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3300 METZEROTT ROAD
ADELPHI, MD 20783-1690

TO: Members of the Committee on
Economic Development and
Technology Commercialization:

Mr. Gary L. Attman
Ms. Louise Michaux Gonzales
Ms. Linda Gooden
Mr. Earl F. Hance

The Hon. C. Thomas McMillen
Dr. John L. Young
Mr. Clifford M. Kendall, *ex officio*

FROM: Joseph F. Vivona

DATE: June 7, 2011

RE: Meeting of the Committee at University of Baltimore

The Committee on Economic Development and Technology Commercialization of the USM Board of Regents will convene in public session at 2:00 p.m. on Tuesday, June 14, 2011. The meeting will take place at the University of Baltimore in the Student Center, 21 W. Mt. Royal Avenue, Room 301. The Committee will meet in executive session immediately following the public session, at approximately 3:30 p.m.

Attached are the appropriate agendas for both sessions together with supporting materials. Parking will be available to attendees in the Fitzgerald Garage, 80 W. Oliver St. Directions to the garage and a campus map showing the meeting location are attached.

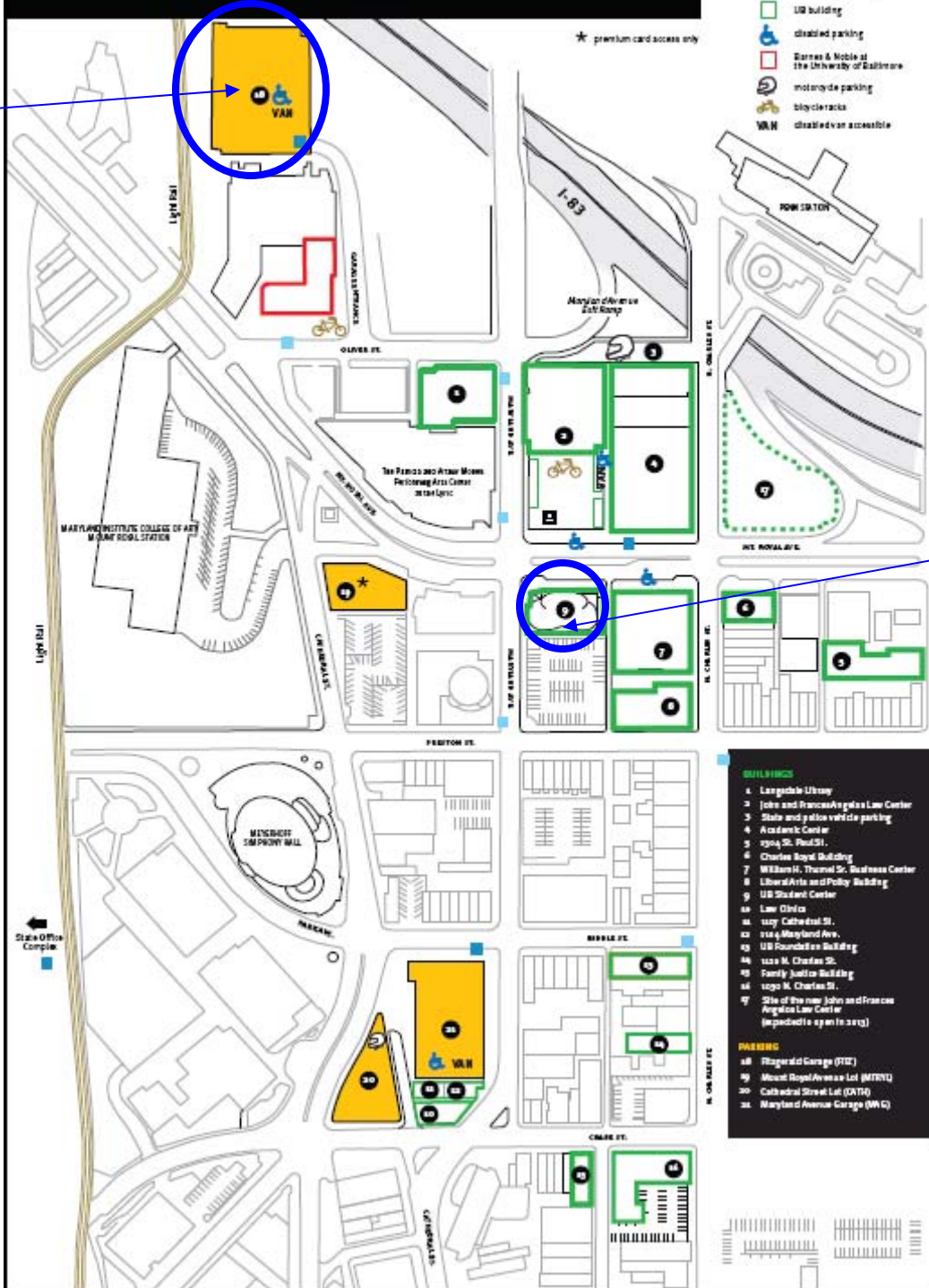
I look forward to seeing you next week.

