2023 ANNUAL REPORT

Advancing Technologies From Lab to Market

TEDCO
LEADING INNOVATION TO MARKET

REPORT

2023

Maryland Innovation Initiative

About the Maryland Innovation Initiative (MII)

The Maryland Innovation Initiative (MII) program is Maryland's premier early-stage technology transfer and commercialization program. Established in 2012, MII is a collaboration between the State of Maryland; Johns Hopkins University; Morgan State University; the University of Maryland, College Park; the University of Maryland, Baltimore; and the University of Maryland, Baltimore County. The program's mission is to accelerate promising technologies with significant commercial potential to market while leveraging each institution's strengths. As part of a "Bench-to-Market" approach, the program offers grants to assess commercial viability of technology and investments for companies that form to license the related intellectual property.

CONTENTS

LETTER from MII Executive Director & Chair of the Board

Dr. Arti Santhanam
Executive Director, MII

Renée M. Winsky
Board Chair, MII

GREETINGS,

Welcome to the FY23 Maryland Innovation Initiative (MII) annual report. In this report, we continue the tradition of celebrating another successful year through an overview of annual numbers and metrics that showcase the program's successful ventures.

While there is much to celebrate in this FY 2023 annual report—from more than a decade of success to a future full of potential—we'd like to begin here, in the present, with a resounding note of gratitude.

Thank you to all the MII board members, the MII team, and the partnering universities that have helped to make this program a success. It is thanks to your support that the program continues to be effective, and we are honored to have this opportunity to continue building a thriving, creative, and sustainable innovation-ecosystem in Maryland.

Last year, we celebrated a substantial milestone—10 years of MII; as we move forward yet another year older, we can certainly say any past hesitations about the program are long gone.

The MII program has played, and continues to play, a vital role in seeding, supporting and scaling innovation coming out of our universities. A key state-by-state ranking provides insight into just how much MII has impacted Maryland. Before the program launched, Maryland was ranked 38th in technology commercialization indexes, and by 2020, the State had moved up in ranking, placing 8th out of 50 states. **We're proud of that ranking—and grateful for the people that helped make it happen.**

Before there was a program, there were innovative legislators and local thought leaders who foresaw the need to help commercialize institutional research. They created MII to accelerate promising technologies with significant commercial potential. Thanks to this forward thinking and diligent efforts, MII continues to celebrate its successes—from 176 start-up companies created and supported to $16.3 million in revenue generated in FY23.

Of course, at the center of everything are the research faculty whose ingenuity and talent lead to technologies with the potential to solve global problems, from lack of safe drinking water to emergency surgery suture solutions in remote areas. Their work is creating jobs, investments and new revenue for our state.

Entering the 12th year as a program and fund, MII's goals remain the same; we continue working to provide more venture creation, more attraction of follow-on investment, more diversity of applicants and projects, more start-ups created and supported, and more job creation—with good paying salaries—that benefit both the individuals and our great state of Maryland.

After all, by investing in the creation of a healthy, thriving, and sustainable STEM innovation ecosystem, all of Maryland reaps the benefits.

PROGRAM OVERVIEW

The MII program was created to accelerate and support the transition of technologies with promising commercial value from our collaborative institutions into products and services that address relevant market needs. To accomplish this, the program is divided into two phases: a Technology Assessment grant for full-time university faculty and a Company Formation investment for Maryland-based start-up companies that license IP from our collaborative institutions.

Technology Assessment

Technology Assessment grant awards are available exclusively to qualifying institutions to evaluate technical validity, enable critical experiments, and develop a commercialization plan over a period of 9 months. Awards are capped at $115,000 for a sole application and $165,000 for a joint application.

Company Formation

Company Formation investments encourage commercial product development in preparation for a product launch, or the advancement of a product to achieve a technical milestone that could significantly increase a start-up company's commercial value and better position them to attract follow-on funding (grants and investments).
MII Company Formation investments are capped at $150,000.

"The MII portfolio is a great reflection of the diversity of technology space and applicants that its institutions bring to the table. Its companies have leveraged these strengths to launch their innovations and bolster Maryland's entrepreneurial ecosystem."

– Troy LeMaile-Stovall, *CEO, TEDCO*

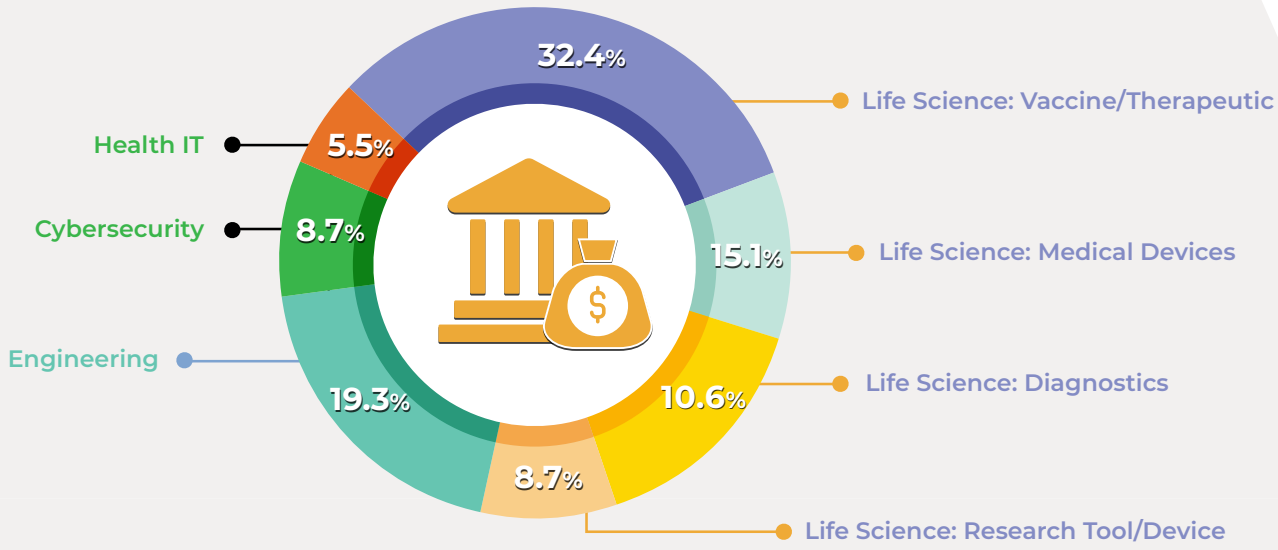
MII BY THE NUMBERS

AWARDS BY TECH CLASS

Program to Date FY13-FY23

MII supports a diverse portfolio of awardees from various technical domains that include but are not limited to life sciences, engineering, and information technology. The diversity of Awards by Tech Class ultimately reflects MII's university collaborators and that of the world-class research conducted by scientists across the State.

