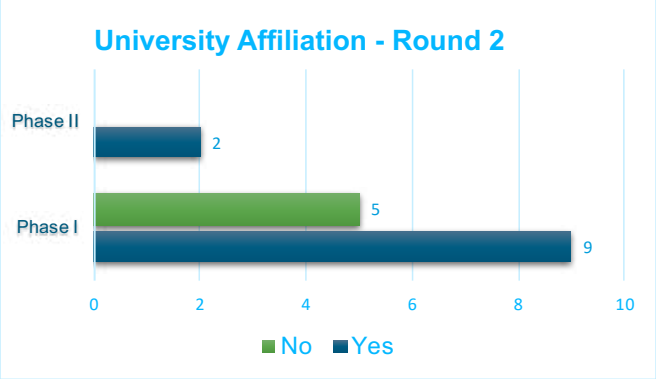
The program had many first-time SBIR/STTR applicants (71 percent Phase I and 50 percent Phase II) which is in line with CSIT's objectives of increasing the number of successful applicants in the program. Additionally, the applications came from companies located throughout New Jersey, indicating that there is a base for innovation economic development in every region of the state. However, only 18 percent of applicants are currently located in eligible Opportunity Zones.

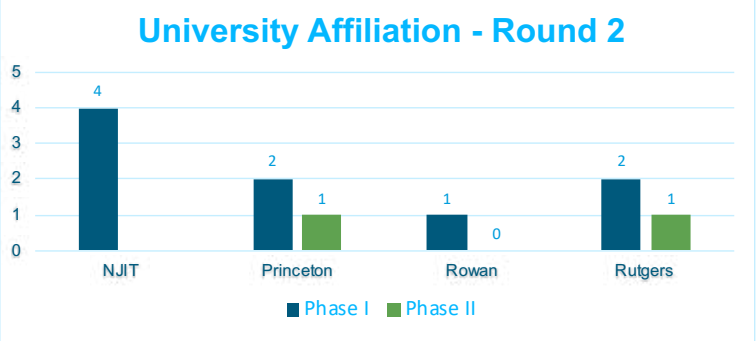




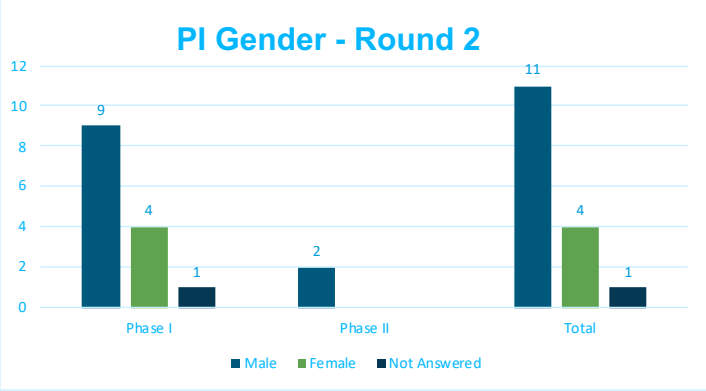
A majority of the awardees have an affiliation with a New Jersey university – licensed technology, located in a university incubator space, collaborating with university faculty or utilizing university lab/testing facilities. This is supportive of the CSIT strategy of stimulating and promoting strong industrial-academic collaboration.

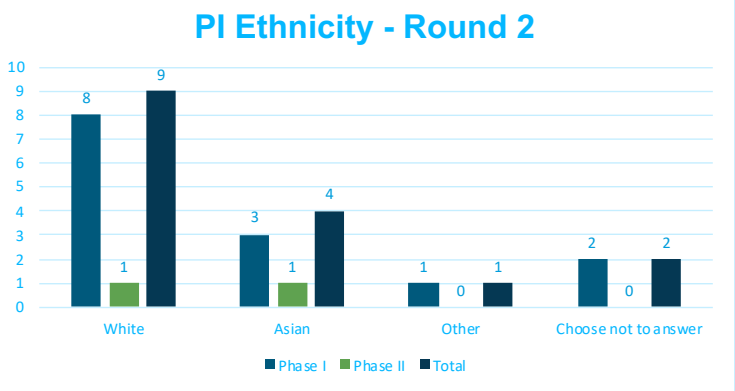






Gender, ethnic and racial data were also collected on the principal investigators (PI) for the underlying federal SBIR/STTR awards. There was a slight increase in the percentage of female PIs to twenty-five percent. The PIs were also predominately White and/or Asian.

