AGENDA FOR OPEN SESSION

12:30 p.m.

Call to Order

Isiah Legget

1. **Francis Scott Key Bridge Economic and Environmental Impacts Discussion**
   - Cinzia Cirillo, PhD, Interim Director of the Maryland Transportation Institute
   - Heather Gramm, CEcD, Assistant Secretary, Business and Industry Sector Development at Maryland Department of Commerce
   - Richard Clinch, PhD, Executive Director of the University of Baltimore’s Jacob France Institute
   - Sarah Sheppard, JD, Director of Education and Workforce at Maryland Department of Commerce
   - Daraius Irani, PhD, Vice President of Strategic Partnerships and Applied Research at Towson University
   - Michael Siers, MS, Director of Research for Towson University’s Regional Economic Studies Institute (RESI)
   - Bill Dennison, PhD, Interim President and Vice President for Science Applications at University of Maryland Center for Environmental Science

2. **Research and Economic Development Highlights** – Michele Masucci, PhD, Vice Chancellor of Research and Economic Development

3. Economic Development Update - **Lindsay Ryan, MS, Executive Director of Economic Development**
   - [Major Resource Centers and Venture Funds Report](#)
   - [Venture Development Report](#)
   - [Launch Fund](#)

Q and A
Office of the Vice Chancellor for Research and Economic Development

Board of Regents Committee on Research and Economic Development

Michele Masucci, Ph.D.
Vice Chancellor for Research and Economic Development

May 15, 2024
Agenda

1. Francis Scott Key Bridge Economic and Environmental Impacts Discussion - Panelists

2. Research and Economic Development Review – Michele Masucci

3. Economic Development Update - Lindsay Ryan, Executive Director of Economic Development
   - Major Resource Centers and Venture Funds Report
   - Venture Development Report
   - Launch Fund
Francis Scott Key Bridge

Economic and Environmental Impacts Discussion

Cinzia Cirillo, PhD, Interim Director of the Maryland Transportation Institute

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Bill Dennison, PhD, Interim President and Vice President for Science Applications at University of Maryland Center for Environmental Science
2. RESEARCH HIGHLIGHTS ACROSS USM
Research and Development Highlights

Business Higher Education Forum

Inaugural Innovation Fellowship Program

Kickoff held at Rita Rossi Colwell Center

April 25 – 26, 2024
Research and Development Highlights

UMD Launches Artificial Intelligence Interdisciplinary Institute at Maryland (AIM)

Builds on Work of Existing Centers:

- Center for Machine Learning,
- Trustworthy AI in Law & Society (TRAILS),
- Value-Centered AI Initiative and the Social Data Science Center

Focus areas:

- New AI majors and minors
- AI certificates, graduate degrees and workforce development programs
- Expanded AI undergraduate courses, including an AI4ALL course focused on developing AI literacy and critical thinking skills
- AI government and industry partnerships and community events
- A new high-performance computing cluster tailored for AI’s complex computational challenges
- Financial support to promote interdisciplinary AI research
- Chaired professorships and postdoctoral fellowships
Research and Development Highlights

Salisbury University – NASA Partnership for Workforce Development


UMES Partnering with George Washington University on NIH Study of AI in Medicine


UMD CyberCorps Scholarship for Service NSF  Funding renewed

https://aces.umd.edu/sfs
https://www.nsf.gov/awardsearch/showAward?AWD_ID=2336312&HistoricalAwards=false

MPower Strategic Funding Approved from State of Maryland

3. ECONOMIC DEVELOPMENT UPDATE
Support Growth in Research and Development through Diversification of Funding Sources, collaboration approaches, and stakeholder engagement

1. Major Resource Centers and Venture Funds Report

Research and Economic Development Functions

Identify and pursue strategic funding opportunities

Foster and develop research collaborations

Advancement of cross-cutting efforts:
- Providing technical support
- Strategic and poisoning planning
- Development of frameworks for collaborative initiatives
- Cultivating innovation ecosystem

Strengthen technology transfer and commercialization

Enhance philanthropic support for R & D

10/28
Framework for USM Alignment related to venture investments and program development

- **Programs generating ventures**
  - Basic and applied research, educational collaborations
  - Entrepreneurial Programs
  - Industry Partnerships

