



**Board of Regents
Committee on Economic Development and Technology Commercialization**

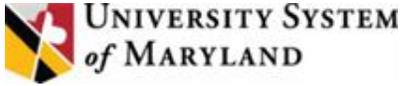
September 10, 2020

Virtual (public listen only access at 443-353-0686, Conference ID: 6656301)

Committee Members will be sent Zoom information

Public Session Agenda

- (1) **Featured Innovator Panel: Three USM COVID App Challenge Winners and IBM Industry Partner & Judge** – Gregory Okhuereigbe, Undergraduate at TU; Kirubel Tolosa Graduate Student at UMBC; Andrew Karam, Undergraduate at UMCP; and John Joaquin, Managing Executive, IBM (Information Item)
- (2) **Approval of Committee Charter** – Tom Sadowski, Vice Chancellor for Economic Development (Action Item)
- (3) **USM Office of Economic Development Update** – Tom Sadowski, Vice Chancellor for Economic Development and Lindsay Ryan, Venture Development Director (Information Item)
 - a. USM COVID Research & Innovation Task Force Updates
 - i. Tech Accelerator Program
 - ii. Maryland Pandemic Institute
 - b. Momentum Fund
 - i. Impact Summary
 - ii. Earlier Stage Gap Funding
 - c. Venture Development Report
 - d. USM Strategic Plan



BOARD OF REGENTS

SUMMARY OF ITEM FOR
INFORMATION

TOPIC: Featured Innovator Panel: COVID App Challenge Winners with Industry partner IBM

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: Thursday, September 10, 2020

SUMMARY: As an initiative of the USM COVID Research & Innovation Task Force, USM launch a USM COVID App Challenge. Participants were encouraged to design an app that could help bring Marylanders together to more effectively respond to COVID-19 and future pandemics. UMBC’s Alex. Brown Center supported cash prizes that were awarded to six winning teams, and IBM and AWS provided in-kind resources and also participated as judges. The six winning teams were selected:

- An-Tech; UMCP. Andrew Karam, undergraduate.
- ContactClassroom; Towson University; Jal Irani, lecturer.
- Corey: COVID Buddy; Towson University; Gregory Okhuereigbe, undergraduate.
- Follow-up; UMBC; Kirubel Tolosa, Pradeep Margasahayam Prakash, and Raghav Deivachilai, graduate students.
- Snuggrub; UMBC; Emily Sullivan and Dominic Crofoot, undergraduates.
- Team Breeze; University of Baltimore; Stephanie Parey, graduate student; Michael Vandi, undergraduate; Olubukola Akanbi, doctoral student; Charles Chase, undergraduate

Several winners will reflect on the experience and share their future plans: Gregory Okhuereigbe, Undergraduate at TU; Kirubel Tolosa Graduate Student at UMBC; Andrew Karam, Undergraduate at UMCP.

John Joaquin, Managing Executive at IBM, an App Challenge sponsor will reflect on the experience of partnering with the USM and support/engagement with winners going forward.

ALTERNATIVE(S): This item is for information purposes.

FISCAL IMPACT: There is no fiscal impact

CHANCELLOR’S RECOMMENDATION: n/a

COMMITTEE RECOMMENDATION:

DATE:

BOARD ACTION:

DATE:

SUBMITTED BY: Tom Sadowski (410) 576-5742

USM COVID App Challenge

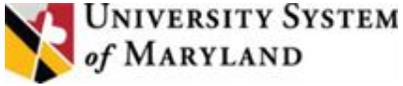
Winning Teams Presenting to EDTC

- **An-Tech; UMCP**
Andrew Karam, undergraduate. This application is a versatile software that utilizes an infrared external sensor to accurately pinpoint a person's facial structure from a distance to detect their overall temperature. The program is easily accessible and user-friendly.
- **Corey: COVID Buddy; Towson University**
Gregory Okhuereigbe, undergraduate. Corey: COVID Buddy is a powerful mobile "assistant" application that helps users conduct coronavirus self-assessments based on information from the Centers for Disease Control and Prevention (CDC), tracks symptom severity progression/regression, creates anxiety reduction strategies, and provides answers, personalized tips, and recommendations relating to COVID-19.
- **Follow-up; UMBC**
Kirubel Tolosa, Pradeep Margasahayam Prakash, and Raghav Deivachilai, graduate students. The application tracks the health condition of COVID-19 patients in isolation, informing them of the progress of their health condition and enabling medical providers to make categorical follow-up on patients.

