



TESTIMONY OF GEORGE M. DAVIS

Chief Executive Officer & Executive Director, Maryland Technology Development Corporation

House Appropriations Subcommittee
Education & Economic Development
Wednesday, February 20, 2019

Senate Budget & Taxation Subcommittee
Education, Business & Administration
Friday, February 22, 2019

Introductions

Chairperson, members of the Committee, thank you for the opportunity to appear before you to discuss TEDCO’s FY2020 budget request. I am joined by:

- Andy Jones, Chief Investment Officer
 - Stephen Auvil, Senior VP Technology Transfer and Commercialization
 - Angela Singleton, Co-Director of the Pre-Seed Builder Fund
- [House Panelists]
- Dr. Sashank Reddy, Founder LifeSprout, Inc. and surgeon at Johns Hopkins Medicine
 - Joseph Leiva, Founder Protrakr, Inc. dba TargetDocs
- [Senate Panelists]
- John Jolly, President and Chief Executive Officer, Syncurity Corporation
 - H. Taylor Walls, Founder, Game ChangeHER Enterprises, LLC dba FANzPLAY

I would like to thank Jason Kramer for his cooperation in working together over the last few months.

TEDCO was created by the Legislature in 1998 to assist in the transfer of research and technology from Maryland universities and federal laboratories into the commercial marketplace, assist in commercializing private sector research and generally assist early-stage and start-up business in the State.

TEDCO manages a number of programs, which it organizes into three main areas: Technology Transfer, Gateway Services, and Investments. I detail below a number of TEDCO’s accomplishments from the past year with data as of June 30, 2018. Before I explain those accomplishments, I want to address the Office of Legislative Audit’s recent audit report (the “Audit”).

OFFICE OF LEGISLATIVE AUDIT REPORT

We are grateful to the Department of Legislative Services and the Office of Legislative Audits for their work in reviewing our compliance. As I will explain further shortly, we quickly began adopting the recent audit recommendations – starting last year in fall of 2018 – once we received its findings. The Audit identified important issues, and we began to address them promptly.

Before I discuss the Audit findings in more detail, it is important to place the Audit and the budget analysis that incorporated it in proper context.

First, the Audit findings related to the Maryland Venture Fund, or MVF. The MVF contributes substantially to our state, but it is just one piece of TEDCO.

Through the Maryland Stem Cell Research Fund, TEDCO supports basic research, translational research, clinical studies, and technology commercialization in the key emerging area of stem cells.

The Maryland Innovation Initiative invests in promising university technologies and companies formed to commercialize those technologies.

TEDCO’s Minority Business Pre-seed Fund (now, the Pre-Seed Builder Fund), Seed Investment Funds, and MVF programs help provide the investments necessary to start, grow, and retain entrepreneurial, innovation-driven companies in Maryland. We created the Pre-Seed Funds specifically to invest in minority and disadvantaged entrepreneurs in our State.

Across the entire innovation process, TEDCO provides access to advisory and technical support services to support technology-led, economic development in the State.

Second, TEDCO’s programs have supported the development of a large, diverse, and growing portfolio of companies that supports the Maryland economy’s growth and diversification. According to an independent study by Teconomy Partners and the University of Baltimore Jacob France Institute (JFI),¹ our portfolio comprised of 289 companies with 1,934 Maryland jobs in 2018, not including the MVF, which TEDCO began managing in 2015. If you include the MVF, that number jumps to 326 companies with 3,108 jobs.

Third, TEDCO has delivered significant and growing economic benefits to Maryland. Again, according to the Teconomy report, “[w]hen multiplier effects are included, the five core TEDCO programs generated a total of \$1.6 billion in Maryland economic activity in 2018, supporting a total of 7,746 jobs earning \$600.1 million in labor income and generating estimated state and local government revenues of \$66.6 million.”

Fourth, TEDCO has delivered a strong return on Maryland’s investment. According to the Teconomy report, “[b]ased on the IMPLAN estimated 2018 combined state and local

¹ *The Economic and Fiscal Impacts of TEDCO’s Five Core Programs*, University of Baltimore Jacob France Institute and Teconomy Partners LLC, (2018).

government revenues of \$66.6 million, the JFI-Teconomy Partners team estimates the total Maryland state government portion to be \$37.6 million in 2018, an amount twice TEDCO's FY2018 state appropriation of \$18.5 million."

Regarding the Audit, the findings all relate to the MVF.

MVF's central mission is to create new economic development opportunities, jobs, and return on investment for Marylanders.

As soon as we heard of the preliminary findings starting in September 2018, we immediately began to take corrective action. We are confident that we are well on our way to fixing these issues and that they will not arise again. Specifically:

1. We have already drafted regulations for making direct equity investments through the MVF, and we expect them to be finalized and adopted in April 2019.
2. We have formed a committee of current TEDCO Board of Directors to serve on an Investment Committee. Members of this committee will continue to be subject to the conflict-of-interest and financial disclosure requirements of all TEDCO directors.
3. We are strengthening our finance function by hiring a Chief Financial Officer who will monitor management fees charged by venture firms and ensure the firms report the correct information to us about our investments on a quarterly basis.

Since the Audit's release, we have noted that its presentation has led to confusion and misunderstandings concerning the MVF's compliance and its track record. As CEO, I feel compelled to ensure TEDCO's and MVF's records are properly understood and, thus, to provide additional facts and context.

By way of reference, I would like to submit for the record a supplemental Audit response letter that TEDCO sent yesterday to the Office of Legislative Audit that provides a detailed narrative of these issues.

For today, I think it's important to simply offer four foundational, indisputable facts about TEDCO to this Committee:

1. TEDCO helps create Maryland jobs and economic growth;
2. MVF makes investments that benefit Maryland, and the team carefully due-diligences companies to ensure they will lead to Maryland job and economic growth;
3. Our prior advisory committee always acted properly; and
4. MVF properly supervises the venture funds that receive MVF investments.