PROGRAM TO DATE

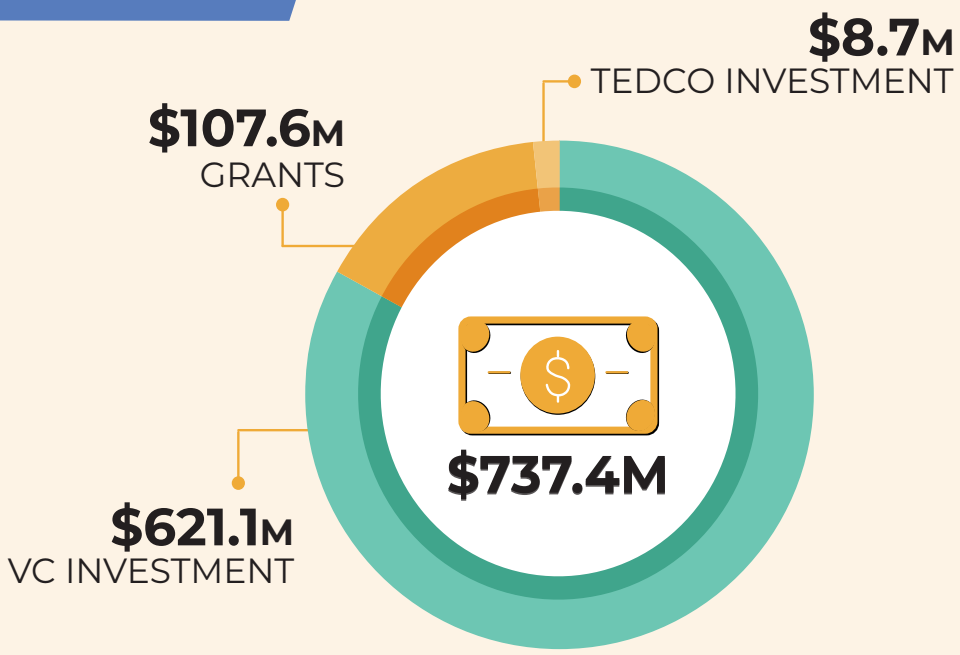


LIFE SCIENCES
ENGINEERING
INFORMATION TECHNOLOGY

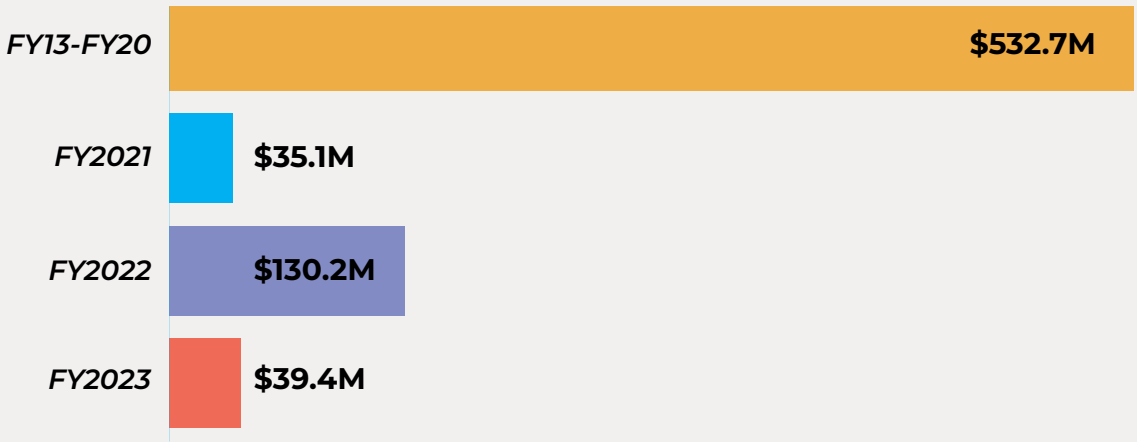
FOLLOW-ON FUNDING

MII creates successful, scalable start-up tech companies in Maryland, as demonstrated by their ability to attract follow-on funding. Over the years, MII companies have successfully commercialized early-stage technology and attracted nearly $738 million in follow-on funding. Furthermore, a significant portion of this funding comes from sophisticated technology investors such as angels and venture capitalists.

PROGRAM TO DATE
FY13-FY23



FOLLOW-ON FUNDING
THROUGH THE YEARS
FY13 - FY23



PORTFOLIO MANAGEMENT

MII has funded/invested a total of $52.3 million over the past 11 years while maintaining a steady 32% start-up creation rate—a testament to the program model and the excellent work of the MII site miners and university tech transfer offices. While small, the MII team manages an increasing number of portfolio investments with the goal of accelerating commercialization. Indeed, MII companies often raise follow-on funds, either through grants or investments, within two years. While still early-stage, MII start-up companies have continued to contribute toward impactful economic development of their communities through revenue generation, jobs created, and high-tech workforce development.

PROGRAM TO DATE
FY13-FY23

$52.3M
INVESTED

$7.2M
TOTAL ACTIVE MANAGED

$6.1M
PROGRAM $

$13.3M
PORTFOLIO $

38%
COMMERCIALIZATION

32%
START-UP %

ECONOMIC IMPACT

PROGRAM TO DATE
FY13-FY23

176
START-UP COMPANIES CREATED & SUPPORTED

370
JOBS CREATED

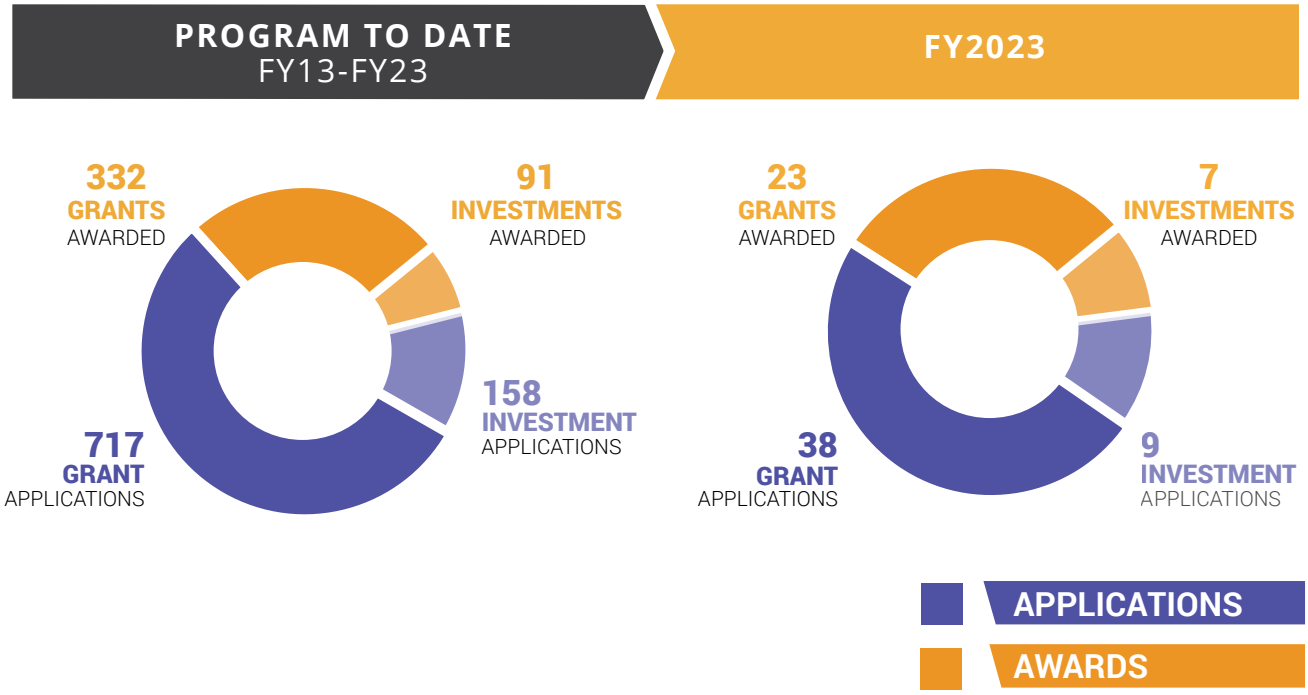
FISCAL YEAR
2023

$16.3M
REVENUE GENERATED

$102,807
AVERAGE FTE SALARY

APPLICATIONS, GRANTS AND INVESTMENTS

To date, MII has reviewed 717 grants and 158 investment applications and has an award funding rate of 46% and 58% of applicants, respectively. In FY23 alone, MII reviewed 38 grants and 9 investment applications and awarded funding to 60% and 78% of applicants, respectively. While the demand for MII funding remains consistently high, the success rate for funding is also a reflection of the maturation of the ecosystem as the program's applicants become increasingly savvy in technology commercialization.



"For nearly a decade, MII has supported the commercialization of innovative research from Maryland's world-class universities. I'm grateful to play a part in the stewardship of this remarkable program."

– Renée Winsky, *Bay One Group, LLC*

ENTREPRENEUR ECOSYSTEM IMPACT

Morgan State University

I-Works Initiative Programs

I-GAP • The Innovation Grant Assistance Program provides early-stage grants (e.g. pre- TEDCO MII) to MSU inventors to further develop MSU innovations.

I-Works ISO • Reaches out to both new and seasoned entrepreneurs, in-search-of innovations for new technology-based businesses. The program also works to connect and match Morgan students, graduating college seniors and advanced degree candidates with new and early-stage companies in search of interns and employees.

I-Works Community • Engages the Morgan Community Mile, the PEARL Aquaculture community and other regional business communities to promote and enhance innovation.

I-Start • Being developed for Pre-Incubator and Start-Up spaces for entrepreneurs and startup companies, as well as students and I-Start Centers.

University of Maryland UM Ventures

Momentum Fund • Launched in 2016 with a $10 million commitment from the University System of Maryland (USM), the Maryland Momentum Fund invests in USM-affiliated companies to support entrepreneurism, catalyze outside investment in early-stage startups, and foster economic development and technology commercialization.

The Baltimore Fund • The Baltimore Fund stimulates economic advancement in Baltimore City by supporting Maryland Public Higher Education Institution (PHEI) -created or -sponsored technology companies and affiliated entities locating in the city.

The Discovery Fund • The University of Maryland (UMD)'s Discovery Fund was created to support innovative companies and startups based in College Park and Prince George's County. The first of UMD's venture funds, the Discovery Fund is supported by $1 million annually from the UMCEED. The fund, launched in 2021, continues to be leveraged as a tool to encourage companies to relocate to the Discovery District, specifically targeting quantum and non-quantum companies.

Johns Hopkins University

Louis B. Thalheimer Fund for Translational Research • The Louis B. Thalheimer Fund for Translational Research provides seed funding for vital proof-of-concept and validation studies of valuable technologies at Johns Hopkins. Recipients are awarded $25,000 to $100,000 to conduct work over a period of up to nine months. Eligible awardees are Johns Hopkins faculty members with an unlicensed technology. Applications are due April 1 annually.

Cohen Translational Engineering Fund • The Cohen Translational Engineering Fund provides Whiting School of Engineering faculty with the critical early funding needed to focus on the first steps of translation. Applications run on an annual cycle with a January 31 submission deadline.

University of Maryland, Baltimore County

Technology Catalyst Fund (TCF) • The TCF is a source designed to advance innovations originating from UMBC research to more commercially viable technologies. Additional proof-of-concept studies, extending data collection and prototype development are examples of the essential steps needed to demonstrate commercial potential.

PILOT PROGRAMS

Frostburg State University

Bobcat Innovation Launch Pad

The Bobcat Innovation Launch Pad, managed by FSU in partnership with Deloitte, will encourage student teams from multiple disciplines to develop commercially viable technology-based solutions to vexing societal challenges, with a focus on climate change and renewable energy. Structured as a three-day event that blends elements of a traditional hackathon with that of a business pitch competition, the program will attract approximately 50 students with a draw of a small cash prize to foster development of the winning ideas. MII's funding will help launch this innovation and entrepreneurship initiative.