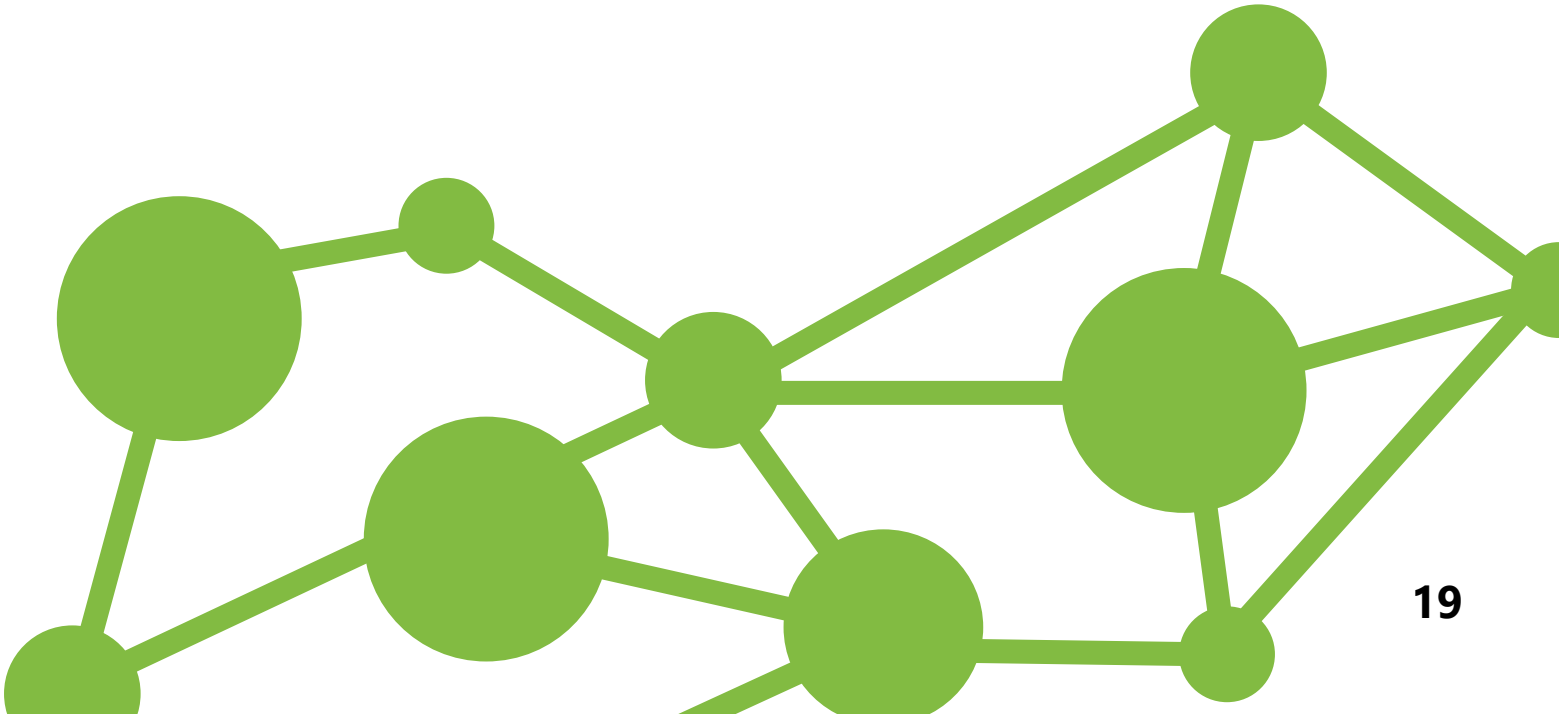




CSIT SBIR/STTR DIRECT FINANCIAL ASSISTANCE TAKEAWAYS

CSIT launched the SBIR/STTR Direct Financial Assistance Grant program in late November 2020. To enhance the application process, a webinar was held addressing questions and providing guidance in the application process. The open-application period was extended and companies that were missing documents were given a 'cure period' to submit all the required materials. While almost all the applicants had challenges with initially providing the correct documentation, all were able to cure and complete the process. CSIT continues to collaborate with EDA on revising the application process to make it easier for individuals to apply by using technology to eliminate errors.