USM COVID App Challenge

Other Winning Teams

- **ContactClassroom; Towson University**
Jal Irani, lecturer. ContactClassroom is a set-it-and-forget-it iOS application to aide in COVID-19 safety and transparency when returning to campus. It is designed for students, faculty, and staff to see a heatmap of campus traffic, risk ratings and occupancy of buildings, and to receive suggestions using machine learning for how to stay safe based on campus data. .
- **Snuggrub; UMBC**
Emily Sullivan and Dominic Crofoot, undergraduates. Snuggrub will search one's local area for COVID-related restaurant changes and instructions, offering a convenience to the user by assembling the information and eliminating the need to contact an individual dining establishment. With this app, a user can eat out and dine in safely by staying informed with real-time changes from one's favorite restaurant.
- **Team Breeze; University of Baltimore**
Stephanie Parey, graduate student; Michael Vandj, undergraduate; Olubukola Akanbi, doctoral student; Charles Chase, undergraduate. This application is a CIAT, or COVID-19 Information and Tracker. The application uses Bluetooth technology to track users' locations to limit the spread of COVID-19 and give them important information and updates regarding their specific location.



BOARD OF REGENTS

SUMMARY OF ITEM FOR
ACTION

TOPIC: Amendment to Committee Charter

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: Thursday, September 10, 2020

SUMMARY: The Economic Development and Technology Commercialization Committee charge was developed in late 2019. A re-formatted and slightly updated version is provided for approval.

ALTERNATIVE(S): This item is for information purposes.

FISCAL IMPACT: There is no fiscal impact

CHANCELLOR'S RECOMMENDATION: n/a

COMMITTEE RECOMMENDATION:

DATE:

BOARD ACTION:

DATE:

SUBMITTED BY: Tom Sadowski (410) 576-5742



Board of Regents
Committee on Economic Development and Technology Commercialization
September 10, 2020

Charge:

The Committee on Economic Development and Technology Commercialization shall provide strategic leadership for the USM's economic development and technology commercialization, innovation, and entrepreneurial initiatives.

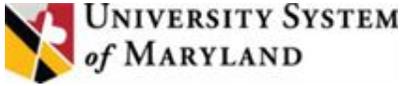
Role and Responsibilities:

The Committee on Economic Development and Technology Commercialization shall consider and report or recommend to the Board of Regents on matters concerning economic development and technology commercialization, innovation and entrepreneurial initiatives, and translational research and technology transfer.

Members of the Committee on Economic Development and Technology Commercialization are appointed annually by the Chairperson of the Board. The Committee shall meet as needed, but no fewer than four times during the fiscal year.

Created in July 2011 in recognition of the increasing importance of translational research, entrepreneurship and innovation, and the supply of skilled workers in STEM fields for the State of Maryland, the Committee, working with the Vice Chancellor for Economic Development, may expect to receive information for review in order to consider, and/or act on any of the following matters:

- A. Strengthening the USM entrepreneurial ecosystem
- B. Aligning resources with market demand
- C. Leveraging USM resources through collaborations
- D. Engaging the investment community and enhance access to capital for USM affiliated startups and innovators
- E. Enhancing partnerships with industry, state, and federal entities



BOARD OF REGENTS

SUMMARY OF ITEM FOR
INFORMATION

TOPIC: USM Office of Economic Development Update

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: Thursday, September 10, 2020

SUMMARY: Vice Chancellor Sadowski will provide an overview of the office’s guiding principles going forward, an update of the USM COVID Research & Innovation Task Force’s efforts including a tech acceleration program and USM pandemic research effort. Then, he will provide an update on the USM Maryland Momentum Fund’s impact and opportunities to support ventures at an earlier stage. Venture Development Director Lindsay Ryan will provide the most recent Venture Development Report. Finally, the most recent version of EDTC-related elements of the USM Strategic Plan under development will be presented by Vice Chancellor Sadowski and Ms. Ryan.

ALTERNATIVE(S): This item is for information purposes.