Regional Cyber Operations Center Feasibility Study

A Regional Cyber Security Operations Center (RSOC) is an entity that provides continuous operational IT security by monitoring, assessing, preventing, and responding to threats to protected IT systems. FSU in partnership with Deloitte, seeks to study the feasibility of establishing a RSOC for Western Maryland, which will serve to protect the region's businesses, non-profit organizations, and local government entities from the threat of cyber breaches. The study will explore the resources needed for the launch and the potential educational workforce and economic impact of an RSOC which will strengthen the role of FSU as an anchor institution for the region. Results will be used to further develop a pilot program for Western Maryland that could be replicated in other parts of the State.

Bowie State University

Entrepreneurship XTreme Pilot

The BSU Entrepreneurship XTreme Pilot will provide students with an immersive experiential learning opportunity and offer a variety of technical support services to startup founders and existing businesses interested in tech-based ventures. Under this pilot program, a team of eight BSU students will be matched with interested founders and business owners for 2 to 3 month projects, which may entail website development, software development, software testing, and other tech-based support services. With the MII's investment, the program aims to jumpstart 2 to 3 companies and use the lessons learned to build out the program for scale.

HBCU+ Entrepreneurship Conference

The HBCU+ Entrepreneurship Conference is an opportunity to celebrate, inspire, and unlock the boundless possibilities that arise when passionate individuals collaborate to further academic excellence and educational empowerment.

The conference is based on a foundation rooted in the exponential growth, innovation, and success that collaboration fosters within the academic entrepreneurial ecosystem. It's focused on empowering HBCU entrepreneurs by highlighting the immense value of collaborative efforts and proving that it is more than a means to an end—it is a catalyst for transformative change in the realm of education.

"Over the past 11 years, MII has continued to make an impact in Maryland's economic development. Now, we are excited to extend our reach to include the two pilot universities – Frostburg State University and Bowie State University. By collaborating with these two additional universities, MII's reach can extend farther, supporting the budding entrepreneurs and innovators found in the student populace. Furthermore, these two pilot programs will serve as the anchor for the surrounding communities, enabling the diversification the entrepreneurial innovation ecosystem in Maryland."

– Arti Santhanam, PhD, *Executive Director, MII*

FY23 PORTFOLIO COMPANIES

Prompt

Located in Baltimore, Prompt is a Johns Hopkins University spinout commercializing tests that will provide fast, affordable, and easy-to-use diagnoses with uncompromising sensitivity and specificity for detection of disease at the point-of-care.

prompt-dx.com

COMPUTCHEM

Located in Baltimore, ComputChem is a University of Maryland, Baltimore spinout commercializing iTitrate: A software tool to aid computational chemists working on computer aided drug design projects.

computchem.com

BLUE and GREEN ENERGY SOLUTIONS

Located in Germantown, Blue and Green Energy Solutions is a University of Maryland, Baltimore County spinout developing the "EnergyMaster" – a novel hybrid vertical axis wind and tidal turbine.

blueandgreenenergysolutions.com

IRAZÚ ONCOLOGY

Located in Baltimore, Irazu is a University of Maryland, Baltimore spinout developing a superior cancer vaccine platform to improve clinical outcomes for patients.

irazuoncology.com

ALCHEMITY

Located in College Park, Alchemity is a University of Maryland, College Park spinout transforming chemicals to value-added products through ion-conducting ceramics.

alchemity.tech

Curie Dx

Located in Baltimore, CurieDx is a Johns Hopkins University spinout developing virtual care diagnostic tests for illnesses such as strep throat that can be conducted using just a smartphone.

curiedx.com

SolvEndotherapy

Located in Pasadena, Solv Endotherapy is a Johns Hopkins University spinout developing a novel hypochlorite-based dissolution foam for the treatment of acute pancreatitis.

SUCCESS STORIES

JHU partnership with the MII looks to eliminate risks mosquitoes bring

Tammi Thomas / July 15, 2023

JHU faculty researching ways to eliminate vector-borne diseases from deadly transmitters.

Summer is upon us. Warmer months in the mid-Atlantic often conjure thoughts of flowers, trips to the beach or lake, and backyard cookouts. However, these increased temperatures also mean the emergence of annoying pests, like the mosquito.

Most of us associate mosquitoes with mean red, itchy welts and having to bring insect repellents along on outdoor adventures. However, for others, particularly those living in hotter, more humid climates, mosquitoes are more than pests – they can be deadly transmitters of viruses such as malaria, dengue, yellow fever, Zika virus fever or West Nile fever.

Mosquitoes are one of many vectors – insects that can transmit infectious pathogens among humans, or from animals to humans. According to the World Health Organization, "vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually."

This is where Maryland Innovation Initiative (MII) awardee George Dimopoulos, Ph.D., MBA, is stepping in. A professor of molecular microbiology and immunology at Johns Hopkins University's Bloomberg School of Public Health, Dimopoulos is studying vector-borne diseases and possible ways to render mosquitoes – what he deems "the deadliest animal on the planet" – incapable of transmitting human pathogens.

His research could help to reduce the number of vector-borne diseases. With the aid of a grant from MII, Dimopoulos is seeking to commercialize a nontoxic, environmentally friendly biopesticide. He has developed a cost-effective biopesticide that can target and kill adult and larval stages of mosquitoes and other agricultural pests, such as the Western corn rootworm that causes more than $1 billion in damages each year.

MII was established in 2012 as a technology transfer program to accelerate promising technologies from research labs to the commercial sector. Johns Hopkins University is one of five universities that collaborate with MII. There are two MII awards – Phase I, technology assessment, and Phase II, company formation.

Dimopoulos has a Phase I grant which fosters commercialization of such technologies through technology validation, market assessment and the creation of university startup companies in Maryland.

Arti Santhanam, Ph.D., executive director of MII, said, "For our university partners, MII does more than provide funding and support commercialization. It changes the culture so that research has a purpose and faculty discover more satisfaction in translating their research to an applicable product."

"I am risk-averse, and the MII program was a great opportunity to explore the commercial potential for our product.

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JHU partnership with the MII looks to eliminate risks mosquitoes bring

Continued from page 15

TEDCO provided a lot of good information, and the site miners were helpful in providing feedback quickly, making it a straightforward process," said Dimopoulos.

Site miners are individuals selected by the MII program to assist startups and faculty with submitting a strong business-oriented application focused on commercialization.

Johns Hopkins Technology Ventures (JHTV) supports technology commercialization efforts of university faculty. To date, they have helped to create more than 200 companies.

Nicole Snell, associate director of ventures at JHTV said, "The MII program has tremendously valuable, nondilutive funding that propels and de-risks technology. It addresses the gap in funding not provided by traditional research grants, and often leads to additional investments from private funders."

As for how the MII program changes the culture at JHTV, Snell added, "Our faculty see the impact of their colleagues' work through the program and want to do it as well. We incubate teams internally to strengthen opportunities to license technologies."

Dimopoulos shared that the MII grant helped him develop a scale-up production method that was also cost-effective. With a commercialization plan in hand, registering with the Environmental Protection Agency (EPA) is the next step. EPA registration is a complex and expensive process but an important one that will include toxicology tests to ensure it is safe for the environment, other insects (for example, pollinators and ladybugs) and animals.

He stated, "The MII program helped secure additional funding. It propelled our technology to a different level, and we were able to demonstrate for investors that the product can be produced to scale."

Following the EPA registration, Dimopoulos hopes to apply for Phase II MII funding to create a company, and possibly license the product to pest control companies.

"There are numerous possibilities following the creation of our commercialization plan. We could team up with an agricultural pest control company. Our biopesticide could be incorporated into other products so we could license it to pest control companies. The military is also interested in exploring how they could use it in their mosquito control efforts," Dimopoulos shared.

Phase II, or the company-formation period, supports advancing a technology to achieve commercial milestones significantly increasing the company's value, and better position the company for product launch, customer acquisition and follow-on investment.

"Our purpose is not financial returns but to grow companies, and as a trusted entity committed to helping our companies grow, we build confidence in the technology for other investors," said Santhanam.

Snell added, "MII funding incentivizes university faculty and companies that spin out of our office to stay in Maryland, which means more jobs and increased support of the state's economy."

Source: Baltimore Business Journal

"The MII program has tremendously valuable, non-dilutive funding that propels and de-risks technology. It addresses the gap in funding not provided by traditional research grants, and often leads to additional investments from private funders. Our faculty see the impact of their colleagues' work through the program and want to do it as well. We incubate teams internally to strengthen opportunities to license technologies."

– Nicole Snell, *Johns Hopkins Technology Ventures*

Collaborative technology transfer program nurtures and funds research-based innovations

Tammi Thomas / February 3, 2023

Morgan State University (Morgan State) is one of five institutions collaborating with TEDCO as part of the Maryland Innovation Initiative (MII) – a technology transfer program established in 2012 to grow and accelerate promising technologies through venture creation.

In 2017, Morgan State launched the Office of Technology and Intellectual Property (OTT). After just five years, the program is thriving. In fact, every year, Morgan State's OTT develops 30 new inventions; additionally, in the last four years, they have seen their rate of research and development expenditures double to $27 million.