Given the challenging economic times, there were also several applicants that began submissions but were not eligible because they did not have a federal SBIR/STTR award, had too many prior federal awards, or had an existing CSIT SBIR/STTR Direct Financial Assistance grant. The FAST technical assistance program is one mechanism to increase the applicant pool especially among women and underrepresented populations. Additionally, CSIT's work with the Office of the Secretary of Higher Education on academic technology commercialization can further lead to participation in the SBIR/STTR process by academic startups.



CSIT TECHNICAL ASSISTANCE MATCHING GRANT (FAST)

In February 2021, CSIT approved a matching program for the Federal and State Technology (FAST) Partnership Program. FAST provides one year of funding to technical assistance organizations to execute state/regional programs that increase the number of SBIR/STTR proposals, leading to an increase in the number of SBIR/STTR awards. Federal funding for FAST currently provides up to $125,000 per applicant for outreach, financial support, and technical assistance to next generation research and development (R&D) focused small businesses. The program places emphasis on helping women, socially/economically disadvantaged individuals, and applicants from underrepresented or rural areas compete in the SBIR and STTR programs. Only one application is allowed per state. It was anticipated that the NJ FAST awardee would use a portion of the CSIT funds as part of the required match for the Federal submission to the FAST program. The NJ FAST Technical Assistance awardee will be required to demonstrate statewide efforts to reach women and underrepresented populations and provide 1:1 support and guidance for submitting applications for both CSIT grants and federal solicitations. It is anticipated that CSIT will award the FAST matching grant in the second quarter of 2021.

[1] *This component of the SBIR/STTR support program may be canceled as a result of the budget freeze put into place on March 27, 2020 resulting from the current global COVID-19 pandemic. CSIT has alternative means of ensuring SBIR/STTR applicants receive coaching and mentoring support.*

LOOKING AHEAD

CSIT is positioned to play a critical long-term role in supporting New Jersey's innovation economy as the Garden State and the nation re-open from the pandemic and life sciences and technology -based businesses re-ignite their operations. The types of support that CSIT can deliver complement the other federal and state incentive initiatives and CSIT is continuing to forge relationships with other state and private entities.

In January 2021, CSIT submitted a budget request for approximately $4.72 million for Fiscal Year 2022 to support the development and implementation of a variety of programs, including additional SBIR/STTR direct company support and technical assistance, an early-stage seed and voucher grant programs, technology commercialization support for university spin outs, and innovation ecosystem events.

The cash balance for CSIT through October 2020 is shown below. As detailed below, over 61 percent of cash expenses in the year went to direct program support.

Sources and Uses of Funds and Available Cash

Cumulative as of October 31, 2020

APPROPRIATIONS	
Fiscal Year 2019: deposited 6/18/2019	$1,000,000
Subtotal	***$1,000,000***
TOTAL SOURCES	$1,000,000

PROGRAM COSTS	
Payroll - CSIT Staff	$144,192
Fringe/Health Benefits	$10,166
Payroll - Intern	$5,823
Indirect Salary & Fringe Expenses (EDA Staff)	$64,731
Insurance (Property&Gen Liability and Public Officials)	$5,664
Networking/Conferences	$688
Travel Expenses	$335
DAG/Legal Expenses	$2,578
Subtotal	***$234,177***

DISBURSEMENTS	
2020 SBIR/STTR Grants - Phase I	$275,000
2020 SBIR/STTR Grants - Phase II	$100,000
Subtotal	***$375,000***
TOTAL USES	$609,177
NET AVAILABLE CASH	$390,823

Appendix A

June 2020 Awardees - SBIR/STTR Direct Financial Assistance Applicant Profiles

Direct Funding Grants - $25,000

Bezwada Biomedical LLC (**Hillsborough Township, Somerset County):** Bezwada is a privately-held biomaterials company that develops, manufactures and markets innovative, proprietary, absorbable monomers and polymers for various biomedical applications and next-generation medical devices.

