



**UNIVERSITY OF MARYLAND
STRATEGIC PARTNERSHIP
MPOWERING THE STATE**

2019 Annual Report on Requirements of the University of Maryland Strategic Partnership Act

Implementation of the Strategic Partnership Act of 2016

The University of Maryland Strategic Partnership Act of 2016 outlines a series of charges to the universities, and a structure for reporting to the Chancellor, Board of Regents and/or the Maryland General Assembly. **This document provides a summary of those duties, and progress toward implementation completed in 2019.**

About the University of Maryland Strategic Partnership: *MPowering the State*

Overview: The University of Maryland Strategic Partnership is a formal collaboration between the University of Maryland, Baltimore (UMB) and the University of Maryland, College Park (UMCP). The framework for the Strategic Partnership began in 2012 when the University System of Maryland's (USM) Board of Regents created an alliance between UMB and UMCP called *MPowering the State*. The alliance was formalized and strengthened by the University of Maryland Strategic Partnership Act, enacted on October 1, 2016.

Leadership: The University of Maryland Strategic Partnership is jointly managed by the President of UMB and the President of UMCP. Each President is responsible for administration and leadership of his campus, and together responsible for accomplishing the initiatives and programs of the Strategic Partnership.

A Joint Steering Council consisting of leaders from UMB and UMCP was appointed by the Presidents and charged with achieving the goals of the Strategic Partnership Act. The Joint Steering Council oversees MPower operations and programs including funding allocations and development of partnership opportunities.

Programs: The University of Maryland Strategic Partnership: *MPowering the State* leverages the complementary strengths of UMB and UMCP to boost research, attract research dollars to the state, improve technology transfer, address workforce needs, create new educational opportunities, attract exceptional students, faculty and researchers, and solve important problems relevant to the people of Maryland and the nation. The Strategic Partnership Initiative enables programs that would not be achieved by UMB or UMCP alone.

Charge #1

*The Presidents jointly shall develop and implement a plan that encourages and promotes alignment, cooperation, and collaboration between the College Park campus and the Baltimore campus. The plan shall: **Identify all undergraduate and graduate academic and research programs that may benefit from alignment and collaboration between the campuses.***

A working group is charged with seeking new opportunities for collaboration and alignment of undergraduate and graduate academic and research programs across the two campuses. In addition to looking at areas where collaboration may be expanded, it also identifies obstacles or infrastructure barriers that make it difficult for students to engage at the opposite university.

Because UMB and UMCP's programs are almost completely non-overlapping, the best opportunities for academic program collaborations seem to be in creating seamless articulation of UMCP undergraduate programs with UMB professional schools; examining enrollment marketing opportunities and recruitment materials; identifying financial aid opportunities; streamlining the admission process for international students seeking dual degrees; and identifying opportunities for joint hires for faculty.

UMB and UMCP have numerous collaborative academic and research programs in place, as well as 11 dual degree offerings; 3+3 programs that allow students to attend UMCP for three years and then matriculate to spend three years at UMB's schools of dentistry, law or pharmacy; guaranteed admission pathways for UMCP students to the UMB School of Nursing; and a bachelor of science pathway to a PharmD at the UMB School of Pharmacy, designed to increase the number of pharmacists in the state.

Additional efforts in 2019 supported the development and launch of several new certificate and degree programs for UMB and UMCP students, including:

- *An innovative joint UMB/UMCP master's degree and stackable certificates in policing and public safety administration.* The program was approved by the Chancellor of the University System of Maryland, and will launch in Fall 2020.
- *A new Joint PhD Program in Bioengineering.* The degree was launched in Fall 2019. It spans both institutions and offers students an opportunity to create and deliver engineering solutions to challenging clinical problems related to medicine, pharmacy, or dentistry.
- *An MOU was developed between the UMB School of Nursing and the UMCP Information School (iSchool) related to developing a health informatics and data science specialization within the Bachelor of Science degree in Information Science.* The MOU allows a limited number of reserved spots for UMCP students in the UMB Certified Nursing Leader program.

- *Collaboration regarding technology-mediated English language learning through Global Health.* UMB and UMCP discussions focus on the development of a program to support the professional development of post-doctoral fellows in the area of global health. The program would consist of support for continued English language learning for post-doctoral fellows as well as support in effective science communication, both for academic and non-academic audiences.
- *This same group is investigating the development of a collaborative graduate-level certificate program around multilingual language learning and communication,* in which a technology-mediated English language instruction platform would provide personalized instruction to English language learners to allow it to be tailored to an individual's English proficiency, academic needs, and professional interests.
- *An interdisciplinary PhD in health professional education between the UMB Graduate School and the UMCP College of Education* is under development, and discussions continued toward a possible joint degree between the UMB School of Social Work and the UMCP School of Public Policy. An MOU previously was finalized in August 2018.