"We have built a strong ecosystem and are seeing a new innovation come through our office every 12 days," explains Wayne Swann, director of Morgan State's OTT. The ecosystem at Morgan State is reinforced by MII's site miners who support the university's innovators and researchers, allowing for the exploration into how their ideas can solve a current obstacle or challenge, while also helping to consider how these solutions can be commercialized into the market.

"Government funding and other traditional research funding focuses on basic research and isn't typically available for the commercialization of innovations," Swann explains. "Thankfully, MII provides the funding that helps move innovations out of the lab and into the hands of people who can use it. With MII's support, our researchers learn how to transition early-stage innovations along the pathway to commercialization."

"There are two phases to MII funding," explains Arti Santhanam, Ph.D., executive director of MII. "The first phase – technology assessment – allows for awards up to $115,000. During the second phase, we see projects that are ready for company formation and commercial launch; here we can provide companies with awards up to $300,000. Since its creation, MII has seen a lot of success. We have awarded $47.5 million to various innovators and entrepreneurs and have seen the attraction of nearly $693 million in follow-on funding."

Tool with potential to disrupt the market

A recent recipient of MII's Phase I funding is Birol Ozturk, Ph.D., associate professor of physics at Morgan State. This funding will support Ozturk's innovative idea, manufacturing nanoscale electrodes for high-resolution microscopy.

Although microscale electrodes are currently on the market, nanoscale is new. A nanoscale electrode would support labs and other industries, allowing them to collect data at a much smaller scale that cannot be gathered with existing microscale electrodes. Additionally, Ozturk's tool will use fewer precious metals, allowing for more cost-efficient manufacturing by insulating gold or platinum nanowires in glass to form a well-defined tip.

"MII funding is helping us to demonstrate the potential for this tool, and various industries could benefit from it. We've found that this tool can help pharmaceutical labs study individual cell response to medicines or even allow corrosion researchers to test efficiency of products that block corrosion, a common problem for military planes and vehicles," states Ozturk.

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Collaborative technology transfer program nurtures and funds research-based innovations

Continued from page 17

This was Ozturk's first attempt at commercialization. He notes about his experience that "TEDCO provides many resources. They are willing to answer questions and provide check-ins to ensure that you are able to meet the deadlines. I had never commercialized a product, but Morgan State has a strong tech transfer officer that connected me with TEDCO, helped me with the application, and provides training to better understand the commercialization process."

Even though the university collaborates with MII, Morgan State has found that researchers and innovators are oftentimes not ready to apply for the funding MII provides. Because of this, the university has created the Innovation Works Initiative, a program that helps to create more success for innovators looking to bring their ideas to market.

Promising candidates for commercialization

Through this program, Morgan State can better identify projects with potential for commercialization, while providing innovators with programming and support. Additionally, through the I-GAP grants the program provides, innovators can receive pre-MII funding, allowing ideas and innovations to be more fully developed and supporting the later MII proposals.

Morgan State has awarded more than 80 I-GAP grants to faculty and staff to close the gap between the laboratory and the marketplace. Additionally, Morgan State produces invention disclosures (written to communicate a novel idea), new patent applications and other key innovation outputs, such as current U.S. patents and new start-up companies at a rate significantly higher than the state and national averages per $10 million in research expenditures.

After receiving a Carnegie Doctoral Research University R2 classification in 2018, Morgan State focused on R1. Morgan State's significant growth, including increased research funding, innovation and tech commercialization through programs like the Maryland Innovation Initiative, promise to transform the university and our region.

Source: Washington Business Journal

"Government funding and other traditional research funding focuses on basic research and isn't typically available for the commercialization of innovations. Thankfully, MII provides the funding that helps move innovations out of the lab and into the hands of people who can use it. With MII's support, our researchers learn how to transition early-stage innovations along the pathway to commercialization."

– Wayne Swann, *Morgan State University*

Tech transfer program creates high-paying jobs, accelerates product development

Tammi Thomas / January 3, 2023

TEDCO as part of our Maryland Innovation Initiative (MII). MII was established in 2012 as a technology transfer program with the goal to grow and accelerate promising technologies through venture creation.

According to Arti Santhanam, Ph.D., executive director of MII, Maryland's elevation in national rankings for commercialization is critical. "Investment in tech commercialization and the creation of new business translates to income flowing into the state through follow-on investments, creation of jobs, and retention of the talent trained in labs and corporations in Maryland."

Maryland consistently ranks among the highest nationally for an educated workforce, but there aren't enough opportunities for individuals to grow their careers, making it difficult to retain the tremendous talent educated in our universities and developed in state and federal labs. Fostering an active tech ecosystem with programs such as MII to mentor, fund and support the creation of new businesses is key to retaining the talent coming out of our universities.

Mary Morris, an MII board member and director of the Baltimore Fund at University of Maryland, Baltimore, believes the MII program has had significant impact on commercialization and economic development for both the state and UMB, sharing that NextStep Robotics, a UMB startup, is a great example of this collaboration.

"NextStep Robotics, which is commercializing UMB intellectual property, received a two-phase MII, with the first phase awarded in March of 2016 and the second in November of 2017. Since the award, Brad Hennessie, CEO, has grown the company significantly — graduating from a startup studio, moving into a dedicated space in the BioPark, developing a specialized gait lab and raising significant funds. Brad is investing back into the ecosystem through continued collaboration with the University of Maryland School of Medicine Department of Physical Therapy & Rehabilitation Science," Morris said.

According to Morris, MII is an important tool for expediting the development of technologies — particularly expensive, long-term projects — and pushing them to market. The condensed nine-month timeline of the program forces participants to hit milestones in a timely manner. For life science projects, which are heavily impacted by regulations, the funding is crucial.

MII site miners work with participating universities to identify technologies that might be viable. Selected projects are assigned entrepreneurs in residence who help researchers develop a commercialization plan and pathway to market.

"The MII methodology is revered by other states and has become a model across the country. It is exciting to see our university personnel play vital roles in the emerging companies created through MII," Morris said.

MII doesn't just help companies advance. The program is also advancing Maryland's economy by growing the technology industry.

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Tech transfer program creates high-paying jobs, accelerates product development

Continued from page 19

"The venture creation resulting from MII is steadily adding high-paying tech jobs to the state's economy, helping us retain our highly trained workforce, which is otherwise lost to surrounding regions and other parts of the country," Santhanam said.

MII encourages universities to collaborate with one another, to leverage areas of focus and complement the strengths of each. When universities submit a joint MII application they can qualify for more funding.

Dr. Michael McCurdy, who has held several roles within the University of Maryland Medical System, including as chief of critical care for University of Maryland St. Joseph Medical Center, partnered with Brian Cullum, Ph.D., chair of the department of chemistry and biochemistry at UMBC, on an MII grant-funded project to develop a light-based method to assess renin levels to increase speed of care.

According to McCurdy, the MII program is filling a gap in funding for researchers who are trying to determine commercial viability of a product.

Recognizing the opportunities for collaboration, UMB has added a medical device prototyping lab within the department of surgery that is staffed in partnership with faculty from University of Maryland, College Park.

Santhanam shares, "Multiple universities working together and competing with one another improves the quality of products developed. Universities are normally very siloed, but through MII we are knitting the ecosystem together."

Unlike other funding programs, MII offers an accelerated process which helps universities to move more research out of the lab and into a viable commercial product at a faster rate. To date, MII has supported the creation of 144 companies and 298 jobs.

Source: Baltimore Business Journal

"University of Maryland, Baltimore's entrepreneurial faculty are utilizing the Maryland Innovation Initiative as a vital tool in the successful commercialization of technologies for the benefit of healthcare patients and society at large."

– Mary Morris, *University of Maryland, Baltimore*

Maryland initiative contributes to the strong innovation culture at UMBC

Tammi Thomas / June 15, 2023

The Maryland Innovation Initiative (MII) partners with five major research universities throughout Maryland.

Maryland is home to many talented faculty members. In fact, the state has the highest concentration of Ph.D.s in the country and ranks No. 1 for its technology and science workforce. The University of Maryland Baltimore County (UMBC) houses many of these talented individuals who are regularly experimenting and creating new innovations. The real challenge for these pioneering minds is how to bring these innovations to the marketplace.

With ideas that could benefit the public, it was clear that assistance in getting them to the market would be necessary – hence TEDCO's creation of the Maryland Innovation Initiative (MII). Established in 2012, MII partners with five major research universities throughout Maryland, including UMBC. Through this collaboration, MII can leverage each of the university's strengths, supporting the growth and acceleration of promising technologies through venture creation.

"UMBC was so focused on education and research when we arrived 10 years ago; MII was the piece that could help them take their technologies to the commercial space," said Arti Santhanam, Ph.D., executive director of MII. "The willingness, intentionality and commitment of UMBC's leadership has been such an important factor in the success of both the individual faculty and the MII program here at UMBC."

MII at UMBC successful projects and startups

Through the MII program at UMBC, faculty like Deepa Madan, assistant professor in UMBC's mechanical engineering department, are connected with site miners. These individuals are MII employees who assist faculty with submitting strong business-oriented applications for funding. Madan's application for a rechargeable, zinc-based battery enclosed in flexible plastic was accepted and she recently completed her first MII Technology Assessment phase.