Bright Cloud International Corp (North Brunswick Township, Middlesex County): Bright Cloud is a research and development high-tech company with academic roots, as a spin-off of Rutgers University. BCI's passion is to create new rehabilitation technology which uses virtual reality, custom therapeutic games and our intellectual property in order to make the therapy efficacious and fun! The company's pioneering work has been shown to benefit chronic patients' post-stroke, traumatic brain injury, or dementia.

Cascade Biotechnology Inc (Monmouth Junction, Middlesex County): Cascade is developing therapeutics that use the body's complement system to attack diseases and disorders such as Alzheimer's disease (AD), schizophrenia (SZ), myasthenia gravis (MG), Neuromyelitis Optica (NMO), cancer, adult macular degeneration (ADM), blood diseases such as paroxysmal nocturnal hemoglobinuria (PNH), atypical hemolytic uremic syndrome (aHUS) and others.

GreenBlu Inc (Hamilton, Mercer County): GreenBlu is developing and commercializing a distiller and zero-liquid discharge crystallizer that solve the major drawbacks of current desalination technologies. GreenBlu solves the toughest challenges facing desalination and wastewater, which are high electricity use and liquid waste discharge.

Nangio Tx Inc (Newark, Essex County): Nangio Tx discovers and invents novel pharmaceuticals for treatment of ischemic (low blood flow) tissue diseases such as diabetic wounds, root-canaled teeth and atherosclerosis legs. The Company engages with a number of contract research organizations and consultants in the New Jersey and Tri-State area for development of therapeutics.

Oculomotor Technologies Inc (Newark, Essex County): Oculomotor develops virtual reality-based diagnostics and therapeutics for a variety of human vision-related disorders. The company's technology was designed and developed by a professor and team of students (now alumni,) in a biomedical engineering lab at the New Jersey Institute of Technology (NJIT).

Plumeria Therapeutics Inc. (West Windsor, Mercer County): Plumeria is an R&D-based biopharmaceutical company developing precision medicine technology to enable the development of a clinical-stage non-opioid drug for painful diabetic neuropathy.

Prokaryotics Inc (Union, Union County): is an authentic antibacterial discovery organization committed to bringing forth innovative therapeutics to address the problem of multidrug resistant bacteria and combating the emerging global crisis of antibiotic resistance.

Spreadsheet Labs Manual LLC (Blackwood, Camden County): Spreadsheet Labs Manual is a federally funded professional learning community (PLC) started as grass roots professional educators dedicated to making the standardized practice of spreadsheet modeling part of the STEM education experience of every student. The company provides teachers with training and instructional materials based on a unified and standardized approach to mathematically modeling phenomena on spreadsheets to teach science and math.

Twinleaf LLC (Plainsboro, Middlesex County): Twinleaf is engaged in the cutting-edge research and product development in quantum sensing. The company develops sensor systems under contracts from government, universities, and industry.

Viocare Inc (Princeton, Mercer County): Viocare is a digital healthcare company that develops software-based technology products to enable healthcare providers to empower their patients to change their lifestyle based on scientifically validated recommendations for improved nutrition and prevention of disease.

Bridge Funding Grants ($50,000)

Chiral Photonics Inc (Pinebrook, Morris County): Chiral Photonics is engaged in the development, manufacture and sale of fiber optic components used in a wide variety of applications ranging from communications to biomedical equipment to advanced lasers.

Visikol Inc (Hampton, Hunterdon County): Visikol is a contract research organization that specializes in advanced drug discovery solutions including 3D cell culture assays and tissue imaging utilizing high content screening and confocal microscopy, as well as digital pathology and AI solutions for histological analysis of tissue sections. Visikol has developed a portfolio of tissue imaging and analysis technologies that allow for the transformation of tissues and cells into quantitative data sets that can be mined for actionable insights.