Charge #2

*The Presidents jointly shall develop and implement a plan that encourages and promotes alignment, cooperation, and collaboration between the College Park campus and the Baltimore campus. The plan shall: **Identify competitor state peers for the University of Maryland to be used in funding guidelines.***

Programs offered by UMB and UMCP are almost completely complementary, and make a unique and powerful combination. This means UMB and UMCP have very few real peers in competitor states, and finding a slate of true competitor state peers proved difficult. A committee of UMB and UMCP experts named by the Joint Steering Council, studied at length the peer lists for UMB and UMCP as identified by the Maryland Higher Education Commission. After reviewing the peer lists and carefully exploring options such as combining competitor peers, the committee recommended leaving the peer comparison for the individual campuses in place as it is today. Thus, *UMB and UMCP will continue to have separate competitor state peers* because any other option puts one or both campuses at a disadvantage in funding comparisons.

Charge #3

*The Presidents jointly shall develop and implement a plan that encourages and promotes alignment, cooperation, and collaboration between the College Park campus and the Baltimore campus. The plan shall: **Promote effectiveness and efficiencies between the campuses, including potential savings in human resources, procurement, and information technology.***

An active committee of senior leaders from UMB and UMCP meets regularly to assess opportunities for alignment, cooperation and collaboration between the universities in four focus areas: procurement, finance, information technology (IT) and human resources (HR). The committee is actively examining existing systems and processes, as well as operations and contracts at UMB and UMCP, and throughout the University System. Proposed actions have completion dates ranging from one to 10 years.

Accomplishments:

- Kuali Research Pre-Award System: Implementation of the Kuali Research Pre-Award system, an important step in developing unified identity and access management infrastructure, was completed in May 2019. Both UMB and UMCP access the system through a single portal with their university ID and password. Development of combined research administration reports is underway.
- Multi-Function Device Contract: A detailed plan was developed to consolidate contracts for multi-functional devices (e.g., photocopy/scan/fax machines). Both UMB and UMCP currently have many contracts that are anticipated to be consolidated into a single contract. The group plans to implement this plan and award its first joint contract in 2020.
- Master Contracts/Vendor Contracts: The group continues to develop additional consolidated master contracts or vendor contracts for key commodities and/or services. This includes evaluation of common travel merchants (e.g., air, rail, lodging, vehicle rental).
- Identification (ID) Technology: UMCP is beginning a project to upgrade to next generation ID technology (e.g., student and staff identification cards). UMCP will consider a technology compatible with the UMB system.
- Cyber Security: The committee is exploring opportunities for strengthening the cyber security program at both UMB and UMCP. A formal plan of sharing IT security roadmaps, activities and solutions would strengthen the program at each campus, and potentially reduce costs for IT security software and hardware.
- Market Pricing Tool for Jobs: UMB and UMCP jointly purchased access to Salary.com, and completed implementation during the summer of 2019. Access to published salary survey market data better equips both campuses to manage internal salary equity and external salary competitiveness.
- HR Policies and Processes: Both HR units are working collaboratively to review campus policies and processes to identify policies and processes that could be combined for better integration.

- HR Technology Applications: UMB and UMCP are evaluating use of the same I-9 tracking/verification and background check tools. During UMCP's request for proposal phase for a new HR ERP system, UMB participated in the procurement process. Adoption of the same system by both will be evaluated based on UMB and UMCP's unique needs as well as interface with existing IT infrastructure on each campus.
- Payment Processing: UMB and UMCP, in conjunction with other USM institutions, researched ways to improve efficiency in payment processes including leveraging adoption of e-procurement tools to simply and expedite payment of invoices, reduce paperwork, reduce manual work to batch and send invoices to Annapolis at least daily, and to achieve greater savings by leveraging purchase contracts for volume and prompt pay discounts.

Charge #4

The Presidents shall actively seek collaboration with other institutions and entities, particularly in the Baltimore metropolitan region, as appropriate, to benefit the state. The Presidents shall report annually to the University System of Maryland Board of Regents and the USM Chancellor regarding collaboration with the City of Baltimore, Prince George’s County, and the City of College Park, in the area of community development.

UMB and UMCP have long histories of community engagement and collaboration with other institutions and entities, and both have strong relationships within the Baltimore metropolitan area. In addition, UMCP manages the state extension service and the state experiment stations for the benefit of the people of the entire State of Maryland. The Presidents are committed to harnessing the power of the University of Maryland Strategic Partnership to expand collaborations in Baltimore, as well as in UMCP’s home community of College Park and Prince George’s County.

Both UMB and UMCP directly impact the lives of students and faculty, and provide economic impact to the communities where they reside. Both universities are engaged in on-going, major development that includes investments in new projects on and off campus in College Park and Baltimore. New buildings, designed to enhance teaching, research, and community interaction, will further attract students, faculty, and related businesses and in turn will generate activity and sales to support the local economy. Other recent examples of community impact and collaboration include the following:

- The University of Maryland S.A.F.E. (Support, Advocacy, Freedom and Empowerment) Center for Human Trafficking Survivors is a Strategic Partnership initiative providing comprehensive direct services, research, and advocacy to victims of sex and labor trafficking. The Center is located in College Park. Since launching in mid-2016, the Center has developed a state-wide reputation for excellence and timely intervention, and is supporting Maryland in its coordinated state, local and federal effort against the horror of human trafficking. In addition to MPower, the Center is supported by grants from Prince George’s County, the Governor’s Office of Crime Control and Prevention, and together with Prince George’s County, by a grant from the U.S. Department of Justice.
- The Steering Council for the Strategic Partnership is exploring ways to engage with the University of Maryland Capital Region Health/Prince George’s Hospital Center. The acquisition of the hospital by University of Maryland Medical System and the development of a new hospital in Largo, provide opportunities for new research, outreach and student training. Together UMB and UMCP have deep experience with community health and health disparities, primary care delivery networks, ambulatory care, and clinical research. New programs may expand student training, attract and retain health and social service professionals to Prince George’s County, and improve health care provided to under-served populations in Maryland.

