Board of Regents
Committee on Economic Development and Technology Commercialization

February 4, 2021
Virtual (public listen only access at 443-353-0686, Conference ID: 660 272 489)
Committee Members will be sent Zoom information

Public Session Agenda

(1) SU Shore Hatchery & Featured Entrepreneurs: Panel of Competition Winners – Christy Weer, Dean of the Perdue School of Business, and William Burke, Professor of Practice in Information and Decision Sciences and Executive Director for Economic Development, and the selected winners below (Information Item)
- Brett & Megan Hines – The Buzz Meadery
- Daniel Lunz – Capsulomics
- Matthew Cohen – SIMPLi
- Shantiyyah Hobby– CLUTCH by Tia Dash
- Cameron Kane – Valkyrie Software Solutions, LLC

(2) BSU Workforce Development and Industry Partnerships – Lethia Jackson, Professor Chairman, Department of Technology & Security, Bowie State University (Information Item)

(3) USM Office of Economic Development Update – Tom Sadowski, Vice Chancellor for Economic Development (Information Item)

  a. COVID-19 Task Force Activity
  b. Legislative Activity
  c. Venture Development Report
  d. Momentum Fund

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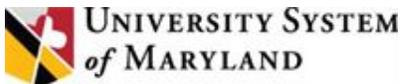
BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION
==INFORMATION== OR DISCUSSION

TOPIC: SU Shore Hatchery & Featured Entrepreneurs: Panel of Competition Winners

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: February 4, 2021

SUMMARY: The Philip E. and Carole R. Ratcliffe Foundation Shore Hatchery Program at Salisbury is a $2 million 10-year initiative to assist entrepreneurs and help them create new ventures and jobs in the community. Christy Weer, Dean of the Perdue School of Business, and William Burke, Professor of Practice in Information and Decision Sciences and Executive Director for Economic Development will share information about this initiative and its impact and present a panel of the following selected winners from the most recent business plan competition:

- Brett & Megan Hines – The Buzz Meadery
- Daniel Lunz – Capsulomics
- Matthew Cohen – SIMPLi
- Shantiyyah Hobby– CLUTCH by Tia Dash
- Cameron Kane – Valkyrie Software Solutions, LLC

More information about all of the recent winners can be found here:
https://www.salisbury.edu/news/article/2020-11-10-Fall-Ratcliffe-Foundation-Shore-Hatchery-Entrepreneurship-Competition-Winners-Announced.

More information about the initiative can be found here:
https://www.salisbury.edu/academic-offices/business/shore-hatchery/annual-report.aspx

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

Franklin P. Perdue School of Business
Salisbury University

Impacts 2020 – Shore Hatchery Annual Report

- 48 Businesses Actively Reporting
- 406 Jobs Created
- 21 Mentors Assigned
- From 2013-2020 Spring, 70 Businesses Awarded $1,397,000
- 60% of businesses identify as minority, female or veteran-owned
- In 2019, Shore Hatchery businesses generated $15,999,531 in revenue

Shore Hatchery – Selected Fall 2020 Winners

- Brett & Megan Hines – The Buzz Meadery
- Daniel Lunz – Capsulomics
- Matthew Cohen – SIMPLi
- Shantiyyah Hobby– CLUTCH by Tia Dash
- Cameron Kane – Valkyrie Software Solutions, LLC

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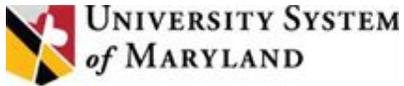
BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION
<mark>INFORMATION</mark> OR DISCUSSION

TOPIC: BSU Workforce Development and Industry Partnerships

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: February 4, 2021

SUMMARY: Lethia Jackson, Professor Chairman, Department of Technology & Security at Bowie State University, will discuss programming that partners with industry and to place students in technical internships.

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

Department of
Technology & Security

Computer Technology Program

Dr. Jesse Bemley | Dr. Lethia Jackson | Dr. Velma Latson
Professor Clarence Ray| Dr. Daryl Stone| Dr Haydar Teymourlouei

Accredited by the Accreditation Commission of Association Board for Engineering & Technology (ABET)

