USM Office of the Vice Chancellor for Research and Economic Development Update (Information Item)
   a. Goals for OVCERD in the USM
   b. Focus areas for OVCERD in the USM
   c. Measuring and tracking success
   d. Tracking Venture Development
   e. Introducing Mike Ravenscroft, MBA, Managing Director of the Momentum Fund
   f. Ongoing Program and Project Updates
TOPIC: Office of Research and Economic Development Update

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: Wednesday, October 26, 2022

SUMMARY:

Dr. Michele Masucci, USM Vice Chancellor for Research and Economic Development, will provide an update including the topics below:

a. Goals for OVCERD in the USM
b. Focus areas for OVCERD in the USM
c. Measuring and tracking success
d. Tracking Venture Development
e. Introducing Mike Ravenscroft, MBA, Managing Director of the Momentum Fund
f. Ongoing Program and Project Updates

FISCAL IMPACT: This item is for information purposes.

CHANCELLOR’S RECOMMENDATION: n/a

COMMITTEE RECOMMENDATION:

BOARD ACTION:

SUBMITTED BY: Michele Masucci 410-409-2236
mmasucci@usmd.edu
Office of the Vice Chancellor for Research and Economic Development

Board of Regents Committee on Economic Development and Technology Commercialization

Update

October 26, 2022
Agenda

1. Goals for OVCREDS in the USM
2. Focus areas for OVCREDS in the USM
3. Measuring and tracking success
4. Tracking Venture Development
5. Introducing Mike Ravenscroft, MBA, Managing Director of the Momentum Fund
6. Ongoing Program and Project Updates
7. Discussion
1. Goals for OVCRED

<table>
<thead>
<tr>
<th>Basic Research</th>
<th>Applied Research</th>
<th>Discovery &amp; Innovation</th>
<th>Knowledge Transfer</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance growth in externally sponsored research and creative activities</td>
<td>Growth in purpose-driven, mission research programs and collaborations</td>
<td>Improve culture of discovery, innovation, scholarship, and creative work</td>
<td>Advance intellectual property through patents, licenses, and startups</td>
<td>Grow and measure economic, workforce, and societal impacts</td>
</tr>
</tbody>
</table>
2. Focus areas for OVCRED in the USM

• Recognizing excellence in research, creative activities, and innovation
• Align USM strengths in strategic areas of excellence
• Support the development of centers of excellence in programmatic research and innovation areas
• Provide Technical Assistance to support and sustain growth in R&D
• Promote relationships with mission-specific funders in government, industry, and philanthropy
Continued

• Build alliances across the USM and with other institutions
• Enhance the environment for the development of intellectual property that can be protected and advanced
• Support workforce development
• Advance knowledge transfer and supercharge the knowledge economy
• Maximize societal benefits
### 3. Measuring and tracking success

#### Metrics for success
- Grant submissions and expenditures
- IP Disclosures
- Patents
- Income
- Companies formed and jobs created
- Research engagement by students and trainees

#### System Capacity Building
- Collaboration and partnership
- Multiplying successes
- Powering Maryland’s economy
- Positioning institutions for optimization

#### Reputation
- Rankings
- Citations
- Institutional classification
- Affiliations
- Preeminence of faculty, students, and alumni

#### Current Metrics
- $1.3 Billion Research Expenditures
- $10.4 Billion Economic Impacts
- 57,505 Jobs
- 344 inventions per year
- 85 patents per year
- 19 IP based Startups per year
- $4.6 M revenue per year
- 850+ Marketed Technologies
4. Tracking Venture Development

Ventures Supported

- USM Status: NEW TO USM, RE-ENGAGED

- Support by Type:
  - Programming & Mentoring
  - Capital (In-Kind and Cash)
  - Incubator and/or Physical Space
  - Talent Assistance

- Capital Support:
  - # Ventures Capitalized
  - $ Capital

Graphs showing venture numbers and support by type and institution over different periods.
Continued

Ventures Supported
Continued

**Additional State-Wide Venture Support**

**MARYLAND TECHNOLOGY INTERNSHIP PROGRAM YEAR IN REVIEW (2021-2022)**

**EMPLOYER PARTICIPANTS**
- 81 Organizations within 10 Maryland counties
- 214 Internships Funded
  - 95% of employers reported that MTIP provided the financial incentive to create a new internship program.
  - 94% of participants are small businesses less than 150 employees.