- Throughout FY 19, the Strategic Partnership dedicated funding to cross-university programs and research collaborations designed to serve citizens in UMB and UMCP's home communities and across the state. A collaboration with the State of Maryland Department of Health (MDH) was established to allow students from across UMB and UMCP schools to work in internships with MDH beginning in summer 2020. The program anticipates connecting students from diverse educational backgrounds to a myriad of MDH departments to learn and support important state-wide subjects such as the transformation of Medicaid; the regulation of health care; public health; and innovations in health care finance.

Charge #5

*The University of Maryland Joint Steering Council consists of members appointed by the President of the College Park campus and the President of the Baltimore campus. The Council shall: **Develop guidelines for faculty appointments that are joint between UMB and UMCP; make recommendations to the Presidents on joint faculty appointments.***

The new collaborations in research and education between UMB and UMCP have fueled a desire to jointly hire new faculty and to create cross-campus appointments for existing faculty at both institutions. University appointments may take the form of affiliate, secondary, adjunct, visiting or joint appointments, and require different levels of detail to implement. Guidelines will ensure that each appointment is managed consistently, respecting the credential review that usually has already been done on the home campus. Discussions continue regarding policies of promotion and tenure on each campus that will hopefully facilitate joint appointments at all levels.

The guidelines will state that all faculty appointments will be facilitated by the offices of the provost at each institution. Faculty appointment letters will include a faculty member's professorial rank and tenure status, the date on which the appointment is effective, the assigned Department, Center or Institute, and the primary institution in which the appointment will reside. The primary institution's responsibilities will include administering compensation, benefits and administrative support; setting the criteria for evaluation and conducting promotion, tenure and post-tenure reviews; and managing conflicts of interest. The professional conduct policies of each university will be followed while a faculty member is on the other institution's campus.

Still in development are principles that will outline the structure for detailing these appointments. These will include workload expectations, resources, professional conduct, etc. When completed, the recommendations will be presented to the Joint Steering Council, who in turn will make a recommendation to the Presidents.

Charge #6

Establish the Center for Maryland Advanced Ventures (CMAV) on the UMB Campus in Baltimore City; Presidents jointly appoint Executive Director.

The University of Maryland Strategic Partnership Act of 2016 created and funded the Center for Maryland Advanced Ventures (CMAV) to be located on the UMB campus in Baltimore City. The legislation provides \$4 million annually, and it specifies the goal to strengthen the commercialization of high-potential, university-based discoveries. Its Executive Director is Jim Hughes, who is also the co-director of UM Ventures, and UMB's Senior Vice President and Chief Enterprise and Economic Development Officer.

CMAV was launched July 1, 2017 to facilitate technology transfer, identify research projects that could be commercialized and develop programs to support that commercialization. CMAV has implemented a series of strategic and thoughtful initiatives that fulfil the goal of the legislation, while also connecting to and expanding existing UM Ventures programs that support the advancement of technology commercialization. CMAV programs have worked collaboratively with TEDCO and the Maryland Department of Commerce to ensure they are fully integrated and complimentary to existing Maryland programs.

Program Highlights:

- **The Maryland Momentum Fund (MMF)** – A collaboration between UM Ventures and USM, this \$10 million early stage investment fund invests in Maryland-based, USM affiliated start-up companies. CMAV funds a full-time Director based at UMB and a 50% investment manager based at UMCP. The MMF staff and USM reach out to all USM institutions to solicit applications for funding. For FY 2019, we reviewed 137 companies seeking investments from five USM campuses: UMCP, UMB, UMBC, Towson and UMUC. With input from 45 review panels, the external review board considered 16 companies for investment and the MMF approved investing in five companies. To date, the MMF has invested a total of \$2.549 million and matched that with \$11.104 million on eight closed transactions with over 14 co-investors. This exceeds a 4:1 match of USM dollars, far surpassing our original goal of a 2 to 1 match. MMF has served as a catalyst investor in six of these investments by being the first to pledge an investment which assisted in the firm being able to raise funds.
- **Life Sciences IP Fund** is providing proof-of-concept funding to accelerate commercialization of technologies at UMB. CMAV has committed \$1.15 million to support early stage technologies' move towards commercialization. This funding is generally provided for external validation and analysis. Currently 11 device and therapeutic technologies are under active management. One of the funded technologies was licensed for commercialization with a corporate partner in early FY 2019.
- **The President's Entrepreneurial Fellows** program selected six students from UMB and UMCP for the 2018/2019 cohort. Mentored by UM Ventures staff, the Fellows worked on inter-disciplinary teams to commercialize UMB-owned technologies and learn of the unique challenges of commercializing life science technologies. The fellows were profiled in an article in *Technical.ly*

(May 2019) where they discussed their role in the development of Isoprene Pharmaceuticals founded by Dr. Vincent Nijar of the University of Maryland, School of Medicine.