Accredited by the Center of Academic Excellence in Cyber Defense (CAE-CD) by NSA and DHS
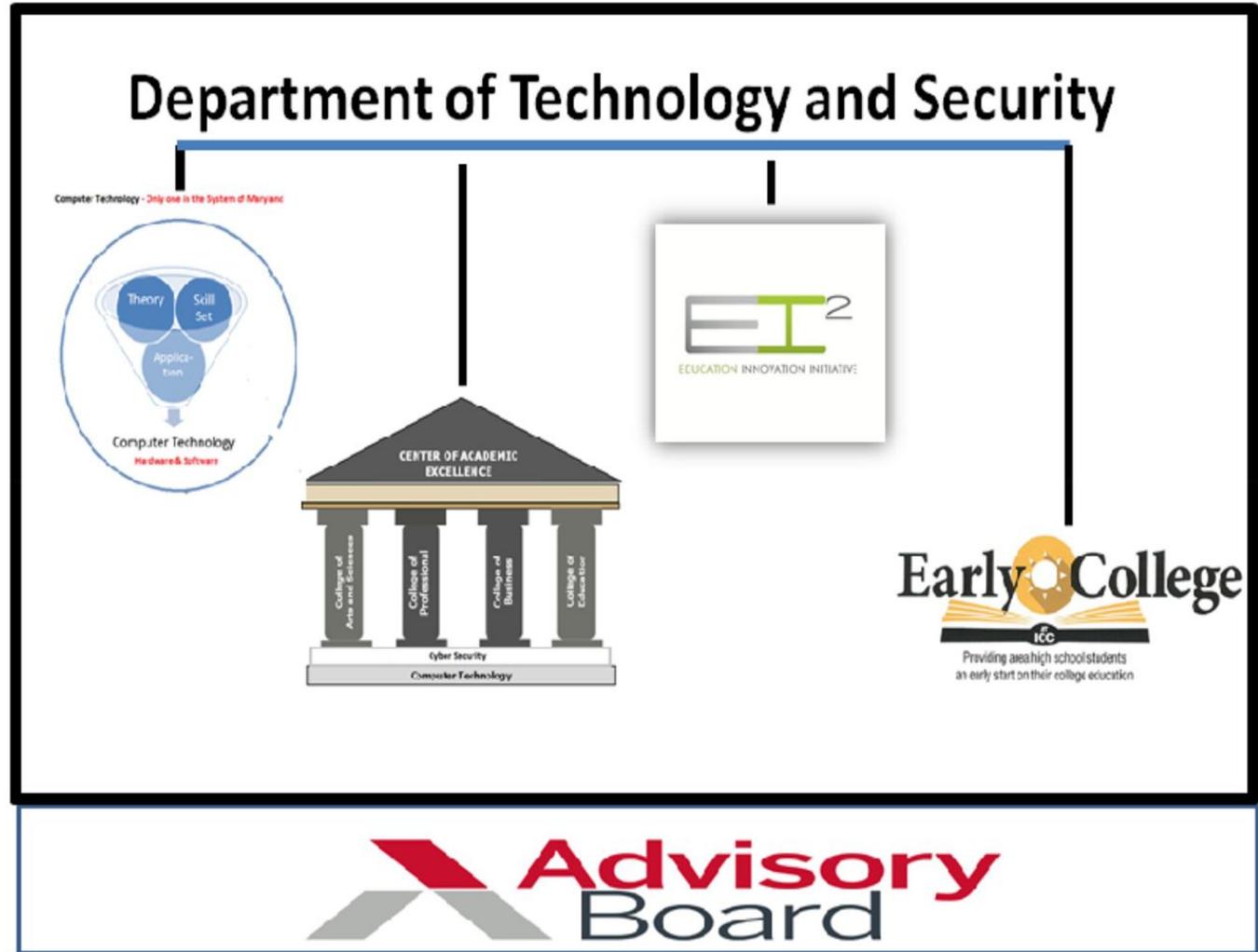
Advisory Board Partners

What is Computer Technology?

Information Technology

is telecommunications, trouble shooting problems with computers and creating as well as managing databases to ensure the security of business operations.

Information Systems

is the study of integrated components that make up the information systems such as networks of hardware and software to support an organization's decision making and business objectives.

Computer Science

is the study of computing, algorithms, mathematics, engineering, logic, artificial intelligence, software and hardware functionality, and development.

Engineering Technology

is a practical application of engineering and science.

Computer Engineering

is a scientific approach to build machines, computer Hardware and software and other items.

Computer Technology is...

Innovation, Information Technology, Information Systems, Business, Engineering Technology, Computer Science and Computer Engineering. It includes programming, networking, analog and digital electronics, and robotics.

Computer Technology Program's History

| Rochester Institute of Technology Began 1998 | → | First graduating class 2000 | → | Developed cybersecurity courses in 2010

$25 million grant from DOE | → | Formed new department 2018 Department of Technology & Security |

Technology Literacy Levels

Level 0

Level 1

Level 2

Goal - Level 3

Level 4

Level 5

What does Computer Technology program contain?