- **Resources Accelerating Commercialization**
  - Grant funded initiatives
  - Workforce Development Initiatives
  - University sponsored programs

- **Capital and Infrastructure**
  - Investment Funds
  - Research Parks & Incubators
  - Technical Assistance
Investment Funds, Major Resource Centers, and Economic Development Programs

- Convened ecosystem of funds and programs to identify alignment, gaps, and challenges
- Discussed planned report on strengths and opportunities, gaps, and value proposition
- Identified resources of value to clients of funds
- Sought feedback on how to develop culture of support for the startup communities served by USM
- Discussed how to connect the pipeline(s) between basic and applied research and commercialization
- Identified strategies to improve communications related to USM successes
Funds and Major Resource Centers Represented

Salisbury University Shore Hatchery
https://www.salisbury.edu/academic-offices/business/shore-hatchery/

USM Launch Fund
https://www.usmd.edu/launch/

Towson University StarTUp Accelerator
https://www.towson.edu/startup/accelerator/

Maryland Industrial Partnerships (MIPS)
https://mips.umd.edu/

Maryland Innovation Initiative (MII) (USM Institutional Reps)
https://www.tedcomd.com/funding/maryland-innovation-initiative

Baltimore Fund
https://www.umventures.org/about-us/initiatives/the-baltimore-fund

Discovery Fund
https://innovate.umd.edu/resources/discoveryfund

Momentum Fund
https://momentum.usmd.edu/

Dingman Center Angels
https://www.rhsmith.umd.edu/centers-initiatives/dingman-center/initiatives-programs/dingman-center-angels

Chesapeake Bay Seed Capital Fund
https://www.cbscf.umd.edu/
# Review of fund characteristics and distribution

<table>
<thead>
<tr>
<th>USM Capital</th>
<th>Applicant Affiliation Required</th>
<th>USM Eligibility</th>
<th>Year Formed</th>
<th>Inst Administering</th>
<th>Funding Source</th>
<th>Approx. Total Annual Deployment</th>
<th>Approx. New Companies Per Year</th>
<th>Form of Capital</th>
<th>Geographic Restriction</th>
<th>Tech/Industr Focus</th>
<th>Stage of Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>SU Shore Hatchery</td>
<td>-</td>
<td>All USM</td>
<td>2013</td>
<td>SU</td>
<td>Private Philanthropic</td>
<td>$200k</td>
<td>12</td>
<td>Non-dilutive</td>
<td>Mid-Atlantic</td>
<td>All</td>
<td>All</td>
</tr>
<tr>
<td>USM Launch Fund</td>
<td>USM</td>
<td>All USM</td>
<td>2023</td>
<td>USM</td>
<td>USMO</td>
<td>$200k</td>
<td>15</td>
<td>Non-dilutive</td>
<td>Maryland Only</td>
<td>All</td>
<td>Early</td>
</tr>
<tr>
<td>TU StartUp Accelerator</td>
<td>-</td>
<td>All USM</td>
<td>2020</td>
<td>TU</td>
<td>A Mix of County, Private, and State</td>
<td>$150k</td>
<td>12</td>
<td>Non-dilutive</td>
<td>Attend In-Person at Towson</td>
<td>All</td>
<td>Ready for or Early Market Entry</td>
</tr>
<tr>
<td>Maryland Industrial Partnerships (MIPS)</td>
<td>-</td>
<td>All USM</td>
<td>1987</td>
<td>UMCP</td>
<td>UMCP, UMB, UMBC, FSU, FSV</td>
<td>UMCP administers but all MD public insts participate as research partners</td>
<td>State (Various)</td>
<td>$1.3M</td>
<td>25</td>
<td>Non-dilutive (in-kind)</td>
<td>Maryland Focus</td>
</tr>
<tr>
<td>Maryland Innovation Initiative (MII)*</td>
<td>UMCP, UMB, UMBC, FSV, Morgan and JHU</td>
<td>All USM</td>
<td>2012</td>
<td>UMCP, UMB, UMBC, FSU, FSV</td>
<td>TEDCO plus eligible institutions</td>
<td>State (TEDCO + Insts, Legislators)</td>
<td>$2.5M*</td>
<td>3</td>
<td>Non-dilutive and Dilutive</td>
<td>Maryland Only</td>
<td>Tech</td>
</tr>
<tr>
<td>Baltimore Fund</td>
<td>Public Inst of Higher Ed</td>
<td>All USM if locating company in Baltimore City</td>
<td>2017</td>
<td>UMB</td>
<td>State (Legislated)</td>
<td>$2.5M**</td>
<td>10</td>
<td>Non-dilutive and Dilutive</td>
<td>Baltimore City Only</td>
<td>All</td>
<td>All</td>
</tr>
<tr>
<td>Discovery Fund</td>
<td>-</td>
<td>All USM if locating company in Prince George's County</td>
<td>2021</td>
<td>UMCP</td>
<td>State (Legislated)</td>
<td>Up to $1M</td>
<td>4-5</td>
<td>Non-dilutive and Dilutive</td>
<td>Prince George's County Only</td>
<td>Tech</td>
<td>&quot;Seed&quot;</td>
</tr>
<tr>
<td>Momentum Fund</td>
<td>USM</td>
<td>All USM</td>
<td>2016</td>
<td>USM/UMB</td>
<td>State (USMO)</td>
<td>$2M</td>
<td>5</td>
<td>Dilutive</td>
<td>Maryland Only</td>
<td>All</td>
<td>&quot;Seed&quot;</td>
</tr>
<tr>
<td>Dingman Angels</td>
<td>-</td>
<td>All USM</td>
<td>2005</td>
<td>UMCP</td>
<td>Individual Angels</td>
<td>***</td>
<td>10</td>
<td>Dilutive</td>
<td>Mid-Atlantic</td>
<td>All</td>
<td>&quot;Seed&quot;</td>
</tr>
<tr>
<td>Chesapeake Bay Seed Capital Fund</td>
<td>-</td>
<td>All USM</td>
<td>2008</td>
<td>UMCP</td>
<td>State (MD Dept Natr Res)</td>
<td>$200k</td>
<td>2</td>
<td>Dilutive</td>
<td>Maryland Only</td>
<td>Improve air or water in Chesapeake watershed</td>
<td>&quot;Seed&quot;</td>
</tr>
</tbody>
</table>