**Companies Assisted Through USM Small Business Development Centers**

The Maryland Small Business Development Center (SBDC) is a public-private partnership between the U.S. Small Business Administration, the State of Maryland and UMCP. The Maryland network hosts entrepreneurial assistance programs at a number of USM institutions.
5. Introducing Mike Ravenscroft, MBA, Managing Director of the USM Momentum Fund
Maryland Momentum Fund

Board of Regents
http://momentum.usmd.edu/

October 26, 2020

Mike Ravenscroft
mravenscroft@usmd.edu
New in the role as of 9.12.22
Terp MBA (Class of '21)
Experienced venture capital investor with expertise in digital health, cybersecurity, enterprise B2B SaaS
CIT GAP Funds, MACH37, C5 Capital, Data Tribe, Dingman Center Angels Network, Dreamit Ventures
8+ years building entrepreneurial platforms, launching ecosystem development initiatives, investing in technology companies and supporting founders as they scale their ventures
Father of 2, avid cyclist, crabcake enthusiast
Maryland Momentum Fund: Origin Story and Structure

• **Precedent:** UM Ventures investments and loans in FY15 of $400,000 total in 5 startup companies. UM Ventures seeded Harpoon Medical, a minimally invasive surgical device company, which returned a $100K investment 20-1 ($3M back to the university in licensing fees and royalties.)

• **Hypothesis:**
  ▪ USM attracts world class entrepreneurs who are launching venture-backable startups in Maryland.
  ▪ There is need for an institutional fund to spur co-investment in those companies and support them with money, resources from the university, and validation from the USM network to help them scale.
  ▪ These ventures will act as economic catalysts by generating returns for the university, hiring from within the University System, and showcasing the USM and Maryland as national leaders in critical emerging industries.

• **Establishment:** Board of Regents approved in June 2016 as $10MM venture fund. Expenses and staff covered by Center for Maryland Advanced Ventures, housed in the Office of Research and Development at UMB. An additional up to $2MM per year for 3 years was approved in June 2022.
Our Investment Thesis:

- Seek **strong founding teams** comprising alumni, faculty or staff, and/or leveraging university IP / office space
- Identify ventures **across emergent industries** playing a critical role in advancing Maryland's technology base
- Invest at the seed stage as a value-add co-investor
- Support with securing **co-investment (matching funds)** to mitigate risk
- **Syndicate investments** with leading well-regarded angel investors and venture funds
- Leverage **experts from industry** and USM to inform due diligence
- Bring **investment decisions to an advisory board** with expertise in seed stage investing
- Establish a **robust network** of angel investors, seed stage venture funds, and university economic development leadership / technology venture incubators and accelerators to **channel investable companies to the fund**
Goals of the Momentum Fund:

• Catalyze the success of USM startups
• Bring outside capital to Maryland startups and support ventures as they scale
• Generate direct financial returns to the University System
• Support economic development across the state
• Recruit and retain innovative students, staff, and faculty
• Provide avenues for students to engage with startups
• Make Maryland the best place to go to school, become an entrepreneur, launch and scale a technology venture
Four years in...