Perhaps most importantly, the Audit suggested that the MVF invested in companies outside the state to generate a return rather than invest in Maryland to drive Maryland jobs and Maryland economic growth.

That is 100% wrong. The investments the Audit identified were all made to spur Maryland jobs and Maryland economic growth or to protect prior investments the MVF made to do the same. Again, please read our supplemental Audit response. The details are there.

Let me now turn to our accomplishments in the last year.

TECHNOLOGY TRANSFER PROGRAMS

TEDCO's technology transfer programs focus on the commercialization of technologies out of Maryland's academic and federal research institutions.

Maryland Stem Cell Research Fund

The Maryland Stem Cell Research Fund (MSCRF) was established by the Governor and the Maryland General Assembly during the 2006 legislative session. MSCRF's mission is to develop new medical strategies for the prevention, diagnosis, treatment and cure of human diseases, injuries and conditions through human stem cells, in our State.

All MSCRF applications are evaluated by a scientific peer review committee. Our independent oversight Commission evaluates the peer review rankings and then makes the funding decisions.

The MSCRF serves as a catalyst for new collaborations, building the scientific knowledge base and spurring the discovery of improved diagnostics, effective preventions, and long-awaited cures.

In January 2019, we launched a new MSCRF website with regenerative medicine news and information about our programs and awardees.

Maryland Innovation Initiative (MII)

The MII program was passed during the 2012 General Assembly session. The bill designated TEDCO to be the administrator of the MII.

The purpose of the MII is to promote and accelerate the rate of commercializing research conducted in the five Maryland research universities (Johns Hopkins University, Morgan State University, University of Maryland College Park, University of Maryland, Baltimore and University of Maryland Baltimore County). This includes encouraging qualifying universities to partner on commercialization proposals, strategies, and funding sources, including with federal laboratories located in Maryland, and facilitate technology transfer from university labs to start-

up companies. The goal is to create start-up companies that are based upon technologies developed in these universities.

- Applications received since inception-**595**
- Awards made since inception-**270**
- Total award distribution by school-JHU (**129**), UMCP (**49**), Morgan (**8**), UMB (**55**), UMBC (**29**)
- New companies created since inception-**77** (**41** from JHU technologies, **17** from UMCP technologies, **13** from UMB technologies, **5** from UMBC, **1** from MSU); of these **56** companies received an MII Phase III/Company Formation award.

Federal Lab Programs

TEDCO has Partnership Intermediary Agreements (PIAs), Memoranda of Understanding (MOUs), or similar agreements in place with the following federal laboratories:

- NASA Goddard Space Flight Center; provides access to *all* NASA labs
- National Institute of Standards and Technology
- National Institutes of Health
(Specific Partnership Intermediary Agreement with National Cancer Institute)
- National Security Agency
- Naval Air Warfare Center Patuxent River
- Naval Surface Warfare Center Indian Head Division
- Department of Energy
- Federal Laboratory Consortium
- TechLink
(Department of Defense and NASA technology transfer partner)

Under these agreements, TEDCO promotes cooperative activities between Federal labs and Maryland small business firms and educational institutions served by TEDCO. The services provided foster cooperative R&D and expand the transfer of technology between Federal labs, small businesses, and universities.

N-STEP Program

The National Institute of Standards and Technology (NIST) asked TEDCO to develop an entrepreneurial development and technology transfer program to train graduating post docs and other NIST employees nearing the end of their NIST employment to become entrepreneurs and start new companies utilizing the technologies they were working on while at NIST. This program combines entrepreneurial development activities with seed investments in start-up companies. To date, the N-STEP has provided assistance and funding to **6** Maryland small businesses. Three awards were to existing small businesses (less than five years old) and three awards generated new start-up companies.

GATEWAY SERVICES

TEDCO's Gateway Services provide support and resources to early-stage entrepreneurs in Maryland to help them grow their businesses or become more competitive for an investment.

Technology Business Incubators

Since introducing the "Maryland Technology Incubator Program" in 2001 as part of TEDCO's statutory requirements, successful programs have been created and investments have been made in the State's technology business incubators. Programs have included the Incubator Development Fund (capital incubator projects requiring a minimum 1:1 match), Feasibility Study Grants (to study potential new or expanded facilities; grants require a minimum 1:1 match), Business Assistance Grants (to provide incubator managers with discretionary funding to provide needed and direct assistance to tenant companies), and other grants and programs supporting the annual Incubator Company of the Year Awards and activities of the Maryland Business Incubation Association. The annual Incubator Company of the Year Awards has honored and recognized the superb efforts of the incubator managers and their staff, as well as the finalists and winners of these coveted awards. For twelve years running, hundreds of incubator companies have been deemed, by a committee of distinguished economic development and venture capital professionals, as the best in their respective categories.

In 2016, TEDCO was approached by the Naval Air Warfare Center (NAWC) Pax River to consider building a Business Incubator within 10 miles of the facility. The purpose of the incubator is to provide a local facility that can facilitate commercialization of Navy technologies. With TEDCO acting as the fiduciary responsible entity, a 6,000 sq. ft. facility was constructed, and the University of Maryland was selected to provide the management. In September 2018, TEDCO made the final distribution of Navy funding (\$2M) for the construction and three years of seed funding for a Southern Maryland Business Incubator located in St. Mary's County. This funding agreement with NAWC has been completed.

Advisory Services

Entrepreneurs are always looking for new capital, and TEDCO has a number of financial assistance and investment programs that can assist start-up companies. However often what an entrepreneur needs most at any given time is not more money but mentoring and counsel on how to use that investment. To that end, in 2015, TEDCO developed a suite of entrepreneurial development resources called, collectively, the Executive Exchange Program. This Program was expanded and relaunched on July 1, 2018 as the Advisory Services element of Gateway Services and now consists of three high-value resources.

Network Advisory Services

Entrepreneurs often need a quick check-up or help in prioritizing activities. These pro bono services are delivered in short engagements of up to 4 hours per company and typically consist of assessments, best practices and templates.

