

OFFICE OF THE VICE CHANCELLOR FOR RESEARCH AND ECONOMIC DEVELOPMENT

USM Board of Regents
Committee on Economic Development & Technology Commercialization
May 15th, 2024
Zoom

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**
 - **Darius 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

Economic and Environmental Impacts Discussion

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2. RESEARCH HIGHLIGHTS ACROSS USM

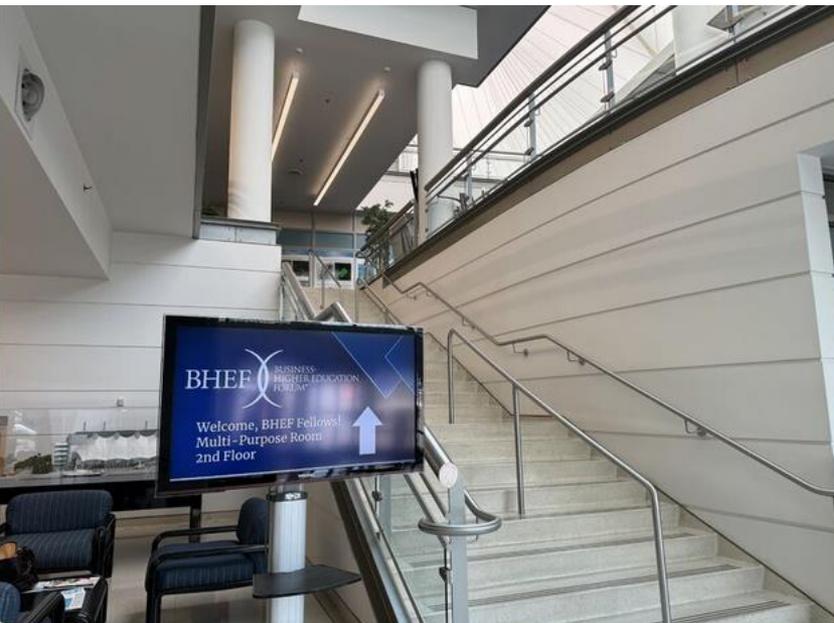
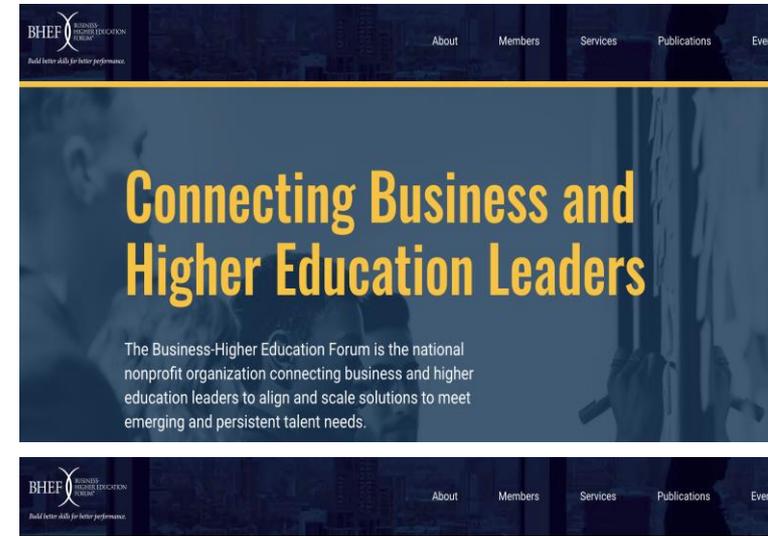


Business Higher Education Forum

Inaugural Innovation Fellowship Program

Kickoff held at Rita Rossi Colwell Center

April 25 – 26, 2024



FACULTY INNOVATION FELLOWSHIP

ABOUT THE FELLOWSHIP

The Business-Higher Education Forum is launching a new fellowship program, supported by the ECMC Foundation, that provides the tools, resources, and space to design, develop, and lead innovations in establishing equitable talent pipelines that expand pathways to student success.