- **OnEx** – The online express license store offers a streamlined licensing experience for select software and materials from both UMCP and UMB. This creates an additional access point for industry to peruse technologies that are routine and ready to be commercialized. This resulted in 35 transactions this year.
- **The GRID** provides a centralized location to promote student entrepreneurship and house early stage companies in a co-working environment.
 - Tenants include the UMB Graduate School, 12 incubator companies, the Small Business Development Center (SBDC), and the Carey School of Law IP and Business Law Clinic.
 - Two incubator companies have shown significant growth this year with B.Well expanding to 11 employees on site and Armr was approved for a MMF investment pending receipt of matching funds.
 - Programs included a Grid Pitch for student entrepreneurs and a series of Graduate School programming. The Graduate School's M.S. in Health and Social Innovation launched in September of 2019 and is housed in this space.
 - The GRID space was upgraded this year to expand space for start-up companies.
- **Market Reach America** is a collaboration of the Maryland/Israel Development Center, Maryland Department of Commerce, Israel Innovation Authority, Abell Foundation and UMB. It has:
 - Supported the program with space, funding, and programming for the 13 Israeli med-tech and digital health entrepreneurs that participated.
 - Awarded 3 top performers with 1 year of co-working desk space.
 - Anticipate significant collaboration with existing entrepreneurs and these 3 firms to locate at the UMB BioPark in 2020.
- **Medical Device Development Fund** launched in October 2018 to contribute to a meaningful milestone that would advance a medical device technology towards commercialization. In its inaugural year, seven applications were received resulting in three awards totaling \$125,000 with a fourth award approved for FY 2020 investment. The investments have attracted the interest of industry partners to support the technologies' move toward commercialization. It is anticipated that FY 2020 will show more results of these investments that have included an instrument for redox-based chemical signature detection, a software application for the detection and inhibition of biofilm and a staggered electrode solid-state multi-batter for integration into biomedical devices.
- **Small Business Development Center (SBDC)**, the Federal small business outreach entity, is located at the GRID and provides direct assistance to local and university affiliated entrepreneurs.
- **IPEC Law Clinic** was established with the Carey School of Law and provided legal assistance to nearly 100 clients in the areas of business law, trademarks, and patents.

Grants Activities

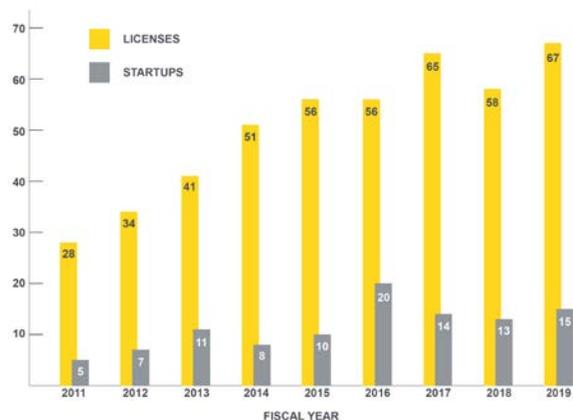
- **Anchor Ventures** – We continued work on this joint initiative of UM Ventures, USM and Johns Hopkins University supported by a \$125,000 competitive matching grant from TEDCO. Anchor Ventures held 7 networking and educational programs with over 1,000 participants in FY 2019.

Anchor Ventures is known to foster the collaboration and education of the innovation ecosystem in Baltimore with active participation with the universities, key stakeholders, entrepreneurs and investors.

- **REACH Chesapeake** – In collaboration with JHU, a \$6.3 million grant was submitted to NIH to create a REACH commercialization hub in Baltimore to accelerate the translation of bio-medical academic discovery into market-based solutions to public health needs. The grant award announcement is anticipated in the fourth quarter of 2019.
- **SEED Grant** – UMB filed a SEED grant with Maryland Department of Housing and Community Development to support the development of entrepreneurial infrastructure in West Baltimore. The \$2.2 million grant would provide funding to offset the development of the 11,400 square foot District Hall as part of the new proposed building in the BioPark. District Hall will provide civic innovation spaces, places where companies of all sizes, stages and industries can build their businesses and connect with one another and the regional anchor institutions. Awards for this grant will be announced in the fourth quarter of 2019.

Baltimore Fund encourages University created or sponsored technology companies to locate and expand in Baltimore City as specified in the legislation.