Appendix B

February 2021 Awardees - SBIR/STTR Direct Financial Assistance Applicant Profiles

Direct Funding Grants ($25,000)

Atux Iskay Group LLC (Plainsboro, Middlesex County): Atux Iskay is working on small molecule activators of Protein phosphatase 2 (PP2A) as single agent therapeutics, and in combination with other therapeutic agents and targets. The company is engaged in drug discovery for neurodegenerative disease, inflammation and cancer.

BRISEA Group Inc. (Parsippany, Morris County): BRISEA has been dedicated in providing environmental and energy professional services, technology and 'know-how' transfer from the United States to other nations – which is the company's core competency. For over a decade, BRISEA has provided its services to government agencies (e.g., both the Department of Commerce in the US and China and US Environmental Protection Agency), private industrial companies and international funding organizations.

DMK Pharmaceuticals Inc. (Gladstone, Somerset County): DMK is a drug development company creating novel therapies for unmet medical needs. Their lead compound is a potent analgesic that is as powerful as morphine/fentanyl but is safer and is being developed for opioid use disorder.

Drone Go Home, LLC (Oceanport, Monmouth County): The company has developed the AirWarden™ drone detection system which provides security teams the early warning and actionable intelligence they need to respond quickly and effectively to drone threats. The technology monitors the radio frequency (RF) environment using spectrum analysis which monitors frequency bands to identify the presence or absence of drone signals.

Innovations Unlimited, LLC (Pennsauken, Camden County): Innovations Unlimited is focused on developing products designed to enhance quality of life and reduce healthcare costs. The company is finalizing the design of its flagship product the TrachAlarm™ – a patented novel, low-cost, life-saving accessory to automatically detect and alert caregivers to tracheostomy tube decannulation

Mgenuity Corporation (Lincroft, Monmouth County): Mgenuity is developing a holographic augmented/mixed-reality (AR/MR) medical and surgical assist system for astronauts of exploration-class space missions. The innovation will directly support NASA's exploration medical capability and can be used for terrestrial training and life-saving procedures on space missions.

MRIMATH, LLC (Voorhees, Camden County): MRIMath technology delivers precise contouring of a tumor from surrounding healthy tissue and organs to reduce the time it takes to plan radiation treatment and boost patient outcomes. The underlying technology is an artificial intelligence (AI) agent that avoids organ damage from radiation and decreases human error and variability.

Neutroelectric, LLC (Williamstown, Gloucester County): Neutroelectric is an engineering company developing high performance radiation shielding materials. Neutroelectric's materials will be used to reduce the cost and improve the safety of nuclear power, which provides over 50 percent of America's clean energy.

RenewCO2, LLC (Cranford, Union County): RenewCO2 is designing and developing technologies and equipment for the direct reduction of carbon dioxide into chemicals such as plastics precursors. Their technology uses only CO2, electricity from sources such as wind and solar, and water as the feedstock yielding plastics with an overall negative CO2 footprint.

Rizlab Health, Inc. (Princeton Junction, Mercer County): Rizlab Health is a new company focused on building its first product, the CytoTracker, which is the first ever point of care hematology analyzer. The CytoTracker is an in-vitro medical diagnostic device that can change the standard of care. The product being developed crosses three disciplines: Electronics Sensor Technology, the life sciences, and advance manufacturing.

SAPHTx Inc. (Newark, Essex County): SAPHTx engineers protein-based therapeutic strategies for some of the biggest health challenges. They are developing a rapidly scalable, cost-effective technology which blocks COVID-19 infection by "binding" or attaching specifically to SARS-CoV-2 and blocking its entry into human cells.

ShockTech (Mahwah, Bergen County): ShockTech designs, manufactures and tests shock attenuation and vibration isolation systems for the most demanding environments. The company provides solutions to deliver unsurpassed service, parts and value for isolation technologies and solutions used in harsh in-service conditions.