Collaboration between business and higher education is vital to ensure that higher education experiences pave the way for rewarding employment. Faculty fellows will be leaders empowered to drive positive change that position students for success and enables their institutions to be leaders in employer engagement.

Fellows will pursue new employer partnerships and gain the leadership and change-management skills necessary to successfully implement innovative practices beyond their classroom. Fellows will regularly meet over several months to develop their proposed pilot projects which will be vetted and tested by their cohort peers, BHEF staff, and national experts.

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](#)

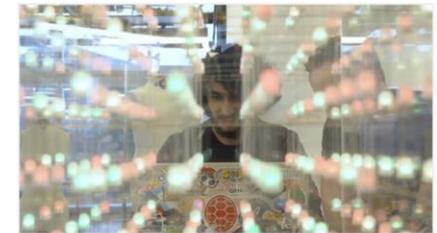
Focus areas:

- 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

UMD Launches Institute Focused on Ethical AI Development

The institute will support interdisciplinary research and education that promote the responsible use of AI and prepare the future workforce for an AI-infused world.

April 09, 2024



Salisbury University – NASA Partnership for Workforce Development

<https://www.salisbury.edu/news/article/2024-3-28-SU-NASA-Formalize-Partnership-for-Student-Opportunities-Through-Space-Act-Agreement>

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

<https://healthitanalytics.com/news/nih-funding-development-of-ai-tools-for-health-disparity-research>

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

<https://www.umaryland.edu/news/archived-news/may-2024/the-power-to-make-something-good-happen-in-health-care.php>

3. ECONOMIC DEVELOPMENT UPDATE



1. Major Resource Centers and Venture Funds Report

Research and Economic Development Functions

Support Growth in Research and Development through Diversification of Funding Sources, collaboration approaches, and stakeholder engagement

Identify and pursue strategic
funding opportunities

Foster and develop research
collaborations

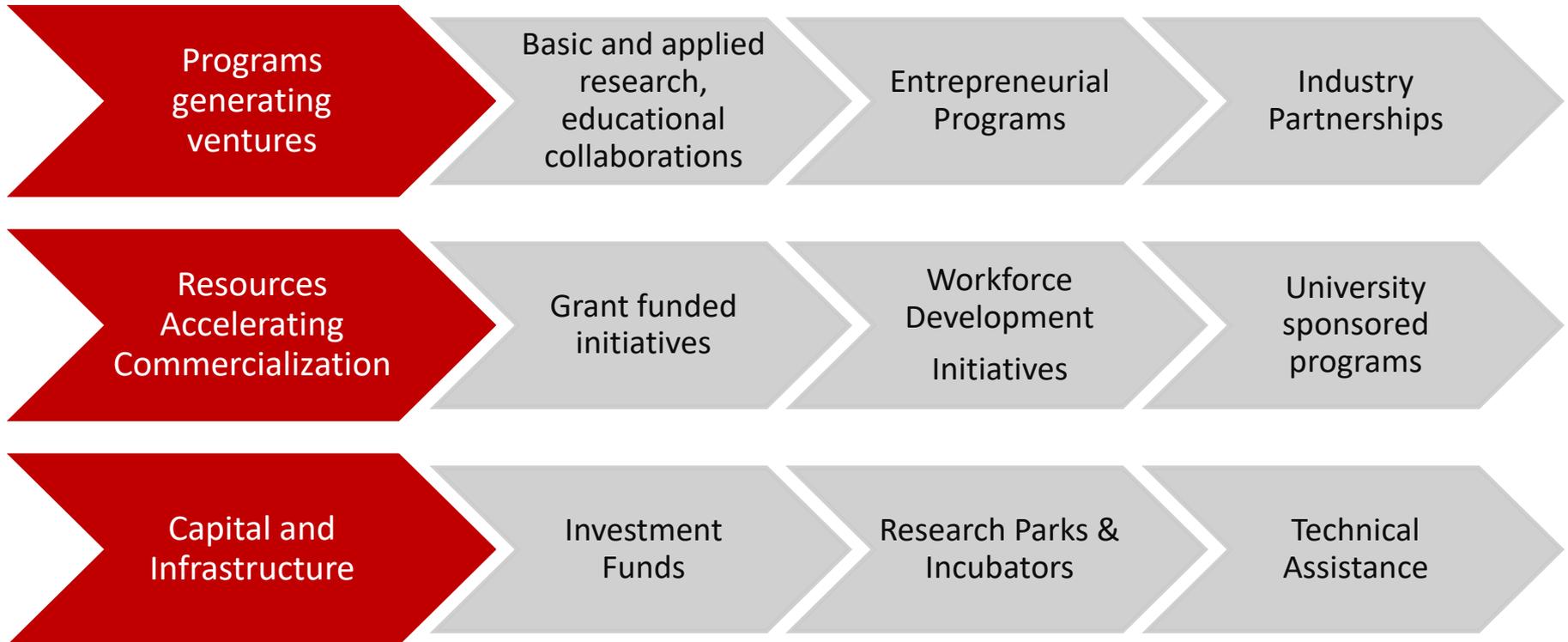
Advancement of cross-cutting efforts:

- 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

Framework for USM Alignment related to venture investments and program development



Investment Funds, Major Resource Centers, and Economic Development Programs

- Convened ecosystem of funds and programs to identify alignment, gaps, 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

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

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

In Development	Sector-Focused
Terrapin Fund	Algal Bloom Fund (UMCES)
Tiger Fund	REEF Fund (UMCES)
Founder's Fund	

Notes

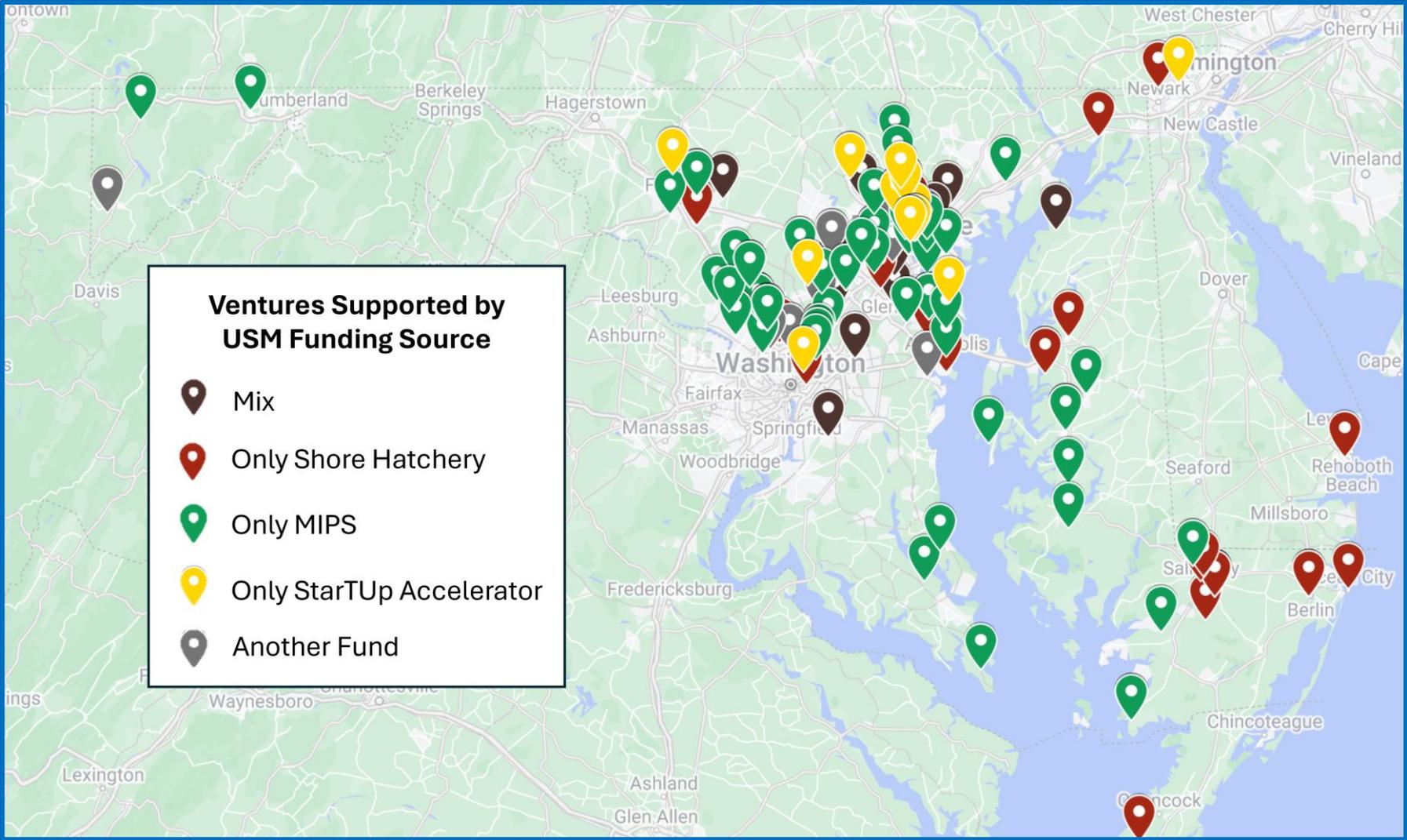
Approximate annual deployment and new companies supported per year are **estimates**. Year-to-year variation occurs due to a number of factors.