Madan and her students are working on a second project aptly named Flexicharge. It's a method of generating electricity for remote sensors using temperature differentials of the human body and the surrounding air. The team is excited about bringing this innovation to market, with Madan noting MII has impacted her work beyond the commercialization aspect.

"My own perspective as a professor has changed. When I'm teaching, I try to expand beyond the technical and theoretical and share practical applications with my students," said Madan. "My graduate students can work with me as I develop my company. My students and I have benefited from MII; I'm so glad I have this program at UMBC."

Madan's experience with MII is one of many. Riadul Islam, Ph.D., assistant professor of computer science and electrical engineering, has also benefited from the MII program at UMBC.

Islam's MII-funded project, GraphCAN, is a low-cost, software-based platform and agnostic solution for cyberthreat detection that provides the zero-layer for autonomous vehicular security. Islam's students helped him build and test a prototype of the new technology. As he prepares to seek another round of funding for GraphCAN, Islam cites another benefit of MII: He's supported by experienced professionals on the path to

Continued on next page

Maryland initiative contributes to the strong innovation culture at UMBC

Continued from page 21

commercialization and values their expertise. "Bringing something new to the world is a disruption… but it's a disruption in a good way."

Another example of successful MII support at UMBC is Weidong Zhu, Ph.D.'s project TrackingStar, a zero-contact tracking system for wind turbine health monitoring. Zhu is a professor of mechanical engineering at UMBC and a prolific inventor of green technologies. Recognizing that the current system is hands-on, costly and dangerous, Zhu and his students developed new technology to reduce the cost of wind turbine inspections by allowing technicians to evaluate the health of blades from a distance. The cost-saving solution removes the need to completely shut down a turbine, while also making the inspection process much safer. TrackingStar is currently being tested in Crisfield, Maryland.

"MII is a very good program; it focuses on the application of research and commercialization. At UMBC with my students, we are always keeping the application in mind as we conduct basic research. Entrepreneurship comes naturally after that," says Zhu, a multiple MII awardee.

MII fosters growth, excitement and learning

Creativity is flourishing at UMBC, and not just in the STEM fields. MII projects are underway across departments – from life sciences, engineering and computer science researchers to education technology and music innovators. To date MII, has supported around 40 projects from UMBC alone, with nearly two dozen company formations.

And while these stories of innovation and research are essential to the growth of Maryland's ecosystem, that's not all MII impacts. MII plays a role in the very culture of the universities they collaborate with. In fact, the impact MII has had on UMBC faculty has been observed throughout the university.

"MII has done more to change the attitude of entrepreneurial faculty over the last 10 years than anything else. They're interested in starting companies, getting grants and funding – the change in attitude is notable," explained Wendy Martin, director of the Office of Technology Development at UMBC. "Prior to MII, UMBC had a startup once every other year. Now we have multiple startups per year. Our faculty get a chance to access close to a half-million dollars for their projects."

Working alongside UMBC's team, MII offers faculty innovators guidance and best practices to support the translation of their research to the commercial space. Along the way, these researchers get a new education – this time, in business.

"While these talented researchers may think about their discoveries as something that could help a patient or end user, they weren't thinking about the commercial value proposition of their discoveries," said Santhanam, executive director of MII. "MII helps them in stages; they start to understand their value proposition and use the language of business."

MII-funded faculty and interested applicants regularly gather for startup roundtables to discuss business best practices, as well as conflicts of interest, struggles and successes. Since MII came to UMBC, it also created a Technology Catalyst Fund and an express license agreement to help faculty founders speed up the licensing process.

This entrepreneurial ecosystem, coupled with a spirit of collaboration, makes UMBC a special place for innovation-minded faculty and students. UMBC's MII-funded startups also benefit the state, spurring innovation, investment and economic opportunity.

Source: Baltimore Business Journal

"We view the MII program as an extension of the continuum of support that we provide to inventors at UMBC. It continues to be a vital part of our technology transfer process."

– Wendy Martin, *University of Maryland, Baltimore County*

TEDCO initiative aims to advance technologies to the commercial market

Tammi Thomas / November 30, 2022

TEDCO established the Maryland Innovation Initiative (MII) in 2012 as a technology transfer program with the goal to grow and accelerate promising technologies through venture creation. University of Maryland College Park (UMCP) is one of five universities working with TEDCO on the MII program.

Pitchbook recently ranked UMCP as one of the top 100 institutions for entrepreneurs. It ranked 35th among graduate schools with $9.6 billion in venture capital.

"The venture creation resulting from MII is steadily adding high paying tech jobs to the state's economy and is helping us to retain our highly trained workforce that are otherwise lost to surrounding regions and other parts of the country," said Arti Santhanam, Ph.D., executive director of MII.

Maryland is the No. 1 state for technology and science workforce and second in graduate or professional degree attainment. The state is also the second largest recipient of federal funding for research and UMCP ranks 10th in the nation among public universities, according to Ken Porter, director of UM Ventures for UMCP.

"We as a state have much to lose. Our graduates are some of the most sought-after in the country, but they aren't leaving, and instead are staying in Maryland to start companies, thanks in part to MII," he said.

User informed market viability

Monifa Vaughan-Cooke, Ph.D., is an assistant research professor at UMCP in mechanical engineering at the Center for Risk and Reliability Brain and Behavior Institute and the recipient of the Technology Assessment Phase MII grant. Her research focus is on human performance modeling and human centered design.

Along with Louis Dankovich IV, a post-doc research associate in her lab, Vaughan-Cooke developed and tested the commercial viability of their wearable system for gesture recognition as part of the MII grant.

Many current wearable assisted devices lack accuracy due to the shifting of sensors on the user's body, while the more state-of-the-art technologies available are cost prohibitive. This UMCP technology uses more conventional parts and measures the shape change of specific areas of the arm due to muscle use.

The Technology Assessment Phase includes conducting a commercial opportunity and risk assessment for a technology and developing a detailed commercialization and go-to-market plan.

"The MII grant helped us explore potential customers, validate the market and determine if this could be a viable enterprise. This program opened my eyes to explore the market in ways I wouldn't have considered – who wants it, and the needs and concerns it could help," said Dankovich.

Possible markets include videogame users and those with physical disabilities – anyone who is challenged by range of motion.

"In the medical industry there is a higher threshold for validation than consumer electronics. Determining which market to pursue would inform the analysis and data collection. This work allowed us to discover gaps in product offerings to accommodate

Continued on next page

TEDCO initiative aims to advance technologies to the commercial market

Continued from page 23

users and there is a lot of room for growth," said Vaughan-Cooke.

Next generation technologies

For the luxury goods market, anti-counterfeiting technology is critical to ensure consumers are receiving an authentic product. Unfortunately, most anti-counterfeiting products on the market are easy to crack and require changing the technology often.

Po-Yen Chen, Ph.D., an assistant professor in chemical and biomolecular engineering at UMCP, is the founder of MantaCode, a graphene-based, unclonable anti-counterfeiting tag. This technology stores more information, has faster processing time and higher authentication security, which helps protect products throughout the entire manufacturer-to-customer distribution process. The tags are water resistant and fireproof, are easily decodable with a phone app and impossible to replicate.

"This was my first time working through the MII program and it is most special. Unlike other grants, it helps bridge from research to market, providing us the budget to hire a consultant with strong market expertise. The MII program helped me to think deeper and have a better sense of the commercialization process and develop a business plan," said Chen.

Chen plans to apply for a Company Formation Phase MII grant. The Company Formation phase includes corporate product development in preparation for a product launch or the advancement of a product technology to achieve a commercial milestone that significantly increases the company's value and better positions the company for follow-on investment and scaled growth.

From research lab to store shelves

Srinivasa Raghavan, Ph.D., professor of chemical engineering at UMCP, has extensive experience in commercialization and university tech transfer. He has received multiple MII grants, most recently leading the teams for GripBoost, a gel to restore tackiness on athletic gloves, and Medcura, which is producing wound sealing gel.

Medcura produces a rapid seal wound gel that can be found at stores such as CVS and Walmart. When a thin slice of the hydrogel is placed in contact with biological tissue it creates a strong adhesion.

"MII is the best type of funding. There is an urgency required and encourages researchers to work faster. The application process requires less time to complete and the response is faster than other types of grants," Raghavan said.

"It's perfect for someone like me who likes to invent new things. It supports my ability to translate technology into practical use and determine if it's commercially viable," he said.

Raghavan is currently working on a recent innovation of an electro-adhesion hydrogel that can replace sutures in surgery. It will allow for a new, simpler way to seal a wound that doesn't require a skilled surgeon.

MantaCode and Medcura have both been nominated for UMCP's Invention of the Year Awards. More than 100 inventions have been awarded to date, selected for their technical merit, improvements to existing technology, commercial potential and overall benefit to society.

According to Porter, "MII lowers the barrier to entrepreneurship. Researchers publish a paper and move on. Through MII, they explore the opportunities for a single invention and all the ways it can affect society."

Fostering an active tech ecosystem with programs like MII to mentor, fund and support the creation of new businesses is key to retaining young talent out of our universities.

According to Santhanam, Maryland's elevation in national rankings for commercialization is critical. "Investment in tech commercialization and the creation of new business translates to income flowing into the state through follow-on investments, creation of jobs and retention of the talent trained in labs and corporations in Maryland."