FISCAL IMPACT: There is no fiscal impact

CHANCELLOR’S RECOMMENDATION: n/a

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USM Economic Development

*Briefing for Regents Committee for Economic
Development Tech Commercialization*

September 10, 2020



USM Economic Development

Guiding Principles ...COVID and Beyond

- 1. Enhance USM Innovation Infrastructure in partnership with Industry and Federal Government**
- 2. Expand Venture Development Effort and associated ROI focusing on “Earlier- Stage” Pipeline**
- 3. Bolster Tech Transfer Efforts by setting new benchmarks and encouraging system-wide collaboration**

USM Economic Development *Agenda*

- COVID-19 Task Force Activity
- Momentum Fund Impact & Gap Funding Need
- Venture Development Report
- USM Strategic Plan

USM COVID Research & Innovation Task Force

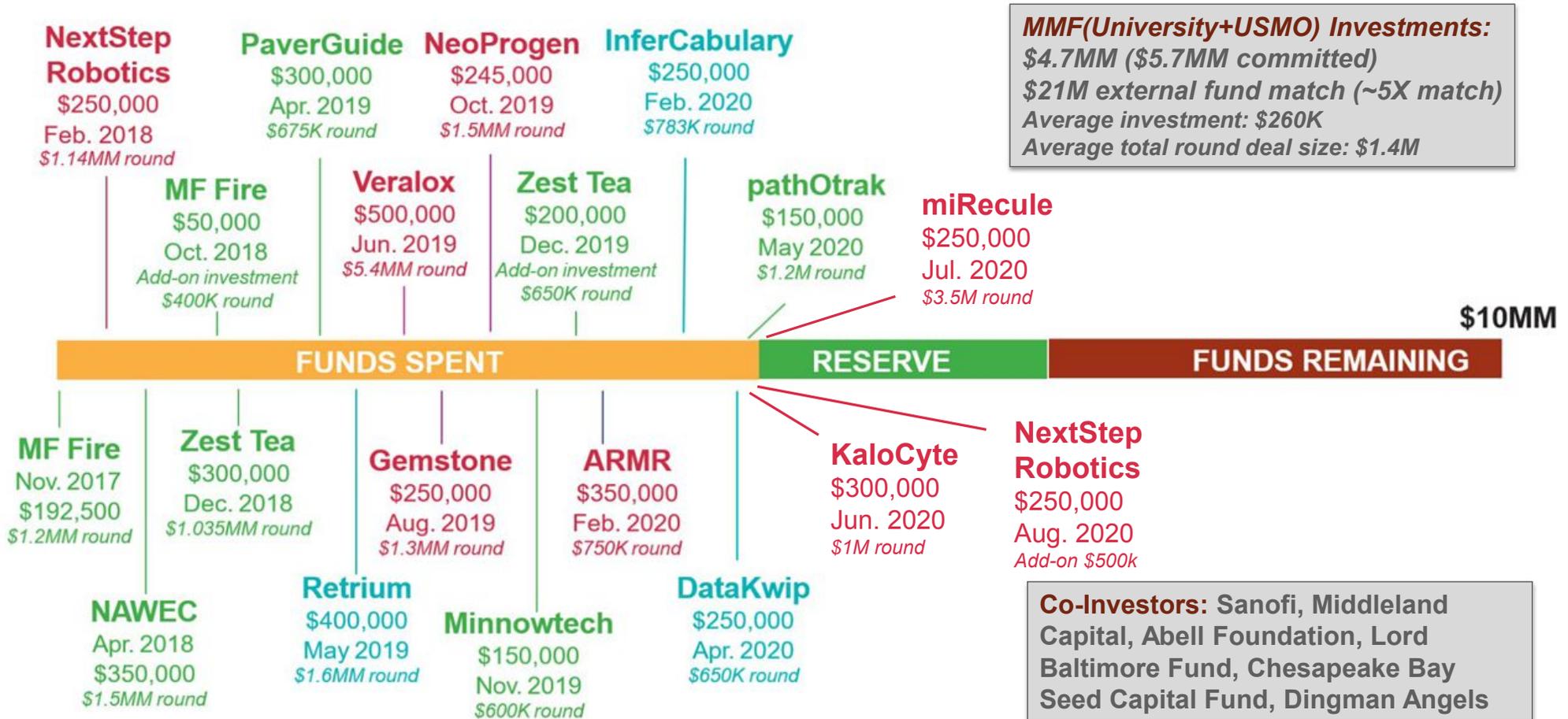
- **Acceleration Program**
 - Industry partner interest
 - Community partners outreach & engagement
 - USM startup & innovator identification

- **USM Comprehensive Pandemic Research Effort**
 - Business Impact & Economic Recovery
 - Medicine & Life Science
 - Societal Impact, Community Health & Engagement
 - Predicting & Tracking

USM Maryland Momentum Fund



Investments





UMCP IP and Alum
World's most advanced wood burning stove



UMB IP, Towson Alum
Exoskeleton robot to reverse foot drop for stroke victims.