SunRay Scientific, LLC (Eatontown, Monmouth County): Sunray Scientific offers custom engineered interconnect solutions for advanced electronic packages. SunRay's patented ZTACH® ACE, an anisotropic conductive adhesive-electronically conductive systems that deliver cost effective miniaturization utilizing existing manufacturing infrastructure. New generation customized conductive inks and epoxies address challenges of silver migration to allow for finer printing of printed electronics.

Telluric Labs, LLC (Red Bank, Monmouth County): Telluric Labs is producing massive data acquisition systems for nuclear physics, and other scientific data collection, sensor data collection, and high precision time stamping and timing synchronization, in addition to terrabit DWDM optical transceivers. The technology applies across several different areas with commercial applications for civil 5G and military communications.

Bridge Funding Grants ($50,000)

Andluca Technologies Inc. (Princeton, Mercer County): Andluca Technologies is a spin-out of Princeton University that aims to significantly reduce the energy use of existing buildings via solar-powered smart glass systems. The Andluca team has shepherded an R&D breakthrough - transparent ultraviolet solar films for smart windows - from university discovery to granted US patent to pilot integration with electrochromic glazing.

BioInvenu (East Hanover, Morris County): BioInvenu is a provider of cell-based assay products and services to drug discovery researchers. It applies its LinkLight technology to G-protein coupled receptors (GPCR), nuclear hormone receptors (NHR), and receptor tyrosine kinases (RTK) by utilizing receptor and its signal adaptor interaction as the functional signal readout. The company enables the identification of biologically relevant compounds that modulate protein-protein interactions.

APPENDIX C

FEDERAL SBIR/STTR BACKGROUND

The Federal Small Business Innovation Research (SBIR) and the Small Business Technology Transfer Program (STTR) are highly competitive three-phase award programs, which provide qualified small businesses opportunities to propose innovative ideas that meet the specific research and development (R&D) needs of the federal government. The programs were created to support scientific excellence and technological innovation through the investment of federal research funds in critical American priorities to build a strong national economy. The goals of the federal programs are to:

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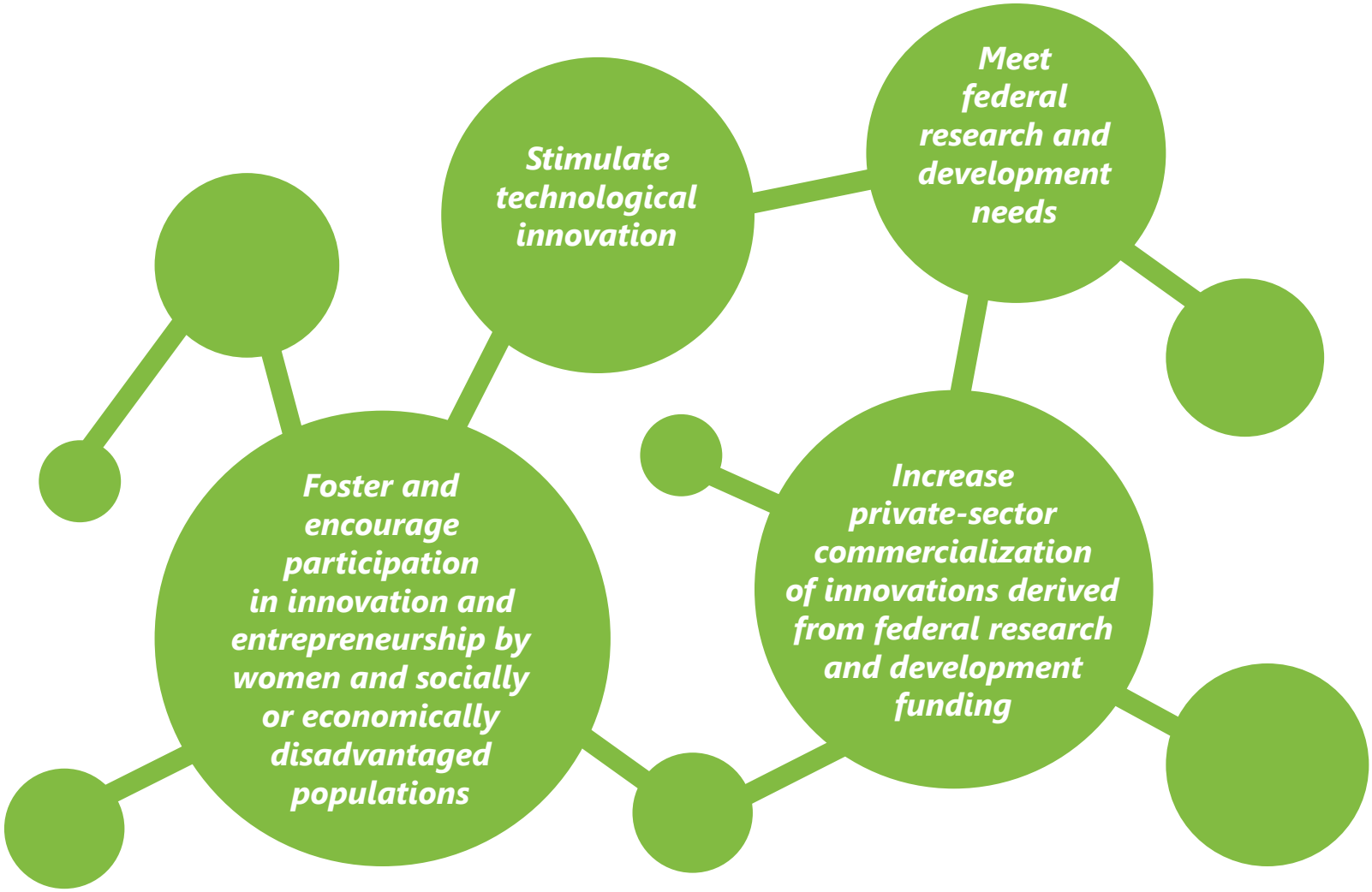
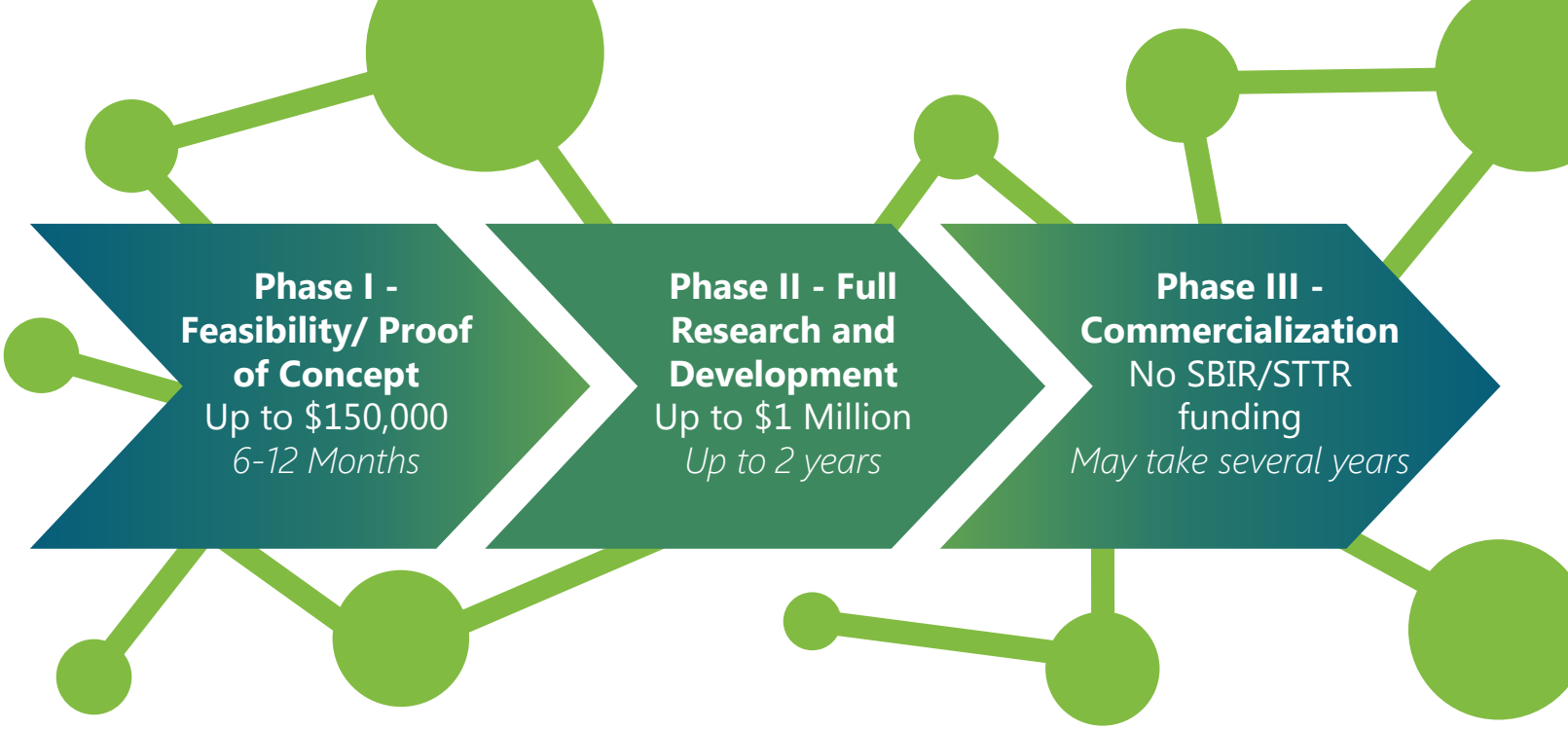