Gateway Advisory Services

Oftentimes an entrepreneur needs more intensive help in a specific area. These services are provided by paid consultants and are delivered in extended engagements of up to 30 hours per company. The engagement typically consists of the preparation of a specific deliverable.

Loaned Executive Services

When a start-up needs to supplement its team with expertise, a loaned executive can be the answer. These services are delivered in long engagements of up to 6 months per company and are intended to assist the company manage through a critical inflection point or challenge. The typical outcome is a repeatable process and a set of deliverables.

To date, TEDCO has provided Maryland's start-up companies with **26** Loaned Executives, **16** Gateway Executives, and over **75** Network Advisors.

In addition to relaunching Advisory Services, TEDCO continues to offer other entrepreneurial resources and has added an array of new assistive resources designed to increase the number of entrepreneurs positively impacted by TEDCO. These resources include the following.

- The new Prelude Pitch Sessions are designed to provide a “risk-free” opportunity for start-ups to introduce themselves to the TEDCO team and group of our Network Advisors. Entrepreneurs get experience answering high-quality questions, receive valuable pitch feedback, and benefit from the peer-to-peer interaction of seeing 4 other pitches. These sessions are offered monthly at the TEDCO office and, beginning in January 2019, are offered a 2nd time each month at a partner organization's facility.
- TEDCO now offers 8 themed executive roundtables that offer over 100 entrepreneurs each month the opportunity for peer-to-peer learning, shared problem solving, and high-quality networking, all with the assistance of a professional facilitator.
- The new Entrepreneur Orientation Forum was designed to assist very early stage entrepreneurs better understand the often complex process of attracting investment, strategic partners, key hires and customers. Beginning in January 2019, two such Forums have already been conducted with nearly 100 attendees – over 50% of attendees are solo entrepreneurs who have yet to affiliate themselves with any entrepreneur support organization.
- Recognizing the need for entrepreneur support resources that can be more easily consumed, TEDCO has greatly expanded its suite of online resources. The new TEDCO

website contains resources ranging from how to create an excellent pitch to how to find an intern to the production of a business model canvas to blog posts and advice from active investors and successful entrepreneurs.

- TEDCO began a collaboration with Maryland’s Department of Commerce to support their Maryland Defense Diversification Assistance program by agreeing to provide Executive Coaching assistance to up to five Maryland companies to facilitate diversification of their customer base.

mdPACE Program

TEDCO received a grant from the U.S. Department of Commerce to develop a program to increase the flow of the U.S. Food and Drug Administration (FDA)-cleared devices in Maryland. The program provides experienced executives, who have successfully navigated the FDA medical device commercialization process, to assist entrepreneurs to generate 510(k) cleared technology in 12-18 months instead of the typical 36-42 months needed by an inexperienced, unguided team. Program experts focus the teams on an early design freeze and on the specific, proven, design control-oriented requirements of the 510(k) submittal process. The nuances of these requirements are often apparent only after taking several medical devices through the process; they are certainly not readily apparent to an inexperienced team. To date, TEDCO has assisted 20 Maryland medical device start-ups with the FDA 510(k) process – this has already resulted in 2 clearances with 2 more expected by June 30, 2019.

Market Search Databases

A service that was part of the former BioMaryland Center was the availability of life science databases that entrepreneurs could use to do research on their markets. When this program was transferred to TEDCO, it was completely redesigned to 1) expand the variety of research by offering databases in non-life science industries as well as life sciences, and 2) establish more convenient locations for entrepreneurs to access these important services. There are three (3) locations for these databases in tech incubators in Baltimore City, Montgomery County, and Howard County at TEDCO’s office in Columbia.

In FY2018, there were a total of **436** logins into the system and **2,783** downloads by users. These downloaded reports and data, which are valued at **\$8,995,260** by the database providers, provide the market information needed by Maryland’s entrepreneurs to better assess their business opportunity and to develop competitive business plans.

Rural Business Innovation (RBI) Program

An important mission for TEDCO is to assist in the development of entrepreneurs throughout the State of Maryland. The RBI program is designed to enhance technology commercialization activities and provide technical and business assistance to small and early-stage technology companies in rural Maryland. Assistance to companies is provided by local business mentors

contracted by TEDCO. Each region has a local mentor, whose responsibility is to evaluate potential clients, provide resources, consulting services and technical management assistance. The cornerstone of this program has always been the technical and general business assistance that helps small businesses gain access to investment capital, general business resources, federal laboratory and university research opportunities. In addition to this technical and business advice, TEDCO funds projects (up to \$10,000) designed to better prepare rural Maryland's start-ups to compete for downstream investment and, beginning in FY18, makes Pre-seed investments of \$25,000 in certain of these start-ups for the same purpose (4 such investments were made in FY18 with more expected in FY19) TEDCO is committed to bringing the highest quality resources to rural Maryland and in FY19 – in collaboration with George Washington University – for the very first time brought the internationally recognized I-Corps customer discovery program to 11 rural Maryland start-ups via an innovative 100% virtual model.

Pre-Seed Builder Fund

TEDCO completed a learning tour and third-party market assessment in 2016, which concluded in a Diversity and Inclusion Report highlighting an opportunity to better support underrepresented communities. For example, the study shows that a pronounced wealth gap in the African American community limits access to “friends and family” investment, which is often required to make companies competitive for seed investments. Additionally, TEDCO became aware that underrepresented entrepreneurs have an elevated need for mentoring (61%) and staffing support (45%) compared to the total population.

A key report recommendation was to develop an earlier-stage “pre-seed” funding program to facilitate market entry for minority entrepreneurs. To enable continuous outreach with African American tech entrepreneurs, TEDCO used reserve funds and partnered with Harbor Bank of Maryland to urgently pilot the Minority Business Pre-Seed Fund (MBPF), which invested \$40,000 (\$20,000 provided by TEDCO and \$20,000 from Harbor Bank) in nine (9) companies led by African American entrepreneurs.