Source: Baltimore Business Journal

Tech transfer program's mission: Nurture tech-related businesses and retain "highly trained workforce"

Tammi Thomas / December 3, 2022

University of Maryland College Park (UMCP) graduates are some of the most sought-after graduates in the country – Maryland is the No. 1 state for technology and science workforce and second in graduate or professional degree attainment. The state is also the second largest recipient of federal funding for research and UMCP and UMB together ranks 10th in the nation among public universities, according to Ken Porter, director of UM Ventures for UMCP.

UMCP is one of five universities working with TEDCO as part of our Maryland Innovation Initiative (MII), established in 2012 as a technology transfer program with the goal to grow and accelerate promising technologies through venture creation. Porter is a member of the MII board.

He shares, "We as a state have much to lose. Our graduates are some of the most sought-after in the country. Thanks in part to MII, they have opportunities to remain in Maryland and start companies."

According to Arti Santhanam, Ph.D., executive director of MII, Maryland's elevation in national rankings for commercialization is critical. "Investment in tech commercialization and the creation of new business translates to income flowing into the state through follow-on investments, creation of jobs, and retention of the talent trained in labs and corporations in Maryland."

Fostering an active tech ecosystem with programs like MII to mentor, fund and support the creation of new businesses is key to retaining young talent out of our universities.

"MII lowers the barrier to entrepreneurship. Researchers typically research, publish a paper and move on. Through MII, they explore the opportunities for a single invention and all the ways it can affect society," states Porter.

Tech transfer program's mission: Nurture tech-related businesses and retain "highly trained workforce"

Maryland is the No. 1 state for technology and science workforce and second in graduate or professional degree attainment.

Traditionally, researchers receive scientific funding, but not funding to take the idea beyond the lab and no real pathway for how to get it there.

Alla McCoy, director of startup support for UM Ventures at UMCP, shares, "MII helps participants to go outside of their scientific or technology mind-set and develop a business mind-set. They go from discovery to determine all the problems their idea might solve to developing the product or software into a working prototype and creating a commercialization plan."

She adds, "It's hard to get early financing in Maryland. In Silicon Valley, anyone with an idea can be funded. Here, with MII funding, our researchers are able to get their product further along and begin generating interest from angel investors."

MII site miners work with participating universities to identify technologies that might be viable. Selected projects are assigned to entrepreneurs in residence who help researchers develop a commercialization plan and a pathway to market.

UMCP has a wide range of innovations, from machine learning and artificial intelligence (AI) to natural sciences and engineering.

Continued on next page

Tech transfer program's mission: Nurture tech-related businesses and retain "highly trained workforce" *Continued from page 25*

According to Porter, "We have a diverse pool of entrepreneurs and are able to tap into the potential of students no matter their discipline, including non-STEM disciplines. Recently, we had two researchers develop a way to use computer science to develop a tool to teach students how to play the violin and they are expanding to other instruments. If it weren't for MII, they might not have considered entrepreneurship."

UMCP's Dinesh Manocha, Ph.D., professor of computer science and electrical and computer engineering, recently completed a Phase I MII grant. His team determined the commercial viability of a socially compliant robot, one that could walk in crowds and navigate obstacles to complete a task such as delivering food to a passenger at an airport or deliver packages on a college campus.

According to Manocha, "MII is a great program that provides a lot of personalized support. I worked with a lot of people in the transfer office [UM Ventures] and at TEDCO – it's a fantastic ecosystem that helps faculty commercialize technology and stimulate tech transfer."

In 2012, University of Maryland tight end Matt Furstenburg approached the chemical engineering department to explore how they might help maintain the grip of the gloves he wore in games – often, the grip would wear off after a couple of practices. With the support of MII, following several years of research and iterative product development between football players and chemical engineers, the team created a gel players could squirt on the gloves to restore tackiness.

Srinivasa Raghavan, professor of chemical engineering at UMCP and part of the team that developed the gel, has extensive experience in commercialization and university tech transfer.

He shares, "MII is the best type of funding. There is an urgency required to achieve the milestones which encourages researchers to be more focused. The application process requires less time to complete, and the response is faster than other types of grants. It's perfect for a researcher like me who likes to invent new things beyond academic study and to translate technology into practical use."

Today, a group of students from the team lead the company, Grip Boost, with the gel and an assortment of gloves on the market and generating revenues.

"The venture creation resulting from MII is steadily adding high-paying tech jobs to the state's economy and is helping us to retain our highly trained workforce that are otherwise lost to surrounding regions and other parts of the country," states Santhanam.

McCoy shares that prior to 2011 there were researchers who registered LLCs and licensed technologies, but they rarely took a product to market and built a viable business.

MII encourages participating universities to collaborate with one another, to leverage areas of focus and to complement each other's strengths. When universities submit a joint MII application, they can qualify for more funding.

Christopher M. Jewell is the MPower professor and Minta Martin professor in the Fischell Department of Bioengineering. He recently completed his second collaborative project with Jonathan Bromberg, who's with the UMB surgery department, to develop synthetic immunotherapy scaffolds for long-term remission in Type 1 diabetes.

Santhanam shares, "Multiple universities working together and competing with one another leverages the expertise available in each of these schools and improves the quality of products developed. Universities are normally very siloed, but through MII we are knitting the ecosystem together."

Unlike other funding programs, MII offers an accelerated process which helps universities move more research out of the lab and into a viable commercial product at a faster rate. To date, MII has supported the creation of 144 companies and 298 jobs.

TEDCO, the Maryland Technology Development Corporation, enhances economic empowerment growth through the fostering of an inclusive entrepreneurial innovation ecosystem. TEDCO identifies, invests in and helps grow technology and life science-based companies in Maryland.

Source: Washington Business Journal

MEDIA HIGHLIGHTS

Baltimore Business Journal

- Maryland initiative contributes to the strong innovation culture at UMBC
- Johns Hopkins University partnership with the Maryland Innovation Initiative looks to eliminate risks mosquitoes bring
- Tech transfer program creates high-paying jobs, accelerates product development
- TEDCO initiative aims to advance technologies to the commercial market
- TEDCO has grown from startup to innovation hub since its founding 25 years ago.
- Maryland's innovation ecosystem thrives on collaboration

Technically
Better cities through technology

- After 25 years, here's a look at TEDCO's far-reaching influence on growing the Maryland ecosystem
- Meet the Maryland Innovators behind the states' best 2023 inventions.
- TEDCO's Maryland Innovation Initiative helps propel ideas from the lab to the marketplace

BioBuzz
be more connected

- Astek Diagnostics and Other Baltimore-based Medtechs are Developing Creative Diagnostic Solutions to Better Detect Disease, Including UTIs
- MII, HJF Formalize Partnership, Sowing the Seeds for Continued Life Science Innovation in Maryland
- TEDCO's Latest Investments Through the Maryland Innovation Initiative Include Portable Diagnostic, Computational Covalent Drug Discovery Technologies

Washington Business Journal

- TEDCO pop-ups center on entrepreneurs and community conversations
- Innovation advancement of military medicine enhanced through a historic partnership.
- Collaborative technology transfer program nurtures and funds research-based innovations

MARYLANDINNO

- The secret to TEDCO success? Stewardship
- TEDCO's Maryland Innovation Initiative launches local university entrepreneurs

COMMUNITY ENGAGEMENT

MII POP-UPS

MII Pop-up with Innovate Maryland's 2023 Inventor of the Year Awards at the University of Maryland, College Park

From left, Academy for Innovation and Entrepreneurship founder and UMD Interim Chief Innovation Officer Dean Chang; UM Ventures, College Park Director Ken Porter; Invention of the Year winner Assistant Professor Cheng Gong; and Vice President for Research Gregory F. Ball celebrate Tuesday at Innovate Maryland. *Photo by Mike Morgan*.

The 2023 awards for Invention of the Year were exciting, with these winners in their respective categories:

- **Overall/Physical Sciences Invention of the Year:** Eco-Friendly Composite-Based Water Harvesting System From Air. The inventors were A. James Clark School of Engineering researchers: mechanical engineering Professor Teng Li, postdoctoral researcher Bo Chen and former Ph.D. student Shuangshuang Jing.
- **Information Sciences Invention of the Year:** Programmable Creation of All-Natural Plastic Substitutes. Inventors were chemical and biochemical engineering Assistant Professor Po-Yen Chen, doctoral student Tianle Chen and Liangbing Hu, Herbert Rabin Distinguished Professor in materials science and engineering.
- **Life Sciences Invention of the Year:** Detection of Ovarian Cancer via the Spectral Fingerprinting of Quantum-Defect-Modified Carbon Nanotubes in Serum by Machine Learning. Inventors included YuHuang Wang, a professor of chemistry and biochemistry, Daniel Heller and Mijin Kim of Memorial Sloan-Kettering Cancer Center, Anand Jagota of Lehigh University and Ming Zheng of the National Institute of Standards and Technology.
- **Quantum Invention of the Year:** Low Noise Quantum Frequency Conversion Scheme for Trapped Ion Quantum Network. Inventors were Clark School researchers Uday Saha M.S. '21, Ph.D. '22 and Edo Waks, a professor of electrical and computer engineering with an appointment in the Institute for Research in Electronics and Applied Physics.