Education
- Curriculum
- Internships
- Workshops
- Presentations

Outreach
- Summer Camps
- Industry Engagement
- Professional Development

Research
- Hackathons
- Publications
- Prototypes

Innovation
- Patents
- Copyrights
- Entrepreneurship
- MakerSpace

Laboratory Experience
- Virtual
- Sandbox
- Battle (red hat/blue hat)
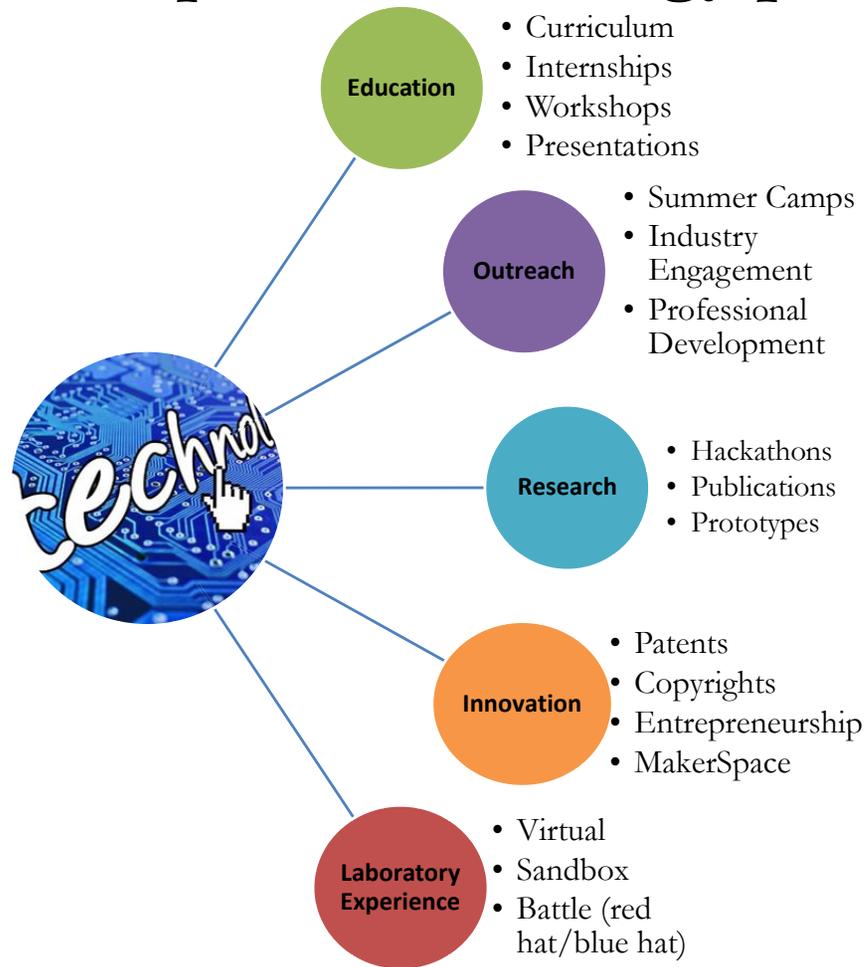
Core Courses

⇒ **Cybersecurity Courses**
⇒ **Programming**
⇒ **Data Science**
⇒ **Database**
⇒ **Client Operating Systems**