The pilot program mobilized funded companies, yet emphasized the need for more management team support to accelerate growth, consistent with the original report's findings. In its second year, beginning in FY2018, TEDCO expanded the program to include executive leadership support in the form of a contract C-Suite comprised of seasoned, exited entrepreneurs and executives sourced by TEDCO with general management, marketing, sales, financial, operations and data analytics expertise. This new program, coined the Builder Fund, further expanded the initiative to include entrepreneurs of all socially and/or economically disadvantaged backgrounds, including minorities, women, veterans, rural-based companies and any entrepreneur who convincingly makes the case that the company is socially or economically disadvantaged.

Interested companies complete an online application and submit an executive summary, which are used as an eligibility screen to ensure that the company is located in Maryland, the entrepreneur is socially or economically disadvantaged, the entrepreneur is working full-time on the company, the entrepreneur is open to pursuing a venture pathway under the guidance of

experienced executives and the business case is solid. The finalists are then invited to present their investment opportunity to a review committee consisting of TEDCO staff and outside reviewers, who score each company based on over 20 evaluation criteria.

- Applications received since inception for MBPF and Builder Fund, beginning April 2017 - **624**, averaging 104 applications per round (This includes applications received through February 1st, 2019.)
- Awards made since inception – **13** with **3** additional awards anticipated this fiscal year
- The award rate for these programs is only **2.6%**

The program has clearly tapped a sizeable, unmet need. In FY2019, TEDCO more than doubled its support of this pre-seed funding program (Builder Fund) to \$550K, up from \$205K in the pilot year (MBPF program). Yet the demand and need for these programs are well beyond TEDCO's reserve funds capacity to sustain and grow the program without dedicated investment from the State.

FY18 MBPF Awardees

- Elite Gaming Live LLC
- emagine! technologies, LLC
- Game ChangeHER Enterprises, LLC
- Implicit Solutions, LLC
- kweliTV, Inc.
- PyroDex LLC
- PYT Funds, Inc.
- Remodelmate, Inc.
- ScholarMe Co.

FY19 Builder Fund Awardees

- EduMD, LLC
- eMedicalSentry, LLC
- Game ChangeHER Enterprises, LLC
- Novel Microdevices LLC
- ProTrakr, Inc. dba TargetDocs

The legislative analyst asked TEDCO to comment on the change of focus from exclusively African American entrepreneurs in the MBPF program to company founders who are socially or economically disadvantaged. From the inception of the MBPF, which was run as a pilot program, it was TEDCO's intent to address the needs of entrepreneurs in many underserved communities. TEDCO broadened the scope of applicants beyond just African American entrepreneurs in the Builder Fund program for two reasons. First, it became unfeasible to develop multiple programs for various minority/underrepresented groups, e.g., Hispanic/Latino, women, veterans, etc. due to resource limitations. Second, the Attorney General's Office advised us that public programs which give preference to specified minority groups in the awarding

of public funds are unconstitutional under the Equal Protection Clause absent studies demonstrating both the need for remedial action benefitting that group and that other non-discriminatory remedies would be insufficient to remedy it. In summary, TEDCO is still serving African American technology entrepreneurs, so the creation of the Builder Fund is not a shift in focus; rather, it is a broadening of focus to support all entrepreneurs who are underrepresented in venture investments.

TEDCO INVESTMENT FUNDS

TEDCO manages nine different investment funds that all share an overlapping objective of encouraging job growth and creating a stronger technology ecosystem in Maryland. When the Maryland Venture Fund (MVF) was transferred from the Department of Business and Economic Development (DBED) to TEDCO on October 1, 2015 as a result of legislation passed during the 2015 General Assembly, the new team tasked with managing MVF had an opportunity to objectively evaluate the performance of the Fund against its stated goals above.

When this new team—consistent with the Augustine Commission’s recommendation that all State programs to assist early stage companies be aligned within TEDCO—was tasked with managing TEDCO’s Seed Funds (TEDCO Seed), it performed the same analysis on those funds. The most recent available iteration of this analysis is included below.

	TEDCO Seed ¹ before 8/14/2017 ²	TEDCO Seed ¹ after 8/14/2017 ³		Legacy MVF ⁴ before 10/1/2015 ⁵	Legacy MVF ⁴ after 10/1/2015 ⁶		MIOF I ⁷
<i>Economic Development Returns</i>							
No. Companies	145	31		89	22		8
Total Jobs in Maryland ⁸	551	203		865	538		478
Total Jobs ⁹	915	325		2,513	1,157		943
Avg. Maryland Jobs per Company	4	7		10	24		60
Pct. Jobs in Maryland	60%	62%		34%	46%		51%
Pct. in Business ¹⁰	74%	100%		61%	95%		100%
<i>Financial Returns</i>							
Invested Capital ¹¹	\$14,911,999	\$6,549,794		\$44,515,751	\$14,077,807		\$8,517,484
Realized Proceeds ¹²	\$1,157,143	\$544,518		\$13,448,767	\$4,226,224		\$2,331,858
Remaining Fair Market Value ¹³	\$2,135,104	\$6,011,959		\$16,538,392	\$11,750,914		\$7,814,645
Total Value ¹⁴	\$3,292,247	\$6,556,476		\$29,987,159	\$15,977,138		\$10,146,502
Total Gain / (Loss)	(\$11,619,752)	\$6,683		(\$14,528,592)	\$1,899,330		\$1,629,018
Multiple on Invested Capital ¹⁵	0.22x	1.00x		0.67x	1.13x		1.19x

*See additional footnotes below

This analysis revealed that while MVF under DBED and TEDCO Seed have historically increased the availability of early-stage capital in the region and supported the creation of new jobs in the State, both showed room for improvement across two critical metrics:

1. Economic Development

- a. **46% Maryland Jobs:** Since the transfer to TEDCO, MVF's companies have had a higher proportion of jobs in Maryland than when the fund was under DBED and had Maryland Venture Fund Authority oversight. Specifically, our portfolio companies have 46% of their jobs in Maryland as compared to the 34% under the prior scenario. We are conscious of our responsibility to the Maryland Tax Payer and take it very seriously.
- b. **Over \$25 million in Aggregate Payroll Growth in One Year:** As of 6/30/18 for the 8 companies in the MIOF I portfolio, aggregate payroll increased from \$56.2 million in FY17 to \$82 million in FY18, a net change of \$25.9 million. We expect this continued economic growth across TEDCO's investment platforms.
- c. **95% of MVF Companies in Business:** Since transferring to TEDCO on 10/1/2015, MVF has invested \$14 million in 22 companies with 95% of these companies still in business. In stark contrast, while MVF was under DBED, MVF had invested \$44.5 million into 89 companies. Only 61% of these companies currently remain in business.