* 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

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

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

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

- **Research and Economic Development Partners** - USM OVCRED'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.

BACKGROUND

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.

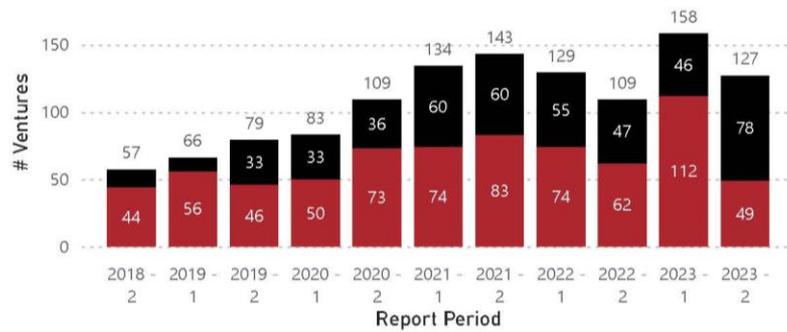
How Supported = Intellectual Property, Programs, Places, Capital

KEY TAKEAWAYS

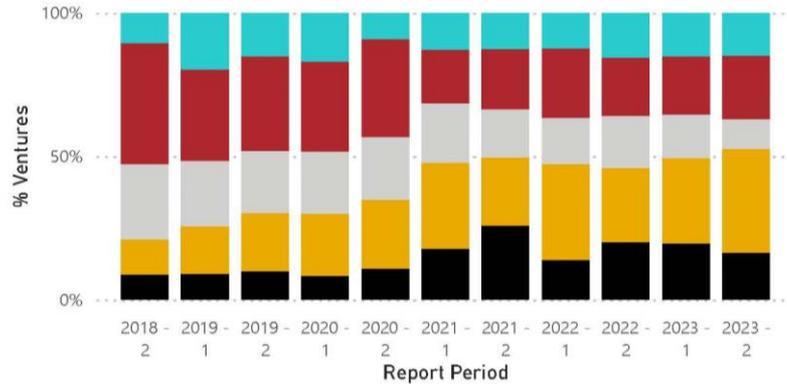
- **Growth!** Sources of support for ventures and the scale at which they operate are growing
- Support for **student ventures** (not classroom ventures) is growing (**and can be more cyclical with academic semesters**)
- Support from USM serves the broader Maryland community, with about 40% of ventures 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