- Since inception in 2017, UMB has entered into conditional grant agreements with 16 companies, which have committed to create/retain over 350 jobs in Baltimore City. To date, 265 jobs have been created/retained. Baltimore Fund support is distributed only after the companies certify the number of jobs created or retained.
- In addition to its growth in Baltimore, Paragon, now owned by Catalent, opened a 150,000 square foot manufacturing facility in Anne Arundel County and it entered into a strategic partnership with Novavax in Montgomery County that added 100 jobs to its payroll. Catalent projects that it will reach 1,000 jobs in Maryland within the next 12 months, an increase of 700 jobs since the Baltimore Fund first supported its growth in the BioPark.
- Provided lease subsidies to 10 emerging companies to establish operations in Baltimore City and supported the direct expansion of 6 additional companies since inception of the program.
- Collaborated with 4 Baltimore City locations to source and house the emerging companies.
- Companies represent four USM institutions and a wide array of technologies.
- Engaged TEDCO, Baltimore Development Corporation and Commerce to support the program.



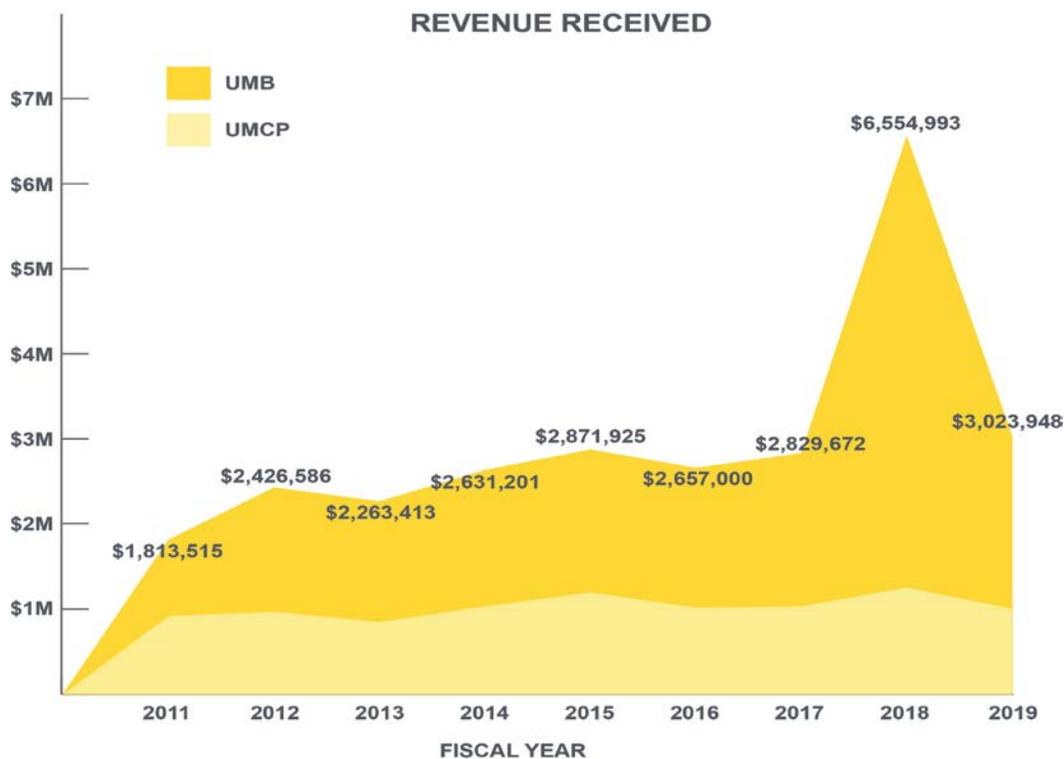
Technology Commercialization:

Since the inception of UM Ventures in 2012, there has been a dramatic increase in technology transfer activities at both UMB and UMCP. For Fiscal 2019, UM Ventures has recorded 302 new disclosures, created 15 new startups, been awarded 11 MII grants and matched 3 emerging companies with CEO’s. The increase is reflected in the graphic on the previous page.

In addition, we have been able to strengthen our strategic industry partners and have demonstrated a larger portfolio of high profile startups. These goals have been achieved with the concerted effort of UM Ventures staff and outreach to industry.

Value of licensed technologies

It is difficult and highly speculative to value technologies when they are first licensed. However, we can report that technology transfer revenues to UM Ventures in FY 2019 was \$3,023,948, which is a 67% increase over 2011. Although this number is smaller than last year, FY 2018 was marked by three extraordinary transaction acquisitions of UMB start-up companies Harpoon, Analytical Informatics, and Living Pharma. It is anticipated that we will see similar success in future years.



Additionally, equity raised by our start-up companies is a good indicator of the value of the technology and the strength of the management team. Publically reported equity raised by our start-ups exceeded \$10 million in 2019.

FY 19 Metrics Summary:

1. Technology transfer transaction efforts at UMB and UMCP have been augmented with CMAV initiatives resulting in 302 disclosures, 67 licenses and 15 new start-up companies in 2019.
2. CMAV initiated extensive outreach to university entrepreneurs and industry partners, and developed funding, educational and programmatic support delivered in the form of multiple, strategic initiatives. Programs have been refined to ensure they are timely and meeting USM goals and objectives.
3. CMAV submitted two new grants to directly enhance technology transfer activities.
4. UM Ventures received revenue in excess of \$3 million in FY 2019 from technology transfer activities.
5. Publically reported equity raised by our start-ups exceeded \$10 million in 2019.
6. Supported USM engagement of RESI to develop a preliminary system to measure economic development and technology transfer activities. These are currently being refined for implementation throughout USM.
7. Provided direct support to entities at UMB, UMCP, UMBC and Towson in 2019.