100% of TEDCO Seed Companies in Business: There is a similar story for TEDCO Seed. Since 8/14/2017 when MVF assumed management of TEDCO Seed, \$6.5 million has been invested in 31 companies with 100% of companies still in business. Prior to 8/14/2017, \$14.9 million was invested in 145 companies and just 74% of these companies remain in business.

- d. **2.4x More Maryland Jobs Per MVF Company:** Since transferring to TEDCO, MVF investments support an average of 24 Maryland jobs per company, as compared to 10 jobs per company prior to the transfer.

1.8x More Maryland Jobs per TEDCO Seed Company: TEDCO Seed since 8/14/2017 supports an average of 7 Maryland jobs per company while TEDCO Seed investments pre-8/14/2017 support an average of 4 Maryland jobs per company.

- e. **High Job Growth Rate:** Not only have average number of Maryland jobs per company increased, but we have also invested in companies that are quickly growing in terms of total jobs and payroll, which cannot be said about the prior investments.

The three recent investments below—all made after MVF transferred over to TEDCO—are demonstrative of the kind of outsized impact that high-growth companies can have on the Maryland entrepreneurial ecosystem.

<i>High-Growth Companies</i>			
Company	Total Jobs⁹ FY 2017¹⁶	Total Jobs⁹ FY 2018¹⁶	Year-Over-Year Growth¹⁷
Personal Genome Diagnostics	149	239	60%
Xometry	90	147	63%
Aledade	153	192	25%
Total	392	578	47%

To further underscore the impact that high-growth companies are capable of having, it is worth noting that the impact of these three companies, alone, is comparable to the impact made in aggregate by 134 of the 145 companies that TEDCO Seed invested in before 8/14/17.

2. Returns: Higher Financial ROI

MVF

Since 10/1/2015, when MVF transferred to TEDCO, the results are net positive. The MVF portfolio is financially strong: its \$14 million in investments have gained almost \$1.9 million in value which represents a 1.13x multiple on invested capital.

Prior to 10/1/2015, when MVF was under DBED, MVF's \$44.5 million in investments lost \$14.5 million returning representing a 0.67x multiple on invested capital.

TEDCO Seed

Performance data for TEDCO Seed is even more contrasting. Since 8/14/2017, TEDCO Seed invested \$6.5 million and its value is \$6.6 million.

Prior to 8/14/2017, TEDCO Seed invested \$14.9 million and lost \$11.6 million leaving a remaining current value of \$2.1 million.

MIOF I

The performance of the Maryland Innovation Opportunity Fund I (MIOF I), has been strong even relative to private venture capital firms, with \$8.5 million invested yielding \$2.3 million in realizations and \$7.8 million in remaining value for a 1.19x multiple on invested capital. The Maryland State Pension and Retirement Systems is extremely pleased with these results

3. Success Stories: \$3 million of Profit in 21 Months and Maryland Jobs

At the programmatic level, TEDCO has an opportunity to materially increase its impact on the early-stage ecosystem by generating outsized economic development and financial returns that can be reinvested into the State.

This fiscal year alone, TEDCO realized investments in three companies that collectively generated more than \$5.6 million in returns and \$3 million of profit in a mere 21 months. \$1.8 million of that profit is eligible for direct re-investment in new early-stage companies with high-growth potential. This has a 1.5x multiplier effect on the \$3.5 million that TEDCO receives from the State each year to invest in companies. The remaining \$1.2 million of profit, realized by the MIOF I, supports TEDCO’s ability to capture additional capital for the State from institutional investors with fiduciary responsibilities to their stakeholders (e.g., the Maryland State Retirement and Pension System).

Company	Initial Investment Date	Realization Date	Investment	Realizations	Realized Gains
New Edge Labs, Inc.	5/1/17	1/31/18	\$ 300,000	\$ 561,822	\$ 261,822
StayNTouch, Inc.	6/2/17	9/19/18	\$ 2,100,000	\$ 4,506,542	\$ 2,406,542
Ataata, Inc.	12/4/17	7/10/18	\$ 199,999	\$ 544,518	\$ 344,519
Total			\$ 2,599,999	\$ 5,612,882	\$ 3,012,883

In addition, the eight MIOF I portfolio companies have hired a total of 943 employees, 478 of which are in Maryland. We have returned \$2.3 million to the Maryland State Retirement and Pension System and are at 47.0% Net IRR for MIOF I.

Footnotes

¹ TEDCO Seed refers to the Technology Commercialization Fund (TCF), Cyber Security Investment Fund (CIF), Life Science Investment Fund (LSIF), and the Gap Investment Fund (GAP).

² TEDCO Seed before 8/14/2017 refers to the portfolio of debt and equity securities associated with investments in 145 companies made between 2011, when TEDCO started making investments in addition to grants, and August 14, 2017, when the MVF team assumed responsibility for the Seed Funds (i.e., the TEDCO 2.0 restructuring date). This portfolio includes two investments made after 8/14/2017, but pre-committed to by the prior TEDCO Seed team.