❖ **Software Developer**
Voted #1 Best Technology Job

❖ **IT Manager Solutions Architect**
Voted #2 Best Technology Job

❖ **Computer Network Architect**
Voted #7 Best Technology Job

❖ **Information Security Analyst**
Voted #5 Best Technology Job
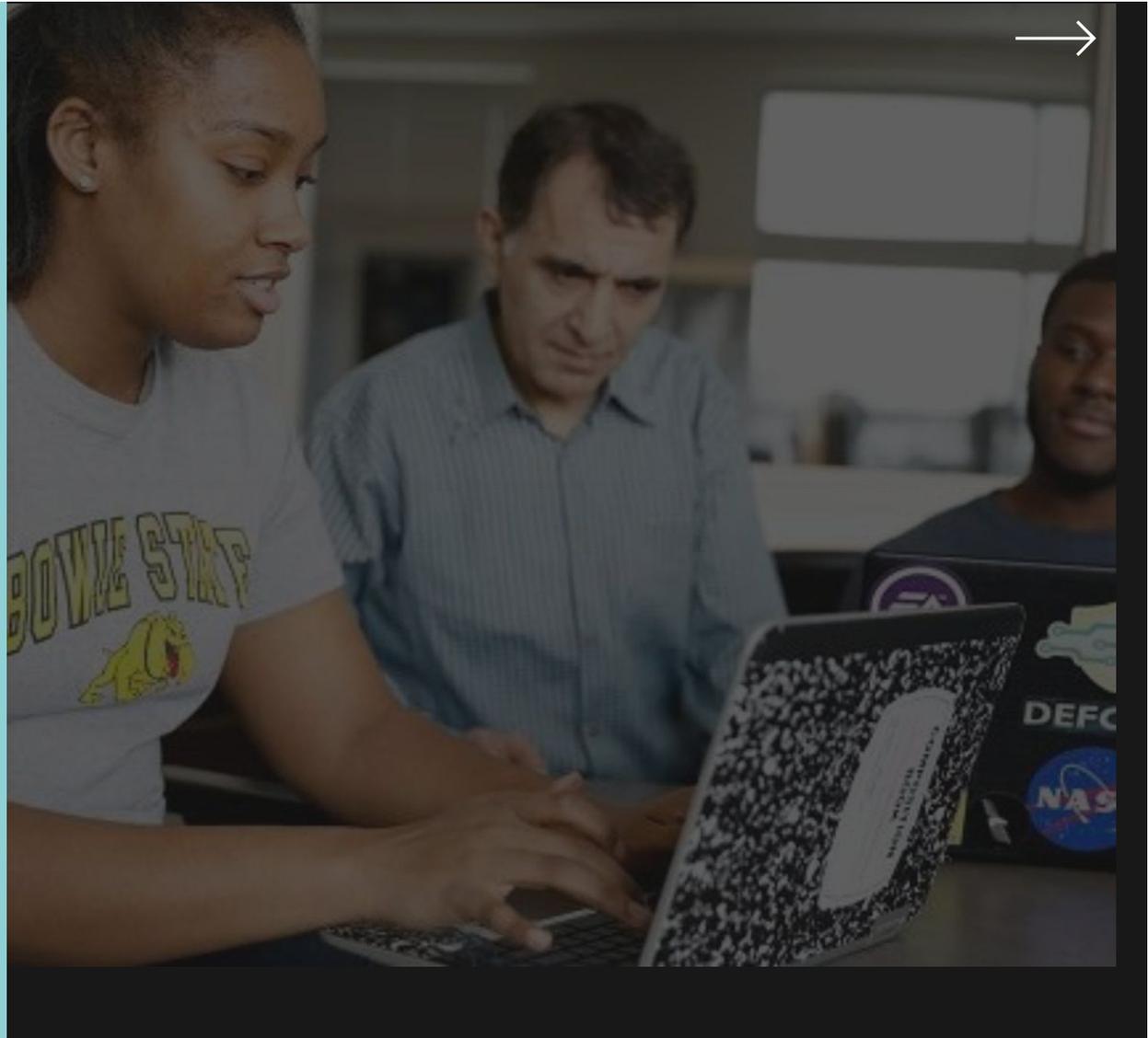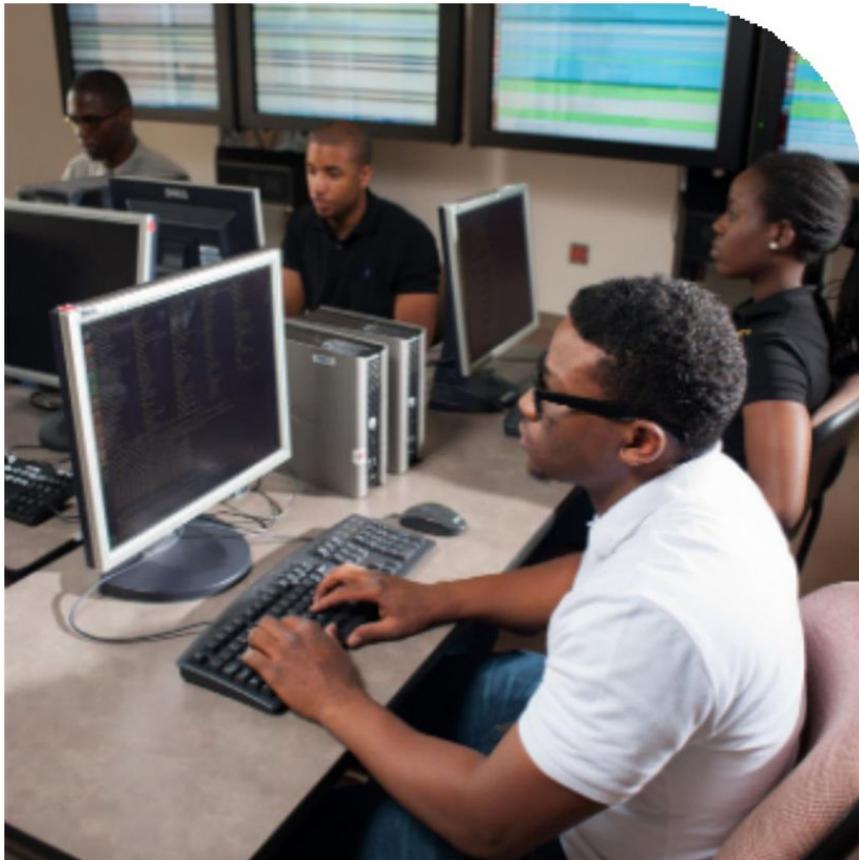
Tracks →
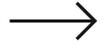
✓ **_Network Enterprise Infrastructure_** - Students will develop knowledge and skills in cloud computing, data management and infrastructure management. Is the hardware and software resources of an entire network that enable network connectivity, communication, operations and management of an enterprise network.

✓ **_Data Science and Database Administration_** - Students use technical skills to predict and describe trends to support decision-making. In addition, students will implement and design the architecture (logical and physical) structure of a Database Management System such as MySQL.

✓ **_Internet Technologies_** - Students will learn how to configure sensors, wireless network connections, edge-computing platforms, explain the role of big data, cloud computing in an IoT system. Prepares students to design, program, and develop skills in edge technology. Students will gain experiences they can employ in creating prototypes and systems using the Internet of Things.

Industry Engagement and Outreach

Industry Driven Capstone Courses

Prototype innovation and implementation offered in (5) Capstone courses. Past Performance by MITRE, Prince George's County IT Department, AWS, SAIC, Maryland Center at Bowie, Stinger-Ghaffarian Technology, Honeywell, and Northrop Grumman.

Industry Driven Research

Partnership with Department of Homeland Security, Morgridge Institute for Research, University of Wisconsin-Madison's Middleware Security & Testing Group, and National Center of Supercomputing Applications Cybersecurity at the University of Illinois at Urbana Champaign. Indiana University's Pervasive Technology Institute –**_Software Assurance Marketplace (SWAMP)_** .