UMCP IP, Alum
Advanced pulse jet engine



UMCP Alum
High caffeine tea, energy drink product



UMCP IP
Advanced semipermeable pavement system



UMCP Alum
Agile software development management product



UMBC and UMCP Alums
Tissue regeneration via stem cells



UMB IP and Alum
Anticoagulant drug, therapeutics for rare blood disorders



UMB IP and Faculty
Cell-based therapy for cardiovascular disease



UMCES Alum
Sonar to measure shrimp biomass



BioPark Tenant
Next-gen tourniquet



Towson Alum, TU Incubator startup
Ed-tech vocabulary app



UMCP Alum
Software platform to manage energy across buildings



UMCP IP and Faculty
Food safety testing technology



UMB/UMBC Faculty, BioPark
Dried artificial ref blood cell



UMCP Alum
Cancer therapeutics based on microRNA

USM Momentum Fund *Portfolio Companies*

USM Maryland Momentum Fund

Benefits

The USM Maryland Fund has generated numerous benefits for USM, the State, and the Maryland entrepreneurial ecosystem:

- **Enhanced Ecosystem Development.** Almost 140 companies have received advice and support from the Momentum Fund. The Fund engages the investment community and experts around companies; with input from 28 expert review panels, the external advisory board reviewed 21 companies for investment.
- **Enhanced Job Creation.** To date, Momentum Fund companies have created 66 jobs.
- **Co-Investment.** Far surpassing initial targets, the Fund has catalyzed investment at a rate of 5:1!

The Next Capital Gap and ROI Opportunity

Looking Earlier

- **“Pre-Momentum Fund”**
 - Over **40 companies** who approached the Momentum Fund in last year are still *too early* in their development to fit the MF investment criteria

- **“Outside of Momentum Fund”**: The Momentum Fund is only a good fit for certain companies.
 - USM assists more than 100 startups each year through programmatic and place-based resources, utilized more by woman-owned and minority-owned firms
 - While USM deploys non-dilutive and in-kind capital (about \$1.5M per year), equity investment, loans, or other types of capital are not widely available

The Next Gap and ROI Opportunity

Potential Benefits

If USM tackles earlier-stage capital gaps, return on investment potential is still large, though it would look different:

- **Enhanced Ecosystem Development.** 80% of startups remain in those communities where they receive significant mentorship and/or initial investment.
- **Enhanced Job Creation.** In terms of job creation for every dollar of capital invested, investing at an earlier stage provides even greater leverage, **creating a \$65k job for every \$30k invested/granted.** *(According to a survey of 119 active translational research, proof of concept, startup and venture gap funds and accelerator programs at 75 universities and affiliated organizations nationally.)*
- **Co-Investment and Potential Enhanced Momentum Fund Returns.** New sources of support can be tapped. Early, smaller investments can help inform future, larger investments.

USM Venture Development Report

January through June 2020



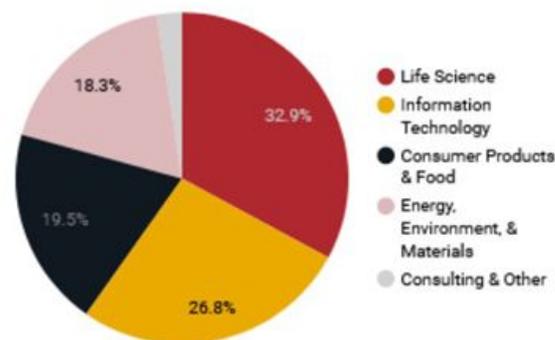
Support Provided by USM

	# Ventures Supported	# Ventures Supported for the First Time
Provided Capital	50	28
Mentored or Trained through a Program	35	19
Helped Hire Interns or Employees	3	1
Moved into a University Space	15	10