³ TEDCO Seed after 8/14/2017 refers to the portfolio of debt and equity securities associated with investments in 31 companies approved by the new MVF team after August 14, 2017 (a TEDCO 2.0 initiative), but before October 8, 2018, when this analysis was last conducted.

⁴ Maryland Venture Fund (Legacy MVF) refers to the InvestMaryland Program and Enterprise Fund, including SSBCI.

⁵ Legacy MVF before 10/1/2015 refers to the portfolio of debt and equity securities associated with investments in 89 companies inherited on October 1, 2015 when MVF was transferred from the Maryland Department of Business and Economic Development (DBED) to the Maryland Technology Development Corporation (TEDCO). This portfolio includes three investments made after 10/1/2015, but pre-committed to by the DBED team

⁶ Legacy MVF after 10/1/2015 refers to the portfolio of debt and equity securities associated with investments in 22 companies approved by the new MVF team after October 1, 2015, but before October 8, 2018, when this analysis was last conducted.

⁷ MIOF I refers to the portfolio of debt and equity securities associated with investments in 8 companies made before October 8, 2018—when this analysis was last conducted—out of Maryland Innovation Opportunity Fund I, LLC, which is funded through \$26.5 million of commitments made by the Maryland State Retirement and Pension System and managed by the new MVF team.

⁸ Total jobs in Maryland refers to the total number of employees, as determined either by direct company inquiry or by a LinkedIn search filtered by geographic location (restricted to individuals listing Washington, DC or Baltimore, MD as profile location; for details, see [LinkedIn Geography Codes](#)). as of October 8, 2018, when this analysis was last conducted. TEDCO is currently working closely with the DLLR to receive access to a single-source-of-truth for our jobs data. If the company was successfully sold recently, jobs are determined at the time of sale.

⁹ Total jobs refers to the total number of employees, as determined either by direct company inquiry or by a LinkedIn search as of October 8, 2018, when this analysis was last conducted. TEDOC is currently working closely

with the DLLR to receive access to a single-source-of-truth for our jobs data. If the company was successfully sold recently, jobs are determined at the time of sale.

¹⁰ Percent of companies in business as of as of October 8, 2018—when this analysis was last conducted—where out of business is defined by a company that has completely ceased or indefinitely suspended business operations or sold (or sold substantially all of its assets) without meaningful economic development impact or financial returns to investors.

¹¹ Invested capital refers to the total cash investment disbursed to a company in return for debt or equity securities, as of October 8, 2018, when this analysis was last conducted.

¹² Realized proceeds refers to the cash received from the sale of equity or debt securities. Current as of the quarter ending September 30, 2018.

¹³ Remaining fair market value (FMV) as defined by TEDCO's valuation policy, as recommended by TEDCO, and as approved by independent third-party auditors, currently CliftonLarsonAllen. Current as of the quarter ending September 30, 2018 for all investments made prior to quarter end and held at cost (i.e., invested capital) for all investments made between September 30, 2018 and October 8, 2018.

¹⁴ Total value refers to the sum of realized proceeds and remaining fair market value for a given company or portfolio. Current as of the quarter ending September 30, 2018.

¹⁵ Multiple on invested capital refers to the quotient of total value and invested capital.

¹⁶ FY 2017 and 2018 jobs data taken from the Maryland Innovation Opportunity Fund I FY 2018 Annual Report, submitted by TEDCO to the Senate and House Chairs of the Joint Committee on Pensions, the Chair of the Senate Budget & Taxation Committee, and the Chair of the House Appropriations Committee on November 30, 2018.

¹⁷ Year over year growth refers to the rate of growth in total jobs between the end of 2016 and 2017.

OTHER ACTIVITIES

Entrepreneur Expo

In an attempt to promote and celebrate entrepreneurship in Maryland, TEDCO held its 8th Annual Maryland Entrepreneur Expo on October 30, 2018 (in conjunction with the Stem Cell Research Symposium) to bring together the greater Maryland Entrepreneurial Community. **This event attracted over 1,000 people** comprised of new and seasoned entrepreneurs, investors, students, legislators, service providers, inventors, academic and federal tech transfer officers and economic development professionals. Due to its success, TEDCO is planning to continue the Entrepreneur Expo, which is scheduled for October 29, 2019.

MANAGEMENT AND ADMINISTRATION

As you are aware, TEDCO is required by statute to seek an independent audit of its annual financial statements. **For the eighteenth (18th) consecutive year, TEDCO received an unqualified (clean) audited financial statement.**

Also, TEDCO completed its Department of Legislative Services Audit in 2018. **There were three findings in this report and are addressed severalty in this testimony**

I would like to thank members of this Subcommittee for their courtesy toward me and TEDCO, and for your steadfast support of our programs.

ISSUES RAISED BY LEGISLATIVE ANALYSTS & RECOMMENDED ACTIONS

1. Maryland Venture Fund Audit Reveals Significant Issues

TEDCO addressed these issues above in the Section entitled, “**OFFICE OF LEGISLATIVE AUDIT REPORT**”. Further details can be found in the attached Appendix.

2. Decline in Reserve Fund Revenue and Assistance

TEDCO has traditionally used its reserve funds to supplement State funds for certain programs, e.g., Technology Commercialization Fund, and to pilot new programs that target identified needs in the entrepreneurial ecosystem, e.g., Builder Fund. In the past two years, TEDCO has been aggressive in expanding current programs and piloting a number of new programs as part of its new Gateway Services initiative. These programs include various of its Advisory Services, Builder Fund program, Incubation Challenge, and continuing to support programs like the Technology Commercialization Fund. These efforts have depleted TEDCO’s reserve funds, but have demonstrated how TEDCO can better meet the needs of the entrepreneurial community in the state. For these reasons, TEDCO has requested additional support for the Builder Fund and additional operating expenses to cover the management of its new Gateway Services programs.

3. Change in focus for Pre-Seed Builder Fund

This is addressed in a paragraph included in the Section entitled, “Pre-Seed Builder Fund” under “GATEWAY SERVICES”.