Summer Programs/ Internships/Co-Op

Department of Technology & Security offers six (6) workshops/summer programs: BATTLE, Girls Who Will, Boys CPU Camp, Baltimore Design and Think Summer Capstone, Bowie Innovation to Create, Patriots, and Code Red.

Hackathons and MakerSpace

NVCC Innovation Hackathon

IBM Blue Hack

Black Enterprise Hackathon – BE Smart

HBCU Maker and Innovations Showcase

Bot-A-Thon – sponsored by HP and AWS

Governor Hogan Girls Hackathon

CAE Codebreaker Challenge

PGCIT dept. – Barracuda Challenge

Airport Cooperative Research Program Competition

Key Numbers

2017 – 2018 Number of students enrolled 262 Number of students graduated 37 and received CAE-CD certification			
Number of Transfer students	22	Graduated in 3 yrs or less	54%
Number of First Time Students	15	Graduated in 4 yrs or less	53%

2018 – 2019 Number of students enrolled 311 Number of students graduated 47 and received CAE-CD certification			
Number of Transfer students	26	Graduated in 3 yrs or less	53%
Number of First Time Students	21	Graduated in 4 yrs or less	52%

2019 – 2020 Number of students enrolled 350 Number of students graduated 47 and received CAE-CD certification			
Number of Transfer students	24	Graduated in 3 yrs or less	75%
Number of First Time Students	23	Graduated in 4 yrs or less	69%

Questions ??

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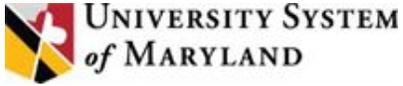
BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION
==INFORMATION== OR DISCUSSION

TOPIC: USM Office of Economic Development Update

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: Thursday February 4, 2021

SUMMARY: Vice Chancellor Sadowski will provide an update of the USM COVID Research & Innovation Task Force and discuss relevant state legislative activity. Lindsay Ryan, Venture Development Director, will present the Venture Development Report. Claire Broido Johnson, Managing Director of the USM Maryland Momentum Fund, will present an update on the Fund.

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 Economic Development

Briefing for USM Economic Development and Technology Commercialization Committee

February 4, 2021

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USM Economic Development
Agenda

- **COVID-19 Task Force Activity**

- **Legislative Activity**

- **Venture Development Report**

- **Momentum Fund**

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USM COVID Research & Innovation Task Force
Ongoing and Forward Initiatives

- **Public Health Communications Challenge**: Challenge prize competition aimed at encouraging Marylanders experiencing "COVID fatigue" to remain vigilant, maintain sound public health practices and good hygiene, and when available, to get vaccinated.

  Winners announced February 8th!

- **Research & Innovation, Acceleration**: As the pandemic continues, researchers continue to provide assistance. Support continues for COVID-related entrepreneurs.

Governor Larry Hogan
@GovLarryHogan

Wonderful news for Maryland veterans: Charlotte Hall Veterans Home has received a specialized PPE sterilization "Hot Box" unit that was custom-built by Southern Maryland entrepreneurs and manufacturers and donated by @SMCHD_gov. #MarylandUnites

SOMD Loves You and Maryland Veterans

7:01 PM · Jan 27, 2021 · Twitter Web App

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University System of MARYLAND

USM COVID Research & Innovation Task Force
Ongoing and Forward Initiatives

- **Bioproduction and Vaccine Development Strategy:** Working with the Governor's Life Science Advisory Board (LSAB), MD Commerce and MD Tech Council on comprehensive strategy to develop MD's bio-manufacturing, vaccine development, medical supply chain and related workforce capacity; exploring federal funding and industry partnership opportunities.

- **Connected DMV Pandemic Center Response Initiative Partnership:** USM is lead academic partner in regional strategic planning and federal funding pursuit effort.

- **Long-Term Strategy Workshop:** Two-part workshop led by USM experts on solutions to current and future pandemic challenges.
  - Pandemic Predicting & Tracking
  - Business & Economics
  - Medicine & Life Sciences
  - Community Engagement

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USM Legislative Update
Direct USM Impact

- **RISE Zones: [TBA]** Clarify intention - incent the location of start-ups based on tech transfer and commercialization at research-institutions.

- **TEDCO:** SB0639 Inclusion Fund; **[TBA]** Enhanced MII support

- **Western MD/TEDCO:** SB0709 Pilot tech infrastructure program

- **MTIP:** HB0307 Lower GPA requirement; include non-profits

- **Clean Energy**: HB0419 (SB0460) Adding funding for Maryland Energy Innovation Institute

- **SBDC:** [2020 veto override SB0493] Adding funding

- **E-Novation:** [2020 veto override SB0465] Extension, adjustments

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USM Legislative Update
Indirect USM Impact - Economic Development

- **Department of Small Business, Entrepreneurship, and Innovation:** HB0062 Establishes this new department, using parts of MD Commerce and MD Labor and all of the Governor's Office of Small, Minority, and Women Business Affairs.