- 28 portfolio companies
- 200+ co-investors, including corporate strategics and blue-chip VCs
- 250+ jobs created as of October 2022
- Over 2/3 of portcos hire USM interns or recent graduates
- Over $100M in matching capital raised to date (and counting)
- 12-1 ratio of outside capital to MMF deployment
28 portfolio companies showcasing the diversity of USMD's innovators

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Innovation Description</th>
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<tr>
<td>UMCP IP and Alum</td>
<td>Advanced wood burning stove</td>
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<tr>
<td>UMB IP, Towson Alum</td>
<td>Exoskeleton robot to reverse foot drop for stroke victims.</td>
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<tr>
<td>UMCP Alum</td>
<td>Agile software development management product</td>
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<tr>
<td>UMBC and UMCP Alums</td>
<td>Tissue regeneration via stem cells</td>
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<tr>
<td>ARMR</td>
<td>Towson Alum, TU incubator startup Ed-tech vocabulary app</td>
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<tr>
<td>InferCabulary</td>
<td>UMCP Alum and Faculty Spatial and personalized audio solutions</td>
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<tr>
<td>miRecule</td>
<td>RNA Therapeutics</td>
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<tr>
<td>UMCP IP and Faculty</td>
<td>Semiconductor sensor technology</td>
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<tr>
<td>Qualytics</td>
<td>Data integrity</td>
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<tr>
<td>UMCP Alum</td>
<td>Data platform for construction industry</td>
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<tr>
<td>Retrium</td>
<td>Anticoagulant drug, therapeutics for rare blood disorders</td>
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<tr>
<td>N5 Sensors</td>
<td>UMCP IP and Faculty Fireproof, lightweight insulation</td>
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<tr>
<td>Linshom</td>
<td>Continuous respiratory monitoring in ICU settings</td>
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<tr>
<td>Liatrix</td>
<td>UMCP Employee Platform to boost employee wellness programs</td>
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<tr>
<td>NAWEC</td>
<td>UMCP Alum Advanced pulse jet engine</td>
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<tr>
<td>Zest Tea</td>
<td>UMCP Alum High caffeine tea, energy drink product</td>
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<tr>
<td>NeoProgen</td>
<td>UMB IP and Faculty Cell-based therapy for cardiovascular disease</td>
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<tr>
<td>Minnow Tech</td>
<td>UMCP IP Advanced semipermeable pavement system</td>
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<tr>
<td>Automatex</td>
<td>UMCES Alum Sonar to measure shrimp biomass</td>
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<tr>
<td>tigra</td>
<td>UMCP/UMB Alum Financial products for small commercial solar installations</td>
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<tr>
<td>Paver Guide</td>
<td>UMCP Professor More efficient lithium-ion batteries</td>
</tr>
<tr>
<td>Dried artificial red blood cell</td>
<td>UMB/UMBC Faculty, UM BioPark Affiliate climate change modeling and action platform</td>
</tr>
</tbody>
</table>
Investment across key growth industries in Maryland

- Deep Tech Technology
- Med Tech
- Consumer Product
- Data
- Therapeutic
- Aquaculture
- Education Tech

Portfolio Investment by Industry

- Engineering and DeepTech
- Consumer Products
- Life Sciences
- Data and Software
USM Momentum Fund

On the horizon:

• Continue identifying world class ventures for the fund to invest in
• Getting into the community to engage with students, faculty, and staff as they look to launch their ventures
• Invest in entrepreneurs from more schools throughout the system
• Prioritize engagement with founders underrepresented in venture, including female founders
• Support portfolio companies with resources, customer connections, and raising follow-on rounds
• Connect students and alumni with Momentum Fund portfolio companies for internships and job opportunities
• In coordination with USM institutions, launch a Venture Fellows program to give USM students an on-ramp into the industry
• Continue to learn from and benchmark against other University System funds (Big Ten Venture Conference, MD research)
6. Updates

Early Capitol Pilot
NSF Engines
Strategic Planning
7. Discussion
Contact OVCRED

Michele Masucci, Ph.D.
Vice Chancellor for Research and Economic Development
mmasucci@usmd.edu
215-704-2739

Lindsay Ryan (she/her)
Interim Executive Director of Economic Development
lryan@usmd.edu
410-409-2236

Mike Ravenscroft
Managing Director, Momentum Fund
mravenscroft@usmd.edu
410.706.3361