4. Maryland Technology Infrastructure Fund

TEDCO supports SB0175/HB0235.

The Strategic Innovation Fund, now called the Maryland Technology Infrastructure Fund (MTIF) proposed by Excel Maryland is a much-needed, forward-looking, public-private platform for developing strategic initiatives and engaging multi-sector partners across industry, academia and the public sector.

It will address a key gap in Maryland’s current efforts to advance innovation-led development – the inability to pursue large-scale development opportunities on an ongoing strategic basis to ensure first mover advantage and to undertake transformative projects involving its multi-sector partners.

These MTIF investments are expected to bring forward significant improvements in Maryland’s overall innovation ecosystem capabilities that complement ongoing state innovation and workforce development efforts through significant new public-private partnerships. On a

project-by-project basis, the MTIF would generate significant leverage of non-state investments from industry, university and other sources. Typically, projects will have at least a \$2 non-state to \$1 state (2:1) leverage in co-investments or committed near-term follow-on funding from non-state sources. Over time, it is expected that the broad leverage reached across all public-private partnership projects supported will be substantially higher, reaching between 5:1 and 8:1 by Year Ten through direct co-investments, follow-on funding and measurable direct economic activity generated.

Looking to assess the potential job impacts of the proposed MTIF on the Bio-Health and Cyber-related industry sectors requires multiple methods to help bound the likely impacts:

- “Direct Accounting” Method that assess the “current world” outcomes from the state’s direct investment in projects and the significant leverage it would generate in private investment. This current world approach makes use of existing input-output models of Maryland’s economy to take a very narrowly considered measurement based on the magnitude of total investments unleashed by the MTIF’s projects without considering the broader innovation ecosystem improvements that might be achieved through those projects.
- “Goal-Setting” Method that considers Maryland’s current position in Bio-Health and Cyber-related sectors and what is a bold, but realistic aspiration in terms of Maryland’s competitive position from improving its position relative to other leading states.

Underpinning each of these methods is the independent, expert projections of future job growth developed by the U.S. Bureau of Labor Statistics (BLS) and Maryland’s corresponding office. To prepare these long-term employment projections, BLS has developed a very detailed methodology, which has been studied for its reliability. In brief, BLS uses the Macroeconomic Advisers econometric model of the U.S. economy to derive estimates of the components of Gross Domestic Product (GDP). These estimates are then disaggregated into commodity-level demand, which is then applied to an input-output model to derive output by industry. Next, industry-level employment is determined on the basis of projected industry output and expectations of productivity growth, which incorporates expected technological changes. At the state level, the Office of Workforce Information and Performance within the Maryland Department of Labor, Licensing and Regulation uses the same major economic assumptions the U.S. Bureau of Labor Statistics uses to develop national projections to set out a Maryland-specific forecast that reflects the state’s past and present industrial trends and mix.

5. Proposed Added Language to the Special Fund Appropriation

TEDCO understands the concerns of the legislative analysts about the seriousness of the findings of the legislative auditors. Moreover, TEDCO is committed to addressing these issues and has already taken steps to remedy the issues.

APPENDIX

Letter to Mr. Gregory A. Hook from Mr. George Davis dated February 18, 2019

February 18, 2019

Mr. Gregory A. Hook, CPA – Legislative Auditor
Department of Legislative Services
301 West Preston Street
Room 1202
Baltimore, Maryland 21201

Re: February 2019 Audit Report for the Maryland Technology Development Corporation

Dear Mr. Hook:

This letter responds to the final Audit Report (the “Audit”) dated February 2019 regarding the Maryland Technology Development Corporation (TEDCO) and follows up on additional issues we addressed in our initial letter to you dated February 4, 2019 (“the Initial Response”), which is attached.

We appreciate the care and cooperation of your staff during the course of the Audit. However, since the Audit’s release, we have noted confusion and misunderstanding about the compliance of the Maryland Venture Fund (“MVF”) and the Audit’s findings. This letter provides additional facts and context about the MVF findings that the Audit and the Initial Response omitted to ensure that the Department of Legislative Services (“DLS”) has a complete response from TEDCO and to inform DLS’s future work.

As we explain further below, it is important for DLS to understand four foundational facts about TEDCO:

- (1) TEDCO helps create Maryland jobs and growth;
- (2) MVF makes investments that benefit Maryland, carefully due-diligencing companies to ensure the companies will lead to Maryland job and economic growth;
- (3) MVF’s prior Advisory Committee always acted properly; and
- (4) MVF properly supervises the venture funds that receive MVF investments.

I. TEDCO HELPS CREATE MARYLAND JOBS AND GROWTH

At a high level, TEDCO provides investment and technical assistance to early-stage companies and entrepreneurs in Maryland and supports the State’s strong research capabilities. Through all of our activities, TEDCO’s mission is to enhance economic development and generate returns on investment for funds invested on the State’s behalf. TEDCO’s programs have supported the development of a large, diverse, and growing portfolio of companies that supports the Maryland economy’s growth and diversification, and MVF is one of a number of programs TEDCO administers. The Office of Attorney General signs off on each investment, including reviewing all legal documents and approving outbound wires of funds before closing an investment.