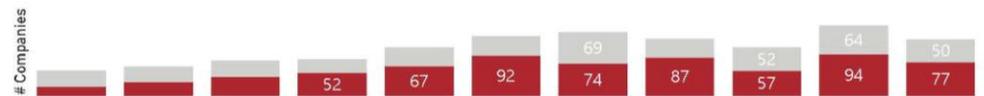
USM Status ● NEW TO USM ● RE-ENGAGED



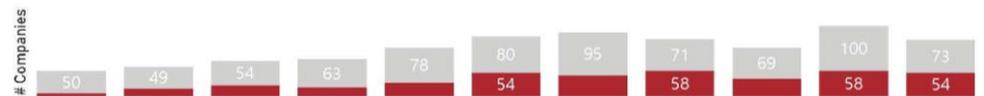
Industry ● Consulting & ... ● Consumer ... ● Information ... ● Life Science ● Sustainabi...



USM Founders (Red)



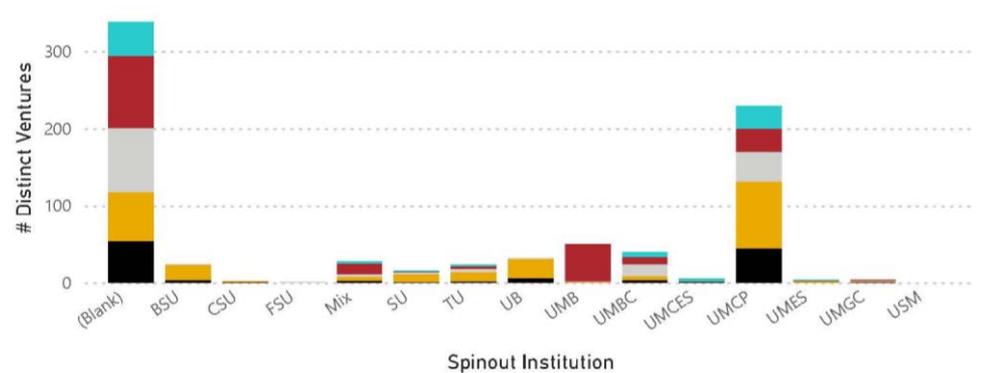
Student Founders (Red)



USM IP (Red)

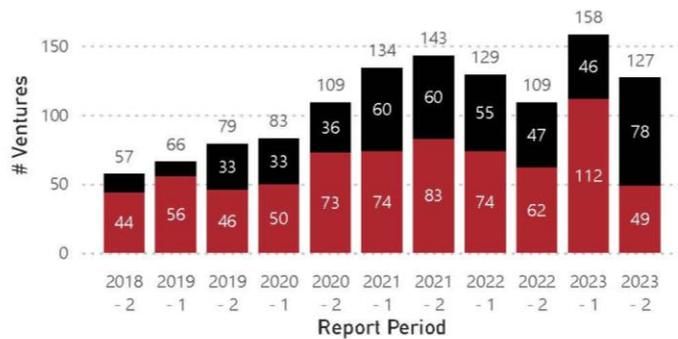


Industry ● Consulting & Other ● Consumer & Food ● Information Technol... ● Life Science ● Sustainability & ...