TEDCO: The Leading Edge at Innovate Maryland

Following the award ceremony, a *TEDCO: The Leading Edge* episode was hosted by Dr. Arti Santhanam. *TEDCO: The Leading Edge*, explores entrepreneurship and innovation throughout Maryland's ecosystem. The panel included guests Kenneth Porter, Director of UM Ventures, College Park; and Srinivasa Raghavan, Professor and Chair in the Department of Chemical and Biomolecular Engineering and a recipient of MII funding and support. The three discussed Srinivasa's entrepreneurial journey, the impact both UM Ventures and MII had on his success, and a few tips for other faculty looking to take the next steps with their research.

Meet the Maryland innovators behind the state's best 2023 inventions

Tammi Thomas / May 30, 2023

What do you get when you combine a networking happy hour for STEM researchers, an engaging expert panel discussion and a host of exciting STEM inventions? The answer is one exciting event: the Maryland Innovation Initiative's Pop-up at the University of Maryland, College Park (UMD) and Innovate Maryland: Invention of the Year Awards!

TEDCO and the Maryland Innovation Initiative (MII) were on hand to sponsor Innovate Maryland's Invention of the Year Awards, held at The Hall on the University of Maryland's College Park campus. Innovation was all around, encompassed by the various finalists and the Invention of the Year winner: a solar-powered system that uses all-natural, partly plant-based materials to extract drinkable water from the toughest environments.

Maryland is home to many talented researchers — in fact, it has the highest concentration of Ph.D.s of any state in the country, while also ranking #1 for its technology and science workforce. The MII recognizes the commercial possibilities coming out of the state's creative faculty and supports these innovators by serving as a catalyst to both spur exciting startup projects at Maryland's research universities and ignite an entrepreneurial mindset among faculty. Both of these elements were on display at the recent event.

MII's May Pop-up with UMD and Innovate Maryland

The Maryland General Assembly established the MII in 2012 to grow and accelerate promising technologies through venture creation at five major research institutions across the state. In addition to funding, MII provides valuable so-called site miner support at each university. These MII site miners help faculty researchers through the process of submitting a strong business-oriented application for funding.

"While these talented UMD researchers may think about their discoveries as something that could help a patient or end user, they aren't always thinking about the commercial value proposition of their discoveries," said Arti Santhanam, executive director of MII. "Working with the UMD team, MII helps them in stages; they start to understand their value proposition and use the language of business."

A natural convener, Santhanam is a proponent of events like pop-ups, which bring innovators together: "Our teams at MII and TEDCO don't wait for entrepreneurs to

find us — an essential part of our work includes creating opportunities for conversation and connection."

The event was clearly a priority for the flagship university, with UMD President Darryll Pines, Vice President for Research Gregory F. Ball, Interim Chief Innovation Officer Dean Chang and UMD mascot Testudo all on hand to celebrate the entrepreneurial community and MII's impact. Following their remarks, a TEDCO: The Leading Edge series discussion was hosted by Santhanam with guests Kenneth Porter, director of UM Ventures, College Park; and Srinivasa Raghavan, professor and chair in the Department of Chemical and Biomolecular Engineering and a recipient of MII funding and support.

The panelists shared key resources and information, highlighting the many innovations past and present coming out of UMD. They all emphasized MII's essential role in accelerating the innovations of talented UMD researchers into products with the potential to have a major impact. The gathered group noted the creativity of UMD researchers, while recognizing the challenges of moving from the lab to the marketplace. Raghavan shared that MII's support went beyond funding, citing both the advice and the quickness of MII responses when it came to getting answers.

"I got to where I am by luck and MII!" said the modest Raghavan. Add talent to that list: Last year, Raghavan and Ph.D. student Leah Borden won the 2022 UMD Invention of the Year Award in the Life Sciences category for their electro-adhered gel-patches technology, which offers "suture-free repair for surgery, cuts and wounds." With MII support and funding, this product is on a path to potentially changing the game of medicine and other industries.

More MII Pop-ups Coming!

The MII program is hosting a series of pop-ups in 2023, rotating among five academic research institutions in Maryland: Johns Hopkins University; Morgan State University; University of Maryland, Baltimore; University of Maryland, Baltimore County; and University of Maryland, College Park.

While attendees' experiences will vary, one thing is certain: They're sure to gain new connections, new information about Maryland's innovation ecosystem and hopefully a new energy from being in a room full of innovators and supporters.

Want to stay up to date on MII pop-ups and other Maryland entrepreneurial ecosystem news? Subscribe to our newsletter for the latest updates.

Source: Technical.ly

"MII funding and Site Miner guidance empower Maryland faculty to transform their discoveries into products, services, and startups that positively impact society, create jobs, attract investment, and benefit the economies of Maryland, the US, and the world."

– Kenneth Porter, *University of Maryland, College Park*

MII Pop-up with The Henry M. Jackson Foundation for the Advancement of Military Medicine

From Left to right: Back row: HJF President Joseph Caravalho Jr., M.D., M.G., U.S. Army, retired., TEDCO CEO Troy LeMaile-Stovall Front row: HJF Vice President for Research Administration and Innovation Management, Dr. La Shaun Berrien; MII Executive Director Dr. Arti Santhanam

The Henry M. Jackson Foundation for the Advancement of Military Medicine (HJF), and the local community at large came together to witness and celebrate the signing of the Memorandum of Understanding (MOU) by Maryland Innovation Initiative (MII) Executive Director Dr. Arti Santhanam and HJF Vice President for Research Administration and Innovation Management Dr. La Shaun Berrien.

Through this collaboration, the two organizations will work together to not only bring new medicines and technologies to the public, but also to members of the armed forces.

In the spirit of collaboration the pop-up event not only celebrated MII and HJF's official collaboration, but also the other players in the BioHealth Capital Region who are working tirelessly to not just ***build*** a life sciences ecosystem, but ***cultivate*** it.

Innovation advancement of military medicine enhanced through a historic partnership

Tammi Thomas / March 9, 2023

February 8 was a historic day for Maryland entrepreneurs looking to make a difference in the medical field. It marked an official start to a partnership between TEDCO's Maryland Innovation Initiative (MII) and The Henry M. Jackson Foundation for the Advancement of Military Medicine (HJF). Through the signing of a new Memorandum of Understanding (MOU), the two organizations will now be able to leverage each other's strengths to create a more advanced innovation ecosystem in Maryland.

Innovation advancement of military medicine enhanced through a historic partnership

continued from page 30

The event began at the HJF conference facility in Bethesda with a brief presentation explaining the purpose of the MOU and how both organizations would contribute to advancing medical innovations.

During this presentation, individuals heard from:

- MII executive director Arti Santhanam, Ph.D.
- HJF's vice president of research administration and innovation management La Shaun Berrien, Ph.D.
- LaunchPort's managing partner Bob Storey.
- UMD I-Corps' mid-Atlantic I-Corps hub director and Maryland innovation extension director Dan Kunitz.
- HJF president Joseph Caravalho Jr., M.D., M.G., U.S. Army, retired.
- TEDCO CEO Troy LeMaile-Stovall.
- HJF's director of technology transfer research administration and innovation management Linda Yaswen-Corkery, Ph.D.

After the presentation and signing, attendees were invited to learn more about the organizations HJF and MII supported, their journey and where they plan to go next. There were 11 exhibitors from HJF and MII:

- Astek Diagnostics.
- NextStep Robotics.
- BLOCKsynop.
- Galen Robotics.
- Early Charm Ventures.
- TEDCO's MII.
- Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO).
- Surgical Critical Care Initiative (SC2i).

- Emerging Infectious Diseases Branch (EIDB).
- MDC Studios.
- Center for Prostate Disease Research (CPDR).

"Fertile ground for innovation"

"MII is excited to work with HJF to create new innovations that can help advance medical solutions to serve our military sector as well as the public," said Santhanam. "The presence of both world-class research institutions as well as federal labs in the region make Maryland a fertile ground for innovation. With the signing of this MOU, we are making a commitment to leverage all that our region offers to accelerate technology commercialization and bring affordable equitable health care solutions to our citizens."

HJF and MII were established with the advancement of innovation in mind. HJF was authorized by Congress to focus on advancing military medical innovation, while MII was established to focus on transforming and fast-tracking the transitional path for innovations from qualified academic research labs to the commercial market through investments in entrepreneurship and venture creation. Working together, the two organizations will provide an innovation ecosystem in Maryland where private sector, educational sector and military sector research facilities can be intertwined, supporting each other throughout the research-to-market process.

"With this MOU in place between HJF and TEDCO's MII, we anticipate new ways to promote innovation within military medicine, potentially shortening the time to market for products that help both service members and civilians. The HJF TEDCO MII Pop-Up event garnered excitement from attendees across the region. We will build on that energy as we engage and explore next steps in expanding connections between the DoD medical research community and our local innovation ecosystem," said Berrien.

Source: Washington Business Journal

TEDCO's Arti Santhanam Recognized as a 2022 Inspiring Business Women Making a Difference

COLUMBIA, MD / October 17, 2022

TEDCO, Maryland's economic engine for technology companies, announced today that Dr. Arti Santhanam, a key member of the TEDCO leadership team, was named a "World's Inspiring Business Women Making a Difference, 2022." As part of that recognition, Dr. Santhanam was featured in a cover story in *World's Leaders* Magazine.