## Notes
- Approximate annual deployment and new companies supported per year are estimates. Year-to-year variation occurs due to a number of factors.
- Also open beyond USM; total budget is more like $5M+, with at least half to USM institutions.
- Some funding may be provided to infrastructure-enabling projects.
- Each angel decides independently whether or not to invest.

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<tr>
<th>In Development</th>
<th>Sector-Focused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrapin Fund</td>
<td>Algal Bloom Fund (UMCES)</td>
</tr>
<tr>
<td>Tiger Fund</td>
<td>REEF Fund (UMCES)</td>
</tr>
<tr>
<td>Founder's Fund</td>
<td></td>
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14/28
Examination of funds provided to ventures supported
Reflections on Funding Portfolio Represented
- Recipients are geographically disbursed but still gaps
- Some capital sources have more overlap in portfolio than others
- Value in capturing USM investments across the system

Need to Communicate Resources and Success
- Metrics as well as startup stories provide insights related to impact
- Success and outcomes tracked in differing ways for each fund
- Value in telling individual fund and collective USM story and celebration of successes

Connecting
- Value in regular convening of USM Funds and Major Resource Centers can support fund and program clients and benefit from USM resource and technical assistance
- Value in addressing challenges of individual fund and program advocacy through more integrated and collective approach
- Convening and celebrating innovators and startups at a System level could be powerful and would not weaken any institutional efforts
Defining success and next steps

Potential Successes

- Fund leaders may review impacts and access of the programs they individually lead
- Funds may develop systems for tracking jobs and businesses created in Maryland supported by their investments and technical assistance
- Fund information can support efforts to attract additional investments and improve access to local, state, and federal programs
- Need for decision making tools to provide the right capital at the right time
- Layering support across multiple USM resources may fill gaps in the Maryland startup and venture development ecosystem

Examples of USM Highlights:

- 228 have received significant funding from one or more funds represented at retreat since 2018
- 80% of those startups received $50k or less, 50 received more, up to $1M
Defining success and next steps

Next Steps

- Connect with other USM support providers
- Develop a narrative report
- Understand gaps in the USM ecosystem
- Develop regular cadence of meetings of fund and program leaders
USM Convened Groups

- **Research and Economic Development Partners** - USM OVCREDS's largest group/convening; including USM professionals in the fields of research strategy and development, grants administration, commercialization, economic development, workforce development, and more to connect, collaborate, learn, and plan. All institutions participate.