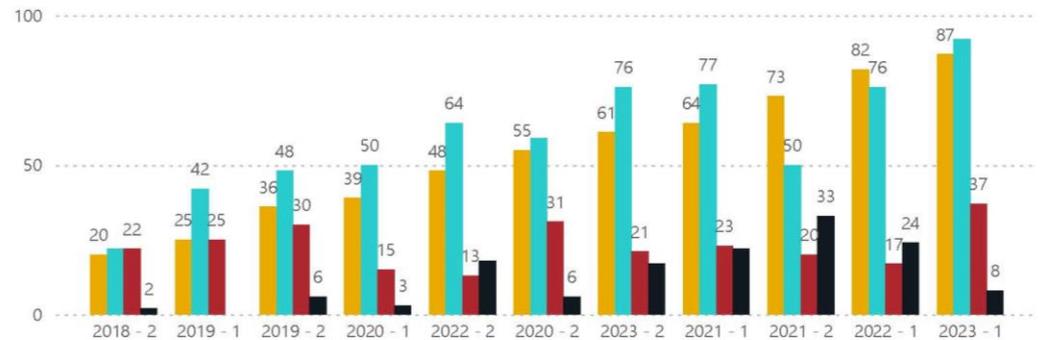
PROGRAMS, PLACES, AND CAPITAL

USM Status ● NEW TO USM ● RE-ENGAGED



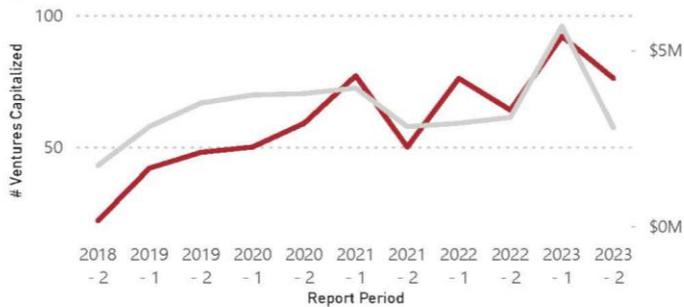
Support by Type

● Programming & Mentoring ● Capital (In-Kind and Cash) ● Incubator and/or Physical Space ● Talent Assistance



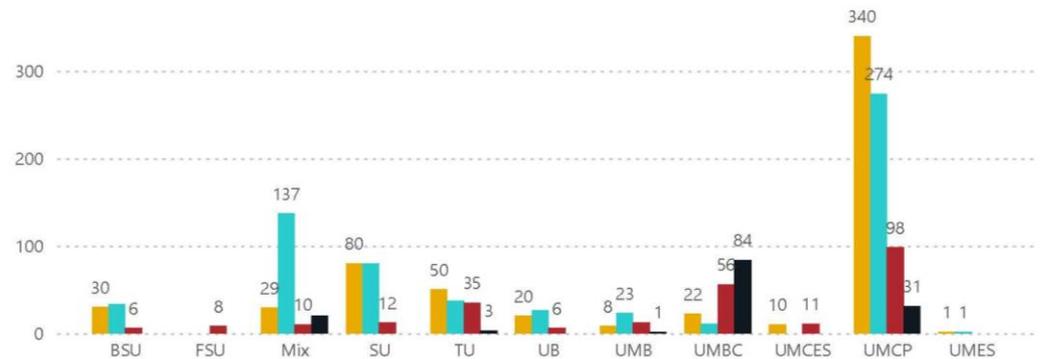
Capital Support

● # Ventures Capitalized ● \$ Capital



Support by Type and Institution (All-Time)

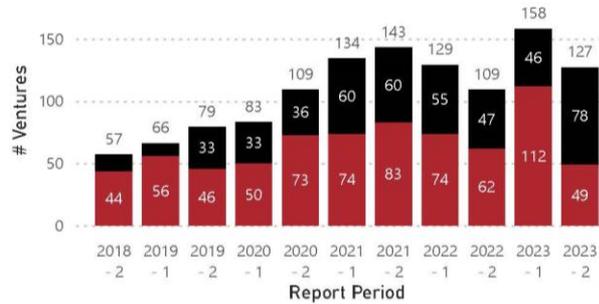
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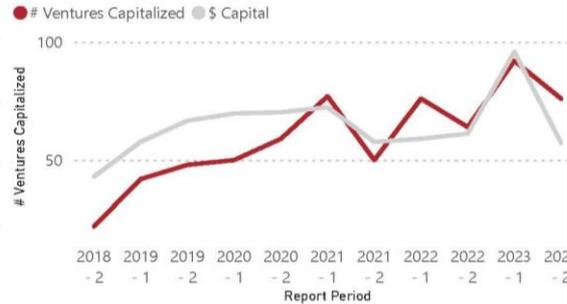
PROGRAMS, PLACES, AND CAPITAL - IP AND NOT