Recommendation:

- Support funding for the Maryland Infrastructure Technology Fund.
- Support connections between tech transfer activities and research parks/incubators.
- Strengthen connections with local angel networks and national venture capital companies.
- Independently track employment at USM Maryland-based start-ups, Baltimore Fund recipients, and MMF companies.

Charge #7

Establish the University of Maryland Center for Economic and Entrepreneurship (UMCEED) on the UMCP campus; Presidents jointly appoint Executive Director.

UMCEED, based at UMCP, advances education and research in neuroscience, virtual and augmented reality, biomedical devices, data analytics and cybersecurity with the purpose of advancing education and research in fields where job growth and entrepreneurial potential are high. These are fields judged to be important to the Maryland state economy, and all involve multiple, interdisciplinary, academic opportunities.

Mary Ann Rankin, PhD, a member of the Joint Steering Council of the University of Maryland Strategic Partnership and UMCP Senior Vice President and Provost, was appointed Executive Director of UMCEED by the UMB and UMCP Presidents.

Summary: FY 19 Annual Report of Progress

Immersive Media Design Major

After years of framing the program, in spring of 2019, the UMCP Colleges of Arts and Humanities (ARHU) and Computer Mathematical and Natural Sciences (CMNS) jointly proposed to offer Bachelor of Science and Bachelor of Arts degrees in Immersive Media Design. The field of Immersive Media Design encompasses a broad spectrum of practices drawing from both the creative arts and computing sciences. It addresses emerging developments across both disciplines and utilizes practices in augmented and virtual reality, computer graphics and game programming, digital fabrication, software art, tangible computing and computer sensing allowing for the creation of multisensorial content which actively engages with its participants through deep interactivity in both virtual and dimensional settings.

This major represents a substantive collaboration between STEM fields and the Arts and Humanities and will prepare students to be leaders in the production of Augmented Reality, Virtual Reality, and the aforementioned related Immersive Media Design disciplines. Students in this major will engage in a sustained interdisciplinary practice wherein groups from computer science and the arts and design collaborate over the course of several semesters to jointly study and address some of today's most pressing questions about the role of technology as a creative medium. As technology increasingly becomes interwoven into the fabric of everyday life, the development of a program of study solely dedicated to this momentous shift will place UMCP at the forefront of a nascent field and will contribute to the continued upward trajectory of the University of Maryland as it pertains to recruiting top tier students, researchers and educators from the state and from across the nation and globe.

Now that the Immersive Media Design Major has been officially established, more work continues on curriculum development and hiring faculty. This program will launch in fall 2021 and it's anticipated that it will produce 60-100 annual undergraduate degrees starting in May 2024.

Brain and Behavior/Neuroscience Initiative

Maryland has outstanding research and teaching programs in neuroscience and wishes to build upon its existing strength by recruiting new leadership in this field and creating closer connections across the College Park campus and between programs at UMCP and UMB. For the last 5 years, UMCP has invested in the Brain and Behavior Initiative (BBI) to foster interdisciplinary interactions in neuroscience across College Park units. MPower funding also supported collaborative educational and research programs in neuroscience, particularly via the Center for Brain Health and Human Performance—building towards a new clinical research facility for the study of recovery from brain trauma. UMCP has a successful interdisciplinary graduate program in neuroscience (“NACS”) and is in the process of creating an undergraduate major in neuroscience that will further deepen the commitment to neuroscience as a major campus initiative.

Several UMCP deans have agreed to mutually support at least seven trailing hires to be available to the new BBI director.¹ The UMCP Provost will fund ½ of each salary up to \$150K each.² The other half will be funded from contributions from the colleges of Behavioral and Social Science, Computer, Mathematical and Natural Sciences, Public Health, Engineering, Education, and Art and Humanities. We will seek joint appointments with the School of Medicine or other UMB unit wherever possible; joint appointments across colleges or departments will be welcome as well. Start-up costs will be shared as usual among the participating colleges, the Offices of the Provost and the Vice President for Research. For any start-up package over \$1.5M, we will discuss possible additional funding sources.

The Director’s salary and start-up will be derived from UMCEED funds. The director should be of such stature that he/she will be eligible to hold a Clark Leadership chair which may be matched from E-innovation funds to either double the size of the director’s chair or provide funds for endowment support for one or more of the trailing hires. The graduate program in neuroscience (NACS) will be coordinated across the campuses with funding provided as it is at present for NACS. New TA/GA/and Fellowship support will be provided from the provost’s office and colleges for NACS. First-year fellowships for graduate students in NACS will be funded from UMCEED to allow for lab rotations by new students. Lab rotations at UMB should be included for interested students, assuming UMB faculty wish to participate. Core Facilities and Labs will be housed initially in the Cole Research Building (Center for Brain Health and Human Performance). Space in Cole Research currently programmed as cold shell will be finished for these purposes.