- **Research and Economic Development Community of Practice** - Development professionals from universities or centers with growing entrepreneurial ecosystems. BSU, SU, UBalt, UMES, FSU, UMCES, and CSU participate.

- **System Research Administrators Group** - Sponsored Programs pre-award and post-award representatives to exchange information and ideas, collaborate on those issues which impact grant administration, and share best practices to support research and scholarly activities; supports all institutions.

- **COI Leaders** – Administrators of research COI professionals from research universities, supports all institutions.

- **Funds and Major Resource Centers Leaders** – Leaders of venture funds, investment programs, and technical support programs for research commercialization, innovation, and startup initiatives, supports all institutions.
The **USM Venture Development Report** tracks the ventures that USM institutions significantly support and how.

**Ventures**
- For-profit and non-profit startups and some small businesses
- Generally based in Maryland
- “Spin-outs” based on university intellectual property and/or with USM founders AND “Spin-ins” utilizing university resources without prior ties

**Significantly Supported** = More than occasional advising, etc.

**How Supported** = Intellectual Property, Programs, Places, Capital
KEY TAKEAWAYS

• **Growth!** Sources of support for ventures and the scale at which they operate are growing

• Support for **student ventures** (not classroom ventures) is growing (and can be more cyclical with academic semesters)

• Support from USM serves the broader Maryland community, with about 40% of ventures supported “spinning in”, without a USM Founder or Intellectual Property

• Support for **University Intellectual Property-Based Ventures** is holding steady and receives a great proportion of USM capital; more to come

• Demographic information increasingly complicated
VENTURES SUPPORTED
PROGRAMS, PLACES, AND CAPITAL
PROGRAMS, PLACES, AND CAPITAL - IP AND NOT

ALL

IP-BASED

Support by Type and Institution (All-Time)

Support by Type and Institution (All-Time)

Support by Type and Institution (All-Time)
ADDITIONAL STATEWIDE SUPPORT

Helps Maryland retain top tech talent by increasing the number of paid technical internships offered in the state. Administered by UMBC and funded by the State of Maryland, the program offers financial assistance to technology-based businesses, as well as state and local agencies, to hire more interns (mtip.umbc.edu).

About 30% of startup participants also are USM "spinouts" or "spin-ins".

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.
Applications
• 85 applications (compared to 93 last cycle) requesting $3.5M. 30% are re-submitters. Good diversity across venture types, geography, institution, etc. Previous info here: https://www.usmd.edu/launch/portfolio/.

Budget
• $255K distributed last cycle to 16 ventures. $345 remains, counting $200k in July 1.

Review Process
• 55 reviewers. 27% returning; 30% formally affiliated with a USM institution
• 15 total hours of review discussion, after individual reviews. Draws on best practices from the National Science Foundation, MIPS, and non-technical programs.

Value of Feedback to Returning Applicants
• 80% of re-submitters rated the feedback at least 7 of 10, an average of 8 of 10.
• Fewer applications per group will enhance the quality of review and feedback.
Funding for ventures is achieving program goals. It is one few resources in Maryland providing critical early capital in an equitable and inclusive manner, filling gaps. There has been early success from first awardees and greater clarity around potential for impact that will help refine decisions for second awardees.

Microgrant funding is also achieving goals, with institutions shaping their use.

Proof of concept funding has not yet been developed. This is funding that is needed by students or faculty before there is a venture. It is a bridge between microgrants and venture grants. This has been delayed so far largely due to two factors:

1) Capital intensity of research-related proof of concept has made it difficult to design a pilot that could demonstrate impact
2) Other resources in that space are in flux, and the needs at various institutions are still evolving

Beyond the pilot: Working with the USM Foundation to better understand potential funding sources.
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