ALL

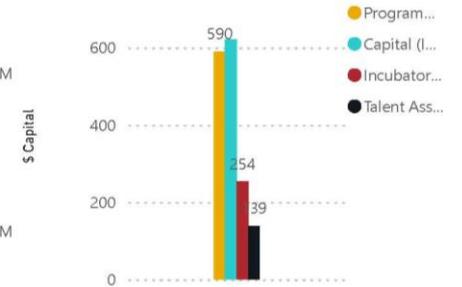
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Capital Support

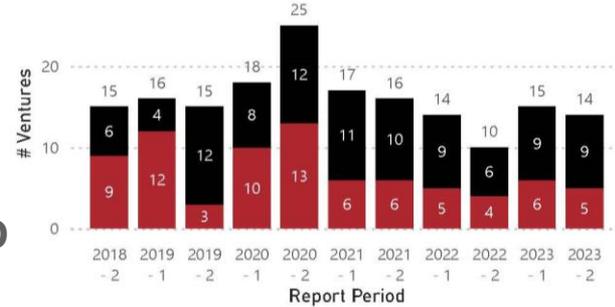


Support by Type and Institution (All-Time)

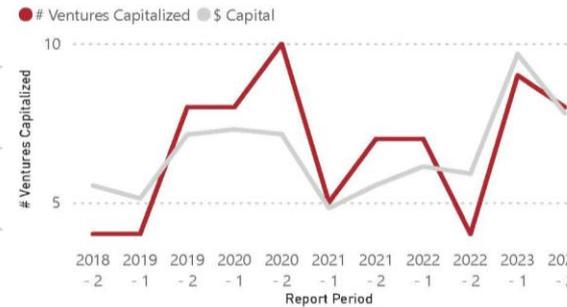


IP-BASED

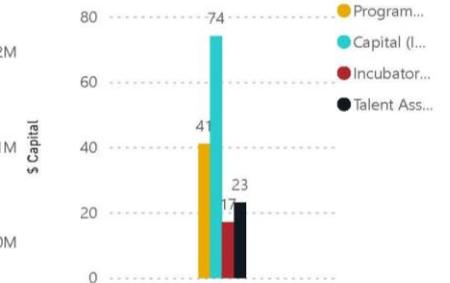
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Capital Support



Support by Type and Institution (All-Time)



ADDITIONAL STATEWIDE SUPPORT



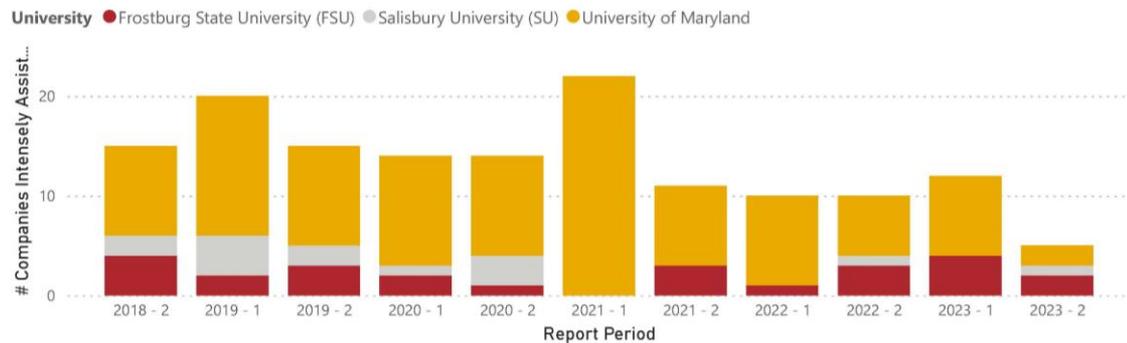
Helps Maryland retain top tech talent by increasing the number of paid technical internships offered in the state. Administered by UMBC and funded by the State of Maryland, the program offers financial assistance to technology-based businesses, as well as state and local agencies, to hire more interns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

Companies Assisted Through USM Small Business Development Centers



APPLICATION CYCLE BY THE NUMBERS

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.

OUTLOOK

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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