By any measure, TEDCO (including MVF) has delivered successful results both for the State and for people and companies within the State. For example:

- In 2018, not including the MVF (which TEDCO began managing in 2015), our portfolio comprised of 289 companies with 1,934 Maryland jobs. If you include MVF, that number jumps to 326 companies with 3,108 Maryland jobs²;
- “When multiplier effects are included, the five core TEDCO programs generated a total of \$1.6 billion in Maryland economic activity in 2018, supporting a total of 7,746 jobs earning \$600.1 million in labor income and generating estimated state and local government revenues of \$66.6 million”³;
- With more than \$100 million in assets under management, MVF is invested in 37 active Maryland companies, which have a direct Maryland employment of 1,181 workers and estimated revenues of \$330.7 million⁴; and
- “Including multiplier effects, [MVF portfolio company and supplier company operations] generate \$607.5 million in economic activity in Maryland, support 2,995 jobs earning \$231.1 million in labor income, and have an associated \$25 million in estimated state and local government revenues.”⁵

II. MVF MAKES INVESTMENTS THAT BENEFIT MARYLAND, CAREFULLY DUE-DILIGENCING COMPANIES TO ENSURE THE COMPANIES WILL LEAD TO MARYLAND JOB AND ECONOMIC GROWTH

As part of the first finding that MVF lacked regulations for MVF’s direct investments, the Audit tested 10 direct investments in seven MVF portfolio companies, and it concluded that, for six of these investments (related to four of the seven total companies), “each company’s principal place of business was not in Maryland at the time of the investment or did not remain in Maryland after the investment, as required.” (See Audit, p. 8).

² *The Economic and Fiscal Impacts of TEDCO’s Five Core Programs*, University of Baltimore Jacob France Institute and Teconomy Partners LLC, 1 (2018).

³ *Id.*

⁴ *Id.* at 11.

⁵ *Id.*

The presentation of this finding is misleading and omits critical facts and context about the four companies and the investments, starting with the fact that each of the companies contributes economically to the state, has some form of operations in the State, and, most importantly, has well-paid employees in the State or who reside in the State.

We identify each company below and provide facts and context to correct the record.

- (1) **Optoro**: The Audit presentation is misleading to the public, suggesting that the two identified investments were improper only because MVF knew the company was moving out of the State or had moved out of it. The record shows, however, that (a) these two investments were essential to protect both the State's equity and a Maryland payroll of 64 employees exceeding \$5 million annually, and (b) these two investments helped ensure that the State would get priority consideration from the company for expanding operations in Maryland, which is in the future plans of the company.
 - MVF, while under the Department of Commerce, first invested in Optoro in 2010, and the two investments the Audit identified were the fourth and fifth in this company, contrary to the incorrect impression left by the Audit.
 - Investments in 2010, 2011, 2012, and 2016 were made while the company's headquarters was still in the State.
- (2) **Homecare.com**: The Audit presentation is again misleading to the public, suggesting this investment was improper only because Homecare.com is headquartered in a neighboring state, while not providing additional supporting data relative to its positive impact on economic development in Maryland. For example, the Audit failed to note that Homecare.com (a) paid \$1.2 million in wages to 91 Maryland-based contractors in 2017 and \$1.5 million in 2018, and (b) committed to establishing a non-home-based sales office in Maryland and is currently doing so in Baltimore.
- (3) **Topbox**: Here too, the Audit presentation is misleading to the public about this investment's propriety and value to Maryland, solely focusing on Topbox's principal place of business. When MVF made the original investment in February 2016, it was to support a three-person business whose president/co-founder resided and worked in Maryland. While the company is adding employees in Missouri, the 2018 follow-on investment was essential to protect the State's original investment, and the president/co-founder continues to reside and operate the finance and administration functions in Maryland.
- (4) **Graybug**: The Audit faulted MVF solely because Graybug's principal place of business is outside Maryland. But, at the time of MVF's seventh and eighth follow-on investments in 2017 and 2018, Graybug had a payroll of 12 scientists in Baltimore with plans for future growth there. MVF, while under the Department of Commerce, first invested in Graybug in 2013 and made additional follow-on investments in 2015 and 2016 when the company's headquarters was still in Maryland. The research and development team continues to remain in Baltimore.

III. MVF'S PRIOR ADVISORY COMMITTEE (THE "AC") ALWAYS ACTED PROPERLY

The Audit identified that the AC did not have a conflict-of-interest policy. This was correct and, had MVF continued with the AC, we would have rectified this immediately. Regrettably, the Audit wrongly suggested that the AC's composition or practice was improper, noting that two of the three members were associated with venture capital firms that had received approximately \$21.3 million in funding through MVF.

The Audit, however, failed to include important facts that allay any concerns raised:

- The two venture firms had been awarded those allocations between 2012 and 2015 by the Department of Commerce, which was then advised by Altius Associates ("Altius"). The Department of Commerce and Altius selected the venture firm funds, determined specific investment amounts, and allocated the capital to the venture funds;
- The allocations to the investment funds were made in 2012 and 2015 -- before the fund that became known as MVF transferred to TEDCO;
- The three-member AC was formed in 2016, during the year after the allocations were made, with the approval of the Office of the Attorney General;
- No additional allocations have been made to those venture firms since 2015;
- AC members never had decision-making authority for allocations in either venture firms or direct investments in companies; and
- The management fees for each venture firm, which the Audit found were in line with the state law cap of 2.5 percent of the amount invested in each firm, were negotiated and approved by the Office of the Attorney General and executed by the Department of Commerce.

Moving forward, as previously reported in our Initial Response, TEDCO established in 2018 a new investment committee comprised of current TEDCO board directors to provide investment oversight of the MVF. The members will continue to file yearly financial disclosure and statements and will be subject to TEDCO policies regarding potential conflicts of interest.

IV. MVF PROPERLY SUPERVISES THE VENTURE FUNDS THAT RECEIVE MVF INVESTMENTS

The Audit suggests that MVF somehow acted improperly with respect to a venture firm that had received an allocation of \$10 million from MVF's predecessor fund in 2013 but that had not invested in any Maryland companies and had not invested the full amount. MVF has always acted appropriately with respect to this fund. For example:

- The investment terms in the legal documentation precluded MVF from taking any action until five years had elapsed from the date of the closing of the fund; and

- The waiting period ended on January 31, 2019, as we informed you in our Initial Response. Upon that date, MVF immediately began working with the Office of the Attorney General to evaluate options for legal action to address the shortfall.

I hope that you will update your Audit files with this supplemental response, which is aimed at correcting the record and providing clarification of the findings. As always, if you have any questions, please contact me at (410) 715-4163.

Sincerely,

George Davis