- **Manufacturing:** HB0443/SB0577 Makerspace bill incl. Western Maryland Works and Baltimore's OpenWorks. SB0444/HB0658 Manufacturing in a Digital Economy

- **Investment Tax Credits:**
  - SB0019 Biotech. Lowers % back to investor; limits how much any one company can benefit in a given year and over time.
  - SB0160 Cyber. Expands to "innovation" across certain industries (except biotech), determined by the Maryland Economic Development Commission after consulting with DOL. Allows three years of participation, up from one. Extends until 2025.
  - HB0360/SB0246. Angel tax credit.

- **Other Tax Credit Modifications:** SB0196 R&D credit; HB0278 job creation

- **SBIR:** HB0654 incentive proposed; SB0459 assistance bill modification

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Venture Development Report *July - December 2020*

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Total Ventures Supported	112	Ventures New to USM	77	USM Ventures Supported in a New Way	35

Ventures NEW to USM

49	Have USM Founders	(64)%
25	Based on USM Intellectual Property	(18)%

New! 88% Startups (vs small business)

By Industry

- Life Science — 33%
- Consumer & Food — 25.9%
- Information Technology — 21.4%
- Consulting & Other — 10.7%
- Sustainability & Agriculture — 8.9%
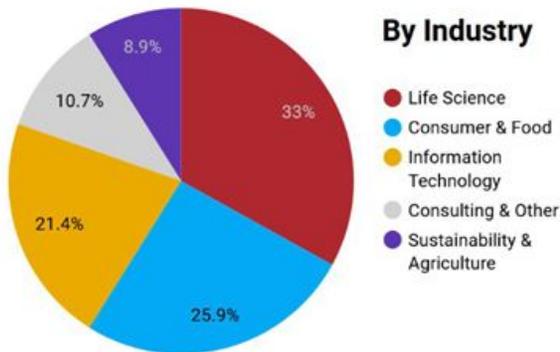
Support Provided by USM

	# Ventures Supported	# Ventures Supported for the First Time
Provided Capital	61	37
Mentored or Trained through a Program	64	44
Moved into a University Space	32	24
Helped Hire Interns or Employees	2	2

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Venture Development Report
Ventures Supported Over Time

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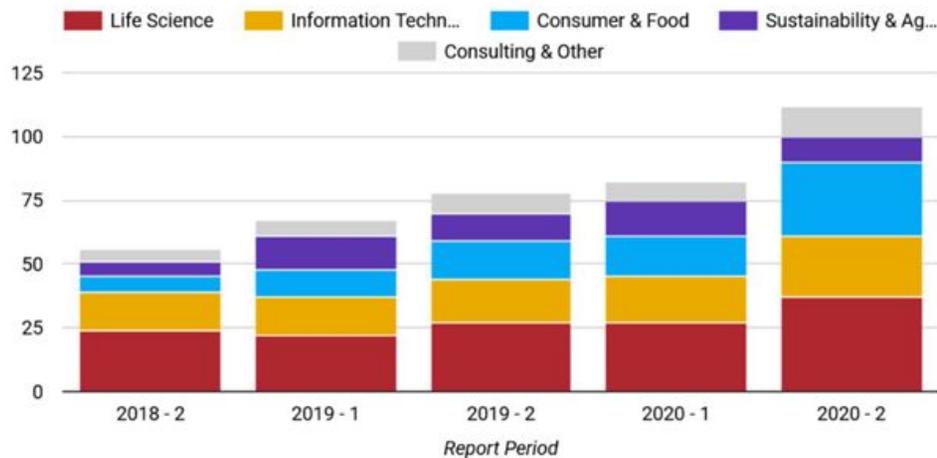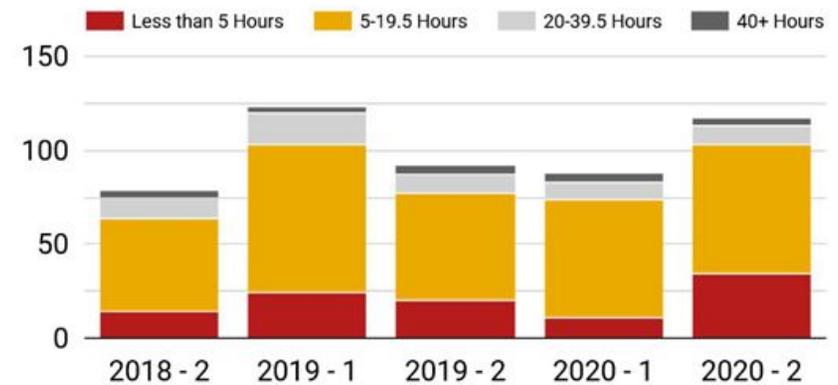
Venture Development Report

Technical.ly *Baltimore RealLIST*

We're a news organization that helps you navigate your local economy ▸

10 had a USM touchpoint *(at least)*

across 4 institutions

Annual list of 20 most promising Baltimore tech companies:
- Look for indicators of **growth** such as funding, early client traction, office space and work to establish a repeatable model.
- Those that choose the **big idea**.
- Team **tenacity** and track record.

https://technical.ly/baltimore/2021/01/25/reallist-startups-2021/

Where Are They Now (EDTC Featured Startup Updates)

Mindstand Technologies, featured startup to the EDTC Committee in June of 2019, is led by UMBC students and is #7 in the Technical.ly Baltimore RealLIST.