A cabinet, including the Provosts from UMB and UMCP and the Vice President for Research (or their representatives), and the relevant deans from both campuses will be a secondary report. This group will meet with the director quarterly to receive an update on BBI programs and issues, the graduate and undergraduate programs, core facilities and other matters. Colleges will contribute operating funds to

¹ Trailing hires are commitments to hire, through the normal search process, additional faculty in the research area of the leader being recruited

² The expectation is that the funds for these matches will be taken from UMCEED funds. Any and all of these hires could potentially be joint with UMB through MPower.

BBI according to the number and proportion of faculty participating. Rolling 5-year commitments from UMCP deans for funding will be matched 1:1 by the UMCP provost for the first five years, subject to renewal after review.

Faculty Recruitment. The establishment of a strong and cohesive brain and behavior community will increase our appeal to talented faculty who conduct multidisciplinary research that does not fit well within the mission of a specific department. Synergy with the emerging MPower initiatives and related entities such as the Center for Brain Health and Human Performance will afford medical support and collaboration opportunities for existing and new faculty in brain research, amplifying clinical trial capabilities at UMCP while elevating and extending our competitiveness to acquire external funding from leading federal agencies such as the NIH, NSF, and DoD.

The Undergraduate Major in Neuroscience

UMCP's College of Behavioral and Social Sciences (BSOS) and Computer, Mathematical and Natural Sciences (CMNS) are implementing a new undergraduate major in Neuroscience that will boost the number of graduates in high-demand workforce areas. This new major will help address a critical need to recruit and train talented students at UMCP who are interested in health care, allied health careers, biomedical industries, and clinical psychology. The new neuroscience major will encourage more academically talented Maryland residents to stay in-state for undergraduate training at their flagship institution, thereby increasing the probability that they will contribute to the local medical and allied health professions workforce later, rather than going out-of-state for college and graduate training.

Neuroscience is an especially valuable and appealing undergraduate major for students interested in STEM and health sciences careers, but it is also a very strong foundational major for students interested in computational data science, artificial intelligence, and virtual and augmented reality.

Significant progress has been made to date and the first class of undergraduate majors will enroll in Fall 2020. Two professional track faculty hires have been made who are developing detailed curriculum and preparing the teaching facilities. This will be the first intra-college major at UMCP.

The major is now projected to grow over a three-year period to a steady state of at least 600 students within two years of launching. The current Physiology and Neurobiology track in Biological Sciences at UMCP has 650 majors, some of whom will move to the new neuroscience major, but this major will also attract new students to UMCP who would otherwise leave the state.

College of Information Studies (iSchool):

Continued support of the Information Science undergraduate major and specializations in cybersecurity, digital curation, and information management

In fall 2016, the College of Information Studies (iSchool) launched the Information Science undergraduate major at UMCP. This major combines information technology skills, data analytics, design thinking, and domain knowledge to prepare students for careers in information management, systems development, and information security. The Information Science program has been extremely popular and successful and has enrolled more than 1,100 students, 250 of whom have graduated and entered the workforce in information technology, security, and system management. More than 90% of Information Science students had jobs immediately following graduation. Demand remains high, with approximately 900 students currently enrolled and 350 students entering the program each year. In fall 2018, the Information Science undergraduate major was launched at the Universities at Shady Grove (USG). The fall 2019 class has 58 students (23 returning and 35 incoming). This program is on track to both begin graduating students in spring 2020 and to reach the initial capacity target of 70-80 students in fall 2020. The program at USG has the potential to grow to 200-300 students.

For fall 2019, a specialization in cybersecurity has been launched at College Park by leveraging the Workforce Development funds received for FY20. This specialization will increase the number of Information Science students who are prepared for careers in information security. The cybersecurity courses we are able to offer at College Park in fall 2019 with current faculty are fully enrolled.

In fall 2019, the iSchool also launched a specialization in digital curation and management which builds on Information Science fundamentals to prepare students for careers in information and systems management. This specialization builds on the iSchool's history of preparing students at the Masters level for information management jobs, as well as developing substantial strengths in document and data management, as reflected in the Digital Curation Innovation Center (<http://dcic.UMCP.edu/>), an internationally recognized resource for education and thought-leadership in this area. The digital curation and information management courses we are able to offer in fall 2019 with current faculty are fully enrolled.

On the horizon:

UMCP just received Workforce Development Initiative (WDI) funds to bolster the above-described programs and to launch a new **Academy of Computer and Data Science Education**. The proposal was developed in response to the recommendations of a task force convened by the Provost in Fall 2017 to provide recommendations on enhancing the effectiveness and connectivity of UMCP's programs in Computer Science (CS), Data Analytics, and related disciplines. During several meetings from December 2017 to October 2018, the Task Force focused on desired outcomes. One of these was to increase the availability of CS and data science courses to non-CS majors, even to the extent of requiring computing or data analytics courses for most UMCP students.