As the Executive Director of TEDCO's Maryland Innovation Initiative (MII), Dr. Santhanam plays an essential role supporting TEDCO's mission to enhance economic empowerment by fostering an inclusive and entrepreneurial innovation ecosystem. She leads the MII fund, which invests in commercialization and start-up science and tech companies that are spun out of five participating universities: Johns Hopkins University; Morgan State University; University of Maryland, Baltimore; University of Maryland, Baltimore County; University of Maryland, College Park. Established in 2012, MII has invested $47.5M that has resulted in 144 startups, $692M in follow-on funding and seven exits to date.

The *World's Leaders* Magazine profile notes that Dr. Santhanam brings the right combination of skills, knowledge and empathy to her role with MII. As a childhood cancer survivor who went on the earn a PhD in microbiology and molecular genetics, Santhanam had experience as both a scientist and a patient. She could see ground-breaking science and tech happening at institutions where they weren't thinking about getting it to market. At the same time, there were patients desperately hoping to access those discoveries for themselves or their families. Santhanam understood the power of the MII, which could help accelerate innovative solutions from bench to bedside.

"The Maryland Innovative Initiative greatly benefits from Dr. Santhanam's keen mind and entrepreneurial spirit. She understands the power of academic discovery and the life-changing possibilities that come with commercialization of those discoveries," said Troy LeMaile-Stovall, TEDCO CEO. "Arti Santhanam is truly a role model for innovators across the world and right here in Maryland, and her colleagues at TEDCO applaud her selection as a 2022 World's Inspiring Business Women Making a Difference."

"I appreciate the opportunity to share my story with World's Leaders Magazine and the support of the many people I work with through MII. Success does not occur without collaboration, a core value here at TEDCO and one I deeply value," said Santhanam. "I'm very proud of the collective work that we're doing together to build a diverse, vibrant tech-based entrepreneurial community that's consistently ranked in the top five in the United States."

"On behalf of the Maryland Innovative Initiative Board, we congratulate Dr. Santhanam on this well-deserved recognition," said Renee Winsky, MII board chair. "MII has thrived under her leadership, including supporting 144 start-ups with nearly $700 million in follow-on funding. Maryland's university-based innovators and our state ecosystem benefit from Dr. Santhanam's outstanding work and passion for the MII mission."

Dr. Santhanam's accomplishments extend beyond her leadership work at MII. In order to fund ground-breaking research to treat Stage 4 metastatic breast cancer, Dr. Santhanam founded the METAvivor research program while serving on the board of directors of the Annapolis-based non-profit advocacy organization, METAvivor Research and Support, Inc. METAvivor was chosen as one of the top patient-run research programs in Vice President Joe Biden's Cancer Moonshot Initiative and has so far been granted over $7.8M in research grants.

She also participates in Leadership Maryland '20, the Maryland Energy Innovation Program (MEI2) investment committee, the Maryland Governor's Life Science Advisory Board (LSAB), and the Women in Bio-Capital Region chapter.

Collaboration

Griffin St. Louis / July 21, 2022

With nearly two years in my role at TEDCO as Program Manager for the Maryland Innovation Initiative (MII) complete, I was encouraged to write about my experience as it relates to one of the organization's five core values: accountability, collaboration, integrity, respect, and stewardship. I was drawn to highlight collaboration as it's a crucial value on which I rely to support my colleagues, MII awardees and portfolio companies, and relevant stakeholders.

As a competitive swimmer, cross country runner, Boy Scout, and choir/theater kid, I have had the privilege of collaborating in many different settings. Whether the shared intent is achieving victory, organizing activities, creating flawless productions, or performing beautiful music, I have found that commitment to building a strong team dynamic is the cornerstone of collaboration. In my experience, a strong sense of collaboration within a team, troop, production, or choir is essential to achieving amazing things and making everyone feel that they have a place and value in a greater whole.

In a similar sense, TEDCO is an organization that operates as a combination of many different teams for the purpose of leading innovation to market. While MII funding has enabled the transition of many cutting-edge, university technologies from research projects to start-up companies, the success of the program is underscored in no small part by additional TEDCO resources available to awardees. As such, my team and I strive to collaborate with our colleagues who lead other TEDCO programs that provide funding, networking, pitching, proposal writing, and marketing opportunities to support aspiring Maryland entrepreneurs and innovators.

> **"Oftentimes, faculty have brilliant innovations and research that can support different areas of everyday life. It's an honor to be a part of the process, helping to bring innovations to market while supporting brilliant researchers and faculty in the process."**
>
> – Valery Gutierrez, *Administrative Coordinator, Maryland Innovation Initiative*

From experience and involvement with other teams, I believe working to understand and appreciate every member's role to be an important part of increasing the likelihood of successful outcomes. In particular, I find teams that value collaboration are able to communicate with more transparency, avoid duplicating efforts, and work more efficiently toward shared goals. In the context of MII, I work diligently to understand the processes and offerings of other TEDCO programs as well as the needs of our awardees so that I can facilitate more meaningful and time conscious interactions between parties. This practice has allowed many MII awardees to form stronger relationships with TEDCO that have resulted in start-ups created, investment dollars committed, SBIRs won, business executives hired, and visibility on exciting new ventures for the region!

> **"The Maryland Innovation Initiative is rooted in collaboration, economic development, and innovation. Through these efforts, we are proud to uplift researchers, support the growth of Maryland's innovation ecosystem, and provide more opportunities for high-paying jobs."**
>
> – Silvia Goncalves, *Assistant Manager, Maryland Innovation Initiative*

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SITE MINERS

Site Miners are individuals selected by the MII program to assist start-ups and faculty in the process of submitting a strong business-oriented application, focused on commercialization. These individuals work as liaisons between the applicant and the MII program, providing valuable input and feedback prior to submission of an MII application.

The MII program requires each applicant to engage with a Site Miner a minimum of two weeks prior to application submission. Involving a Site Miner early in the application process increases an applicant's odds of success.

Site Miners are the 'champions' for each application during the review process and are expected to present each application at the review committee meeting.


Graham Allaway, PhD


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Daniel Nadash


Robert (Bob) Storey


Bradford Young, PhD, MBA

"TEDCO is committed to supporting start-ups through each step of their early-stage process, and MII is an ideal representation of the kind of support and guidance these companies can leverage to jumpstart their innovative products."

– Mary Beth Tung, *Maryland Energy Administration*

REVIEWERS

MII reviewers are vetted, subject matter experts from within the Maryland technology commercialization ecosystem who serve the essential role of using their insight to qualify applications for program funding. Reviewers represent a diverse set of domain knowledge, business acumen, and life experience from which they are able to support the program.


Irfan Ali


Kevin Chang


Ernesto Chanona

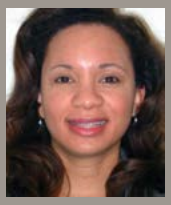

Greg Cooper


Olugbenga Erinle


Cyrus Etemad-Moghadam


Glenn Falcao


Steve Ferguson


Linda Folsom-Jackson


Caroline Hoedemaker


Dale Hu


Vivek Khera


Shree Koushik


Paul LaPorte


Matthew Miessau


Arti Patel Varanasi


Wendy Perrow


Nancy Riess


Nilay Shah


Gus Simiao


Brian Skutt


Ken Walz


Guy Wassertzug


Tuesday A. Williams


Joseph Zack

WHO WE ARE

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Griffin St. Louis, *MII Program Manager*

Silvia Goncalves, *MII Assistant Manager*

Valery Gutierrez, *MII Administrative Coordinator*

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Ira Schwartz, *General Counsel*

Tammi Thomas, *Chief Development & Marketing Officer*

Cassy Haber, *Associate Director, Marketing & Communications*

Rachael Kalinyak, *Content Development & Marketing Coordinator*

Mindy Lehman, *Chief Government Relations & Policy Officer*

Terry Rauh, *Chief Finance & Operations Officer*

Geyssel Gonzalez, *Controller*

Ann Pulley, *Assistant Controller*

“The MII program is an exemplar of how collaborative efforts can support and uplift Maryland’s economic development. By working with universities to promote the commercialization of research, MII provides researchers with an avenue to advance their research, support the general public, and create a community of innovation that extends into other universities working with MII.”

– Tammi Thomas, *Chief Development and Marketing Officer, TEDCO*

ABOUT TEDCO

TEDCO (Maryland Technology Development Corporation) was established in 1998 to facilitate the creation of businesses and support business growth throughout the State. Currently, TEDCO is the leading source of funding for early-stage, technology and life science-based businesses in Maryland. In this position, TEDCO supports the continued growth and diversification of entrepreneurial innovation throughout the state while also fostering technology transfer and commercialization from the State's universities and Federal labs. It is through this mission that the Maryland Innovation Initiative (MII) was born. Through the "Bench to Market" approach, and collaborative efforts MII was founded on, TEDCO is supporting efforts to lead innovation from research labs in universities across Maryland to the commercial market and contributing to a robust, diverse innovation ecosystem.

"The MII Program provides a great example of why those of us in the TEDCO unit of the Office of the Attorney General enjoy representing our clients. After all, MII's purpose – to help fund the commercialization of groundbreaking research conducted at Maryland's universities – has social utility, helping to better the lives of all Marylanders."

– Ira Schwartz, Esq., *General Counsel – TEDCO, Office of the Attorney General*

MARYLAND INNOVATION INITIATIVE

Our mission is to accelerate promising technologies with significant commercial potential to market.

www.TEDCOMD.com/MII

Produced by TEDCO's Development & Marketing Department
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