Veralox, from September 2019, is a Momentum Fund portfolio company and recently achieved major milestones, submitting an IND application with the FDA and receiving orphan drug designation.

BondTrue, from November 2019, has received a federal SBIR award and additional MIPS funding.

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Overview of Maryland Momentum Fund

- **$10MM University System of Maryland investment fund**
  - Established by USM Board of Regents June 2016. Investments started 2017.
  - Goal of generating at least $15MM in co-investment from non-USM entities.

- **Investing in the most promising USM-affiliated technologies and people**

  Helps promising early-stage companies bridge the early stage funding gap, getting them to a point where they can raise additional funding with VCs or be acquired.

- **Eligibility criteria**
  - Located in Maryland
  - In funding round, will have a co-investor(s) that will invest at least as much as MMF. MMF helps companies find co-investors.
  - Affiliated with one of the 12 USM institutions across the State of Maryland (any **one** of the below):
    - ❑ University-owned intellectual property
    - ❑ Founded by University faculty, staff, student, or alum
    - ❑ Located in a University-affiliated research park or incubator

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Why is this Fund Needed?

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MARYLAND MOMENTUM FUND

LACK OF RISK-TAKING INVESTORS
Most investors have made money on real estate and manufacturing. A high percentage of employees in DMV are government employees (not entrepreneurs).

CAPITAL CHASM
A variety of very early stage seed capital investors and/or grants. Significant downstream investors. Very little in the middle.

LACK OF MIDDLE-LEVEL/HIGH-LEVEL MANAGERS
More opportunities with more companies in NYC/Silicon Valley/Boston means lots of people move. The Momentum Fund can foster a small stable of entrepreneurs with great experience providing support, advice, financing to early stage entrepreneurs.

The Momentum Fund can help stimulate investment and teach early-stage entrepreneurs how to pitch, build business plans, and raise money.

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Investments

MMF(University+USMO) Investments: $6.9M
$5.2 MM just from MMF
$43M external fund match (~5.2 match)
Average investment: $274K
Average total round deal size: $1.7M

DeepTech
Technology
Consumer Product
Therapeutic
Data
Education Technology
Aquaculture
MedTech
Other Life Science

NextStep Robotics
Feb. 2018
$250K
$1.14M Round

PaverGuide
Mar. 2018
$300K
$675K Round

Neoprogen
Oct. 2019
$245K
$1.5M Round

InferCabulary
Feb. 2020
$250K
$783K Round

NextStep Robotics
Aug. 2020
$250,000
$500k Round

MF Fire
Oct. 2018
$500K
Add-on investment
$400k Round

Zest Tea
Dec. 2019
$200,000
Add-on investment
$650K round

Veralox
Jun. 2019
$500K
$5.4M Round

Pathotrak
May 2019
$150K
$1.2 MM Round

n5 Sensors
Sept. 2020
$300,000
$1M Round

Voxy
Oct. 2020
$500,000
$6.75M Round

$10M

FUNDS SPENT | **Reserves** | **FUNDS REMAINING**

MF Fire
Nov. 2017
$192.5K
$1.2M Round

NAWEC
Apr. 2018
$350K
$1.5M Round

Zest Tea
Dec. 2018
$300K
$1.035M Round

Retrium
May 2019
$400,000
$1.6M Round

Gemstone
Aug. 2019
$250K
$1.3MM Round

Minnowtech
Nov. 2019
$150K
$600K Round

ARMR
Feb. 2020
$350K
$750K Round

DataKwip
Apr. 2019
$250
$650K Round

KaloCyte
June. 2020
$300,000
$1M Round

MiRecule
Aug. 2020
$250K
$3.5 MM Round

InferCabulary
Sept. 2020
$100,000
Add-on investment
$1M Round

VisiSonics
Nov. 2020
$500,000

Co-Investors: Sanofi, Abell Foundation, Lord Baltimore Fund, Alexandria Venture Investments, ReThink Education,T he American Family Insurance Institute for Corporate and Social Impact, Chesapeake Bay Seed Capital Fund, Dingman Angels

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Portfolio Companies

UMCP IP and Alum
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

UM 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,
UM BioPark Affiliate**
Dried artificial red blood cell

UMCP Alum
RNA Therapeutics

UMCP IP and Faculty
Semiconductor sensor technology

UMCP IP and Faculty
Spatial and personalized audio
solutions

UMCP Alum and Faculty
Language upskilling platform

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Investment Detail

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MARYLAND MOMENTUM FUND

Portfolio Investment by Industry

- Deep Tech
- Technology
- Med Tech
- Consumer Product
- Data
- Therapeutic
- Aquaculture
- Education Tech
- Life Science (non Therapeutic or MedTech)