Congress established the SBIR program in 1982 and the STTR program ten years later to assist small business concerns (SBCs) in obtaining federal R&D funds to build a strong economy and support technological innovation.

SBIR/STTR targets the entrepreneurial sector because that is where most innovation and innovators thrive. However, the risk and expense of conducting serious R&D efforts are often beyond the means of many small businesses. By reserving a specific percentage of federal R&D funds for small businesses, SBIR protects the small business and enables it to compete on the same level as larger businesses. SBIR funds the critical startup and development stages and it encourages the commercialization of the technology, product, or service, which, in turn, stimulates the U.S. economy. Since its enactment in 1982, the SBIR program has helped thousands of small businesses to compete for federal R&D awards. Their contributions have enhanced the nation's defense, protected our environment, advanced health care, and improved our ability to manage information and manipulate data. Annually the SBIR/STTR award obligations are approximately $3 billion. In FY19, 105 New Jersey companies received approximately $38 million in SBIR/STTR awards.

SBIR: ***Requires federal agencies with extramural research/research & development (R/R&D) budgets over $100 million to set aside 3.2 percent of their annual extramural R/R&D budget for small businesses.***

STTR: ***Modeled after the SBIR program, STTR requires federal agencies with extramural budgets exceeding $1 billion to set aside 0.45 percent of their annual extramural R&D budget for small business concerns that work in cooperation with universities, federally funded research and development centers, and other non-profit scientific and educational institutions. The goal is to facilitate transfer of technology and research from these institutions to commercial use and encourage innovation.***



Phase I – Feasibility/Proof of Concept: ***Using a competitive process, federal agencies award up to $150,000 to a small business to perform R/R&D for up to six to 12 months on a specific topic in order to establish its technical merit, feasibility, and commercial potential. During this phase, federal agencies assess both the performance of the small business and the potential of the technology prior to providing further federal support in Phase II.***

Phase II – Full Research and Development: ***Based on the results achieved in Phase I, federal agencies will decide whether to continue R/R&D efforts into Phase II based on the scientific, technical, and commercial merit and feasibility of the idea. If the federal agency decides to continue into Phase II, they will award up to $1 million to the small business to continue R/R&D efforts for up to two years.***

Phase III - Commercialization: ***No specific SBIR funding is associated with Phase III, however, some agencies may include follow-on non-SBIR funded R&D or production contracts for products or services intended for use by the U.S. government. The objective of Phase III is for the small business to pursue commercialization objectives resulting from the Phase I/II R/R&D activities.***

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