Characteristics of Ventures **NEW** to USM



By Industry



USM Venture Development Report

January through June 2020

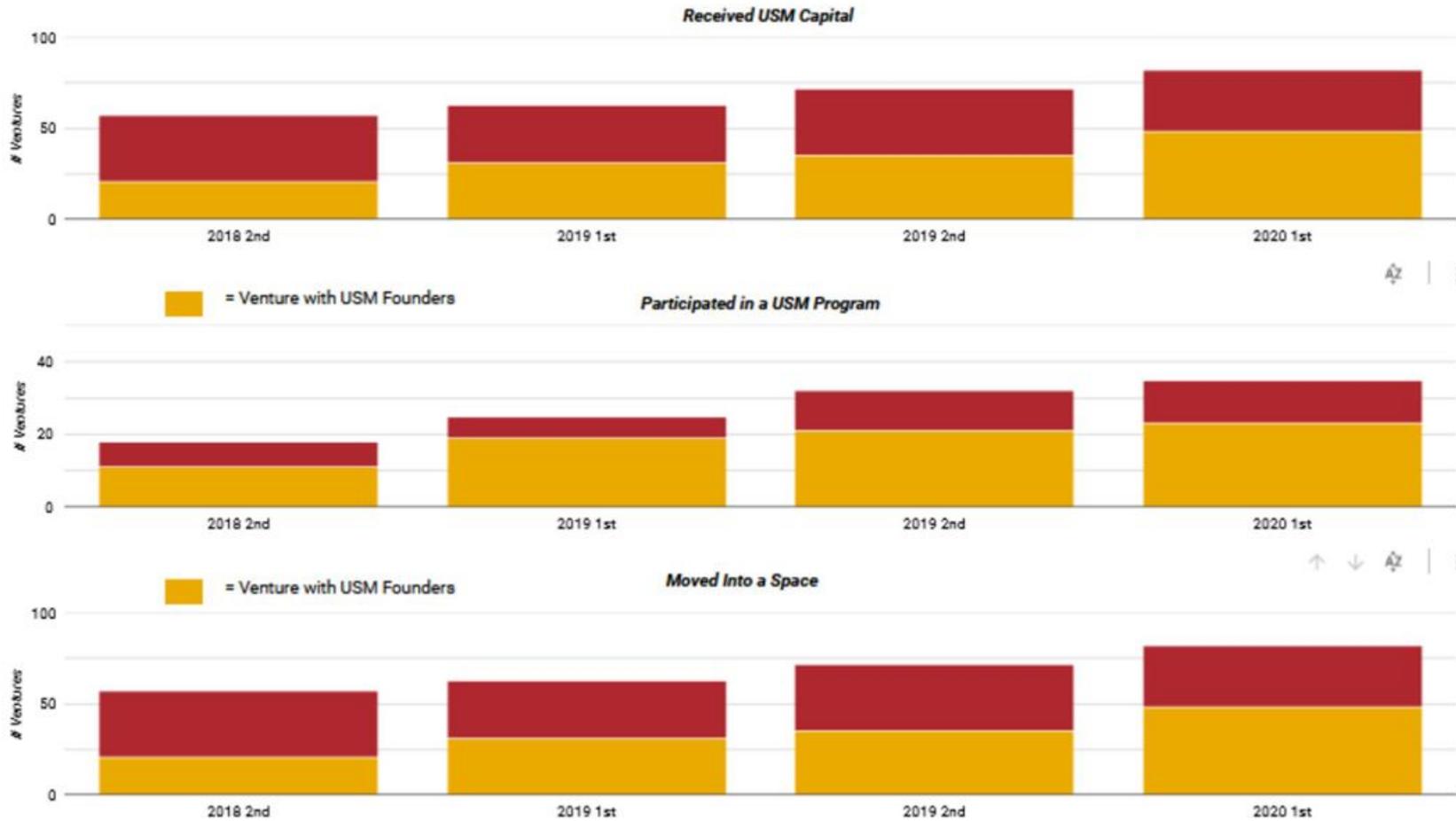
New to USM Examples

A sample of the ventures spinning out of USM or those supported for the first time:

- **CoordinatED.** This classroom application focuses on teacher feedback to help in terms of student accommodations (special needs, IEP, etc.). The just joined TU incubator as an affiliate.
- **HighT-Tech.** They provide disruptive materials science based technologies derived from the novel shock synthesis method. Their team is working on deploying materials with unique properties and unmatched performance for the chemical, energy, transportation, and environmental sectors. The founder, a UMCP faculty member, has received mentoring from UMCP and support from the TEDCO Maryland Innovation Initiative (MII) program.
- **Astek Diagnostics LLC.** Founded by a recent UMBC PhD graduate, this company Company is developing a clinical analyzer for assessing bacterial infections and determining effective antibiotic selection. They are licensing UMBC intellectual property and recently received support through the TEDCO Maryland Innovation Initiative (MII) program.