150,000 · 300,000 · 850,000 · 1,495,000 · 1,400,000 · 692,500 · 850,000 · 650,000 · 500,000
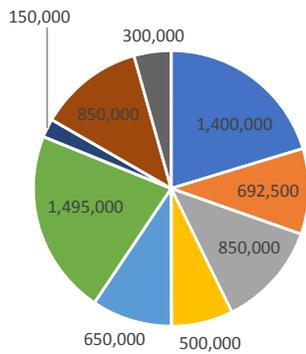
Portfolio Investment by School Affiliation / Connection

- UMB
- UMCP
- UMB/UMBC
- UMCES
- Towson
- UB
- UMGC/UMB/Towson
- UMCP/UMBC

350,000 · 250,000 · 500,000 · 150,000 · 300,000 · 250,000 · 1,345,000 · 3,742,500
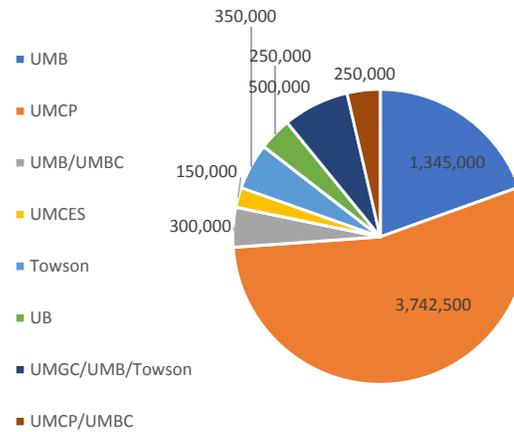
Investments by School (alongside MMF)

- UMB
- UMCP
- UMBC
- UMCES
- UMGC

50,000 · 125,000 · 75,000 · 685,000 · 796,250
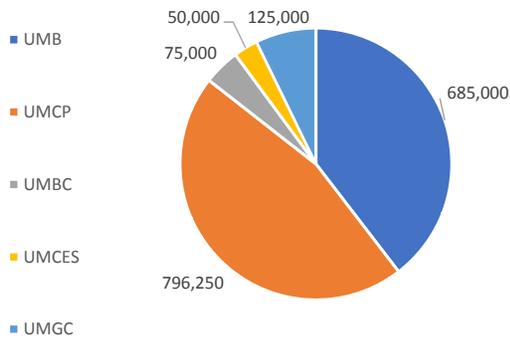
Portfolio Investment by Founder Type

- Women Founded
- African American Founded
- Other

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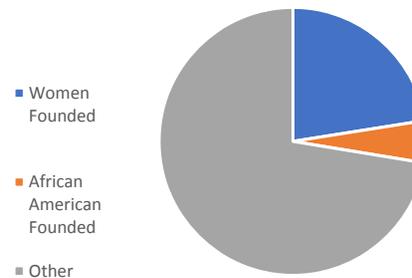
Appendix

Additional Venture Development Report Information

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Venture Development Report
Example New Ventures (2 of 2)

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Healthcare and Life Sciences

- Chat Health   http://chathealth.herokuapp.com/   Chatbots for medical info & conversations
- HSR.health   http://hsr.health/   Health data platform
- InovCares   https://inovcares.com/home   Telehealth platform
- Vitalize   https://www.appvitalize.com/   Mobile app to reduce physician burnout
- LASARRUS   https://www.lasarrus.com/   Wearable devices for rehabilitation
- TruGenomix   https://trugenomix.com/   PTSD diagnosis via biomarkers
- miRecule   https://mirecule.com/team/   RNA-based, tailored therapeutics

Manufacturing and Advanced Materials | Transportation; Wholesale; and Logistics

- Trivance Design   https://trivancedesign.com/   3D print shop
- 3D Flexible   https://www.3dflexible.com/   3D electronics printing
- Blimp Logistics   https://www.blimplogistics.com/   Drone delivery network

Energy; Sustainability; and Agriculture | Food; Drink; and Hospitality

- Silvec Biologics   https://silvecbiologics.com/   Protection against tree diseases
- SIMPLi   https://simpligood.co/   Ethical food sourcing

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Venture Development Report
Example New Ventures (2 of 2)

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Retail; Product; and Personal Services

• CamSKNS	https://www.camskns.com/	Vinyl skins for digital cameras
• CLUTCH by Tia Dash	www.clutchbytiadash.com	Gender-neutral luxury handbags & apparel
• Dulceology	https://dulceology.com/	Local artisan bakery

Technology; IT; and Cyber / Social Impact; Education; and Youth

• STEPS	https://www.stepseducation.org/	Non-profit offering tutoring and advising
• Haystack Solutions	http://www.haystacksolutions.com/	Cyber workforce development
• Cide Kic	www.cidekick.com	Event support services
• Edullo	https://www.edullo.com/	Tutor marketplace & student-written guides
• Voxy EnGen	www.voxyengen.com	Language upskilling platform
• hotglue	https://hotglue.xyz/	Data integration for B2B SaaS developers
• Dobbs Defense Solutions	https://dobbs-defense.com/	IT/cyber for the defense community

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