Encouraging students across campus to take courses in computing and data sciences will produce many more graduates, beyond those in the core majors, who will have the knowledge base to contribute directly to the workforce in areas such as Machine Learning, Data Management and Analytics, Artificial Intelligence, and related fields. Students in the humanities and social sciences and other non-STEM fields need these skills today. With this initiative we intend to make such opportunities available at least at a general level to every undergraduate at UMCP and in more depth to many more than just those in the traditional STEM majors.

In addition to general knowledge there are many areas of data science and computing at large that lend themselves to interdisciplinary courses, tracks, certificates or programs. These include: smart cities, computational medicine, machine learning and other AI techniques, robotics, augmented and virtual reality, and many others. Some areas could justify a full major or graduate program, while others may be best offered as certificates or specialized tracks.

The Academy of Data Science Education will support and coordinate various teaching initiatives across campus Data Science, and its associated computing fields. The Academy will help bring together faculty with related teaching interests, looking for opportunities to collaboratively develop course material or programs of study. It will also facilitate development and staffing of new cross-disciplinary programs in computing and data sciences.

Once fully realized, we believe that the Academy of Computer and Data Science will ultimately impact all (approximately 30,000) undergraduates at UMCP through the provision of targeted instruction that will enhance the skills and workforce readiness of all graduates. The creation of “connector courses” will impact non-STEM majors and increase the number of certificate programs, minors and joint major programs as a result.

Charge #8

On or before December 1, 2016, the Presidents shall study and recommend to the Chancellor of the USM mechanisms that would permit the joint reporting for national university rankings of the campuses of the University of Maryland, including reporting under a unified federal identification number.

The UMB and UMCP Presidents studied and recommended to the chancellor on December 1, 2016, mechanisms that would permit the joint reporting for national university rankings. Since then, the Presidents with the Joint Steering Council took steps to implement those recommendations to demonstrate how the University of Maryland is functioning as one research institution.

2019 was a pivotal year in further formalizing the strategic partnership, which unifies UMB and UMCP research activities as a single enterprise. The research and development expenditures of the University of Maryland will appear as one figure in National Science Foundation (NSF) rankings beginning with its report for fiscal year 2019. The rankings are expected to be published in November 2020. NSF's Higher Education Research and Development Survey serves as the preeminent rankings report for higher education institutions engaged in sponsored research in the United States.

The joint reporting of Maryland's total expenditures is a direct result of Senate Bill 1052, which codified the UMB and UMCP relationship in law. UMB and UMCP first explored aligning research activities in 2012, when the MPower partnership was launched. Both UMB and UMCP conduct advanced research in a broad array of fields, and the complementary pairing of the two opened up exciting opportunities for approaching research together. When the General Assembly passed the University of Maryland Strategic Partnership Act, UMB and UMCP linked the two research offices more formally, aligning not only research projects but also infrastructure and leadership. A single leader with responsibility for research collaboration and strategic direction was appointed to enable investigators to work more easily together, thus providing the opportunity for exciting new areas of impactful research. In 2018, the UMB and UMCP Presidents appointed Laurie E. Locascio, PhD to lead the joint research enterprise as Vice President for Research, expanding a role Dr. Locascio held at UMCP since 2017. Reporting to both Presidents, she manages the combined research enterprise in Baltimore and College Park. It features a single reporting office for institutional research reporting to external agencies; a combined electronic research administration system; and a shared services approach to administration. A research office website serves as a portal to the research enterprise that comprises the University of Maryland. UMB and UMCP are identified as the University of Maryland by a single, federal identification D-U-N-S number through Dun and Bradstreet.

Charge #9

The Presidents of the University of Maryland campuses (UMB, UMCP) and other campuses serving the Baltimore metropolitan region shall develop a joint plan to advance employment levels in Baltimore City, including the creation of entry level employment opportunities for individuals that include a plan for on-the-job skills training that will result in a measurable employment skill, certification or license.

The Presidents of UMB and UMCP are committed to strengthening economic and community development and working with community partners and anchor institutions in Baltimore to advance employment levels.

Work continues by the Strategic Partnership to advance employment in Baltimore City and to build on a platform of relationships. UMB has a long history of collaboration with Baltimore City and the Mayor's Office of Employment Development; community partners like the Southwest Partnership, the Chesapeake Center for Youth Development and Bon Secours Community Works; industry partners like Humanim; other universities; and anchor institutions like the medical systems in East and West Baltimore.

The Southwest Partnership is a coalition of seven neighborhood associations and six anchor institutions in Baltimore City near UMB's campus. Workforce development is a priority, and the partnership continues to look for support to address the unemployment needs of residents, and connect resources to residents. UMB's Office of Community Engagement and its Office of Human Resources collaborate with the partnership to reduce barriers to employment and to develop workforce opportunities. One mechanism is the creation of a referral program to connect residents on the west side of the City with jobs at UMB, as well as with the University of Maryland Medical Center, University of Maryland Midtown, and University of Maryland Faculty Physicians. As part of the initiative, applicants are guaranteed that their resume will be seen by the institution. This program collaborates with "Workforce Wednesdays", offered weekly by the UMB Community Engagement Center to provide services and resources to the community. UMB staff provide information and training in job readiness, resume writing, interview training, and other skills needed to keep job seekers on the right track.