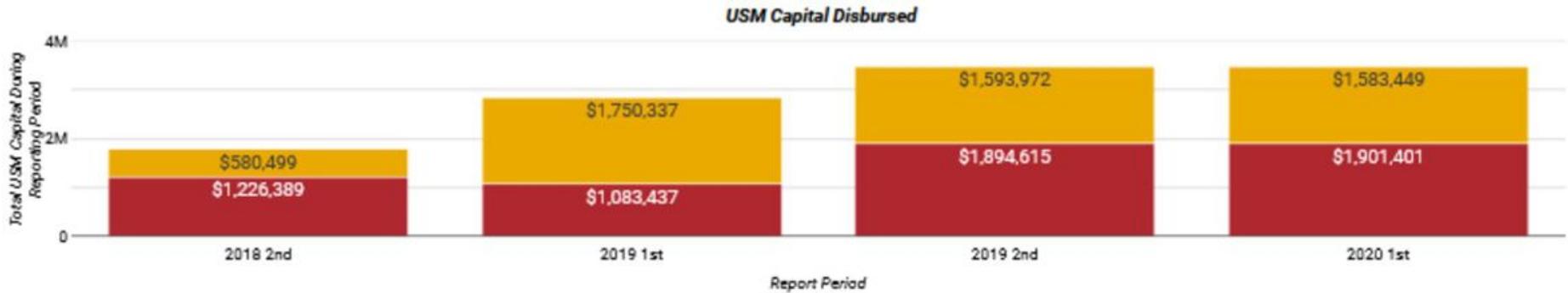
USM Venture Development Report

Longitudinal (1 of 2)



USM Venture Development Report

Longitudinal (2 of 2)



USM-Affiliated Small Business Development Centers

Unique new business start clients by hours of mentoring

	<20 Hours	20-39.5 Hours	40+ Hours	Total
1st Half 2020*	74	9	5	88
2nd Half 2019	77	10	5	92
1st Half 2019	97	16	3	116
2nd Half 2018	64	11	4	79

New USM Strategic Plan

Innovative Education and Workforce Development – Proposed

1. Train students in **degrees critical to Maryland’s economy**
 - Numerical goal TBD
2. Provide ways for students to gain **workforce-ready knowledge, skills, and abilities** within and outside of four-year degrees that can be effectively communicated to potential employers
 - Numerical goal TBD
3. Engage students and faculty in **experiential learning that supports local communities and local to global innovation communities**, including internships at startups and small businesses.
4. Engage students in **innovation and entrepreneurship (I&E)** in order to develop workplace-ready, innovative talent. Engage students and faculty in I&E curricular, extra- and co-curricular experiences,
 - Provide an opportunity for each first-year student to have an innovation & entrepreneurship experience

New USM Strategic Plan

Impactful Research and Scholarship - Proposed

1. Sustain and enhance the research enterprise.
 - Diversify funding portfolio via strategic partnerships (internally and externally).
 - Increase extramural funding from non-governmental sources.
 - Submit 500 joint USM research proposals through 2025.
2. Engage students and faculty in research and scholarship that supports local communities
3. License technologies to unleash their potential impact
 - License 100 technologies per year

New USM Strategic Plan

Venture Support - Proposed

1. Support student, faculty, employee ventures through capital, mentoring, talent, or physical space
 - Support 50 **USM-founded ventures** per year
2. Support community and alumni ventures through capital, mentoring, talent, or physical space
 - Support 60 **community ventures** (no USM founders or IP)
3. Support USM and non-USM startups and small business through purchasing power and access to pilots, customers



New USM Strategic Plan *Still to Be Explored*

- **Capacity** – Secure a certain amount yearly in non-institutional support for entrepreneurial support activities. This can include federal, philanthropic, and other sources.
- **Diversity, Equity, and Inclusion (DEI)** – USM broadly is considering DEI, and special committee has formed among USM Economic Development Partners to address this issue as it relates to innovation, entrepreneurship, technology transfer, workforce development, and more.