cc: Office of the Attorney General
Chancellor's Council
Research Vice Presidents

Assistants to the Presidents
Office of Communications

UB CAMPUS MAP

PARK HERE



MEETING location

- BUILDINGS**
- 1 Longdale Library
 - 2 John and Frances Apgar Law Center
 - 3 State and police vehicle parking
 - 4 Academic Center
 - 5 1504 St. Paul St.
 - 6 Charles Royal Building
 - 7 William H. Thomas Sr. Business Center
 - 8 Liberal Arts and Policy Building
 - 9 UB Student Center
 - 10 Law Office
 - 11 1107 Cathedral St.
 - 12 1144 Maryland Ave.
 - 13 UB Founders Building
 - 14 1129 N. Charles St.
 - 15 Family Justice Building
 - 16 1030 N. Charles St.
 - 17 Site of the new John and Frances Apgar Law Center (suspended in 2013)
- PARKING**
- 18 Fitzgerald Garage (FG)
 - 19 Mount Royal Avenue Lot (MTRY)
 - 20 Cathedral Street Lot (CATN)
 - 21 Maryland Avenue Garage (MAG)

Directions to campus:

From the North (Northern Baltimore County)

Take I-83 (Harrisburg Expressway) to I-695 toward Pikesville. Follow signs to I-83 South (Jones Falls Expressway). From I-83 take Exit 6, Mt. Royal Ave./North Ave. At end of ramp is a traffic light; go straight and follow as the road bends to the left. To access the Fitzgerald Garage, turn left onto Oliver Street just past the light rail tracks. Look for the [Barnes & Noble](#) (UB's bookstore) on the left, and the garage entrance immediately to the right of the store.

From the West (Frederick, Md. and beyond)

Take I-70 to I-695 toward Towson. Follow I-695 to Exit 23 for I-83 (Baltimore). From I-83 take Exit 6, Mt. Royal Ave./North Ave. At end of ramp is a traffic light; go straight and follow as the road bends to the left. To access the Fitzgerald Garage, turn left onto Oliver Street just past the light rail tracks. Look for the [Barnes & Noble](#) (UB's bookstore) on the left, and the garage entrance immediately to the right of the store.

From the South (Anne Arundel County and Southern Md.)

Take Rte. 3 to I-695 toward Towson. Follow I-695 to Exit 7 for Rte. 295 (Baltimore). Rte. 295 will become Russell Street. Make a right onto Pratt Street and then a left onto Charles Street. To access the Fitzgerald Garage, follow Charles Street then turn left onto Mt. Royal Avenue. Follow West Mt. Royal Avenue past the Lyric Opera House and turn right onto Oliver Street. Look for the [Barnes & Noble](#) (UB's bookstore) on the left, and the garage entrance immediately to the right of the store.

From the Southwest (Howard, Montgomery and Prince George's counties/Wash., D.C.)

Take I-95 into Baltimore. Exit I-95 at Exit 53 I-395 (Downtown Baltimore). Bear left for the Inner Harbor. Make a right onto Pratt Street and then a left onto Charles Street. To access the Fitzgerald Garage, follow Charles Street then turn left onto Mt. Royal Avenue. Follow West Mt. Royal Avenue past the Lyric Opera House and turn right onto Oliver Street. Look for the [Barnes & Noble](#) (UB's bookstore) on the left, and the garage entrance immediately to the right of the store.

From the Southeast (Eastern Shore)

Take Rte. 50 to Rte. 97 toward Baltimore. Rte. 97 will become Rte. 3/Rte. 97. Follow Rte. 3 to I-695 toward Towson. From I-695 take Exit 7 Rte. 295 (Baltimore). Rte. 295 will become Russell Street. Make a right onto Pratt Street and a left onto Charles Street. To access the Fitzgerald Garage, follow Charles Street then turn left onto Mt. Royal Avenue. Follow West Mt. Royal Avenue past the Lyric Opera House and turn right onto Oliver Street. Look for the [Barnes & Noble](#) (UB's bookstore) on the left, and the garage entrance immediately to the right of the store.



**Board of Regents
Committee on Economic Development and Technology Commercialization**

June 14, 2011

University of Baltimore

Public Session

General discussion: Debriefing on meeting with Jack Brittain

1. Memo to Committee – Summary (discussion) (attachment)

2. Plans for strengthening technology transfer and commercialization (discussion)
 - a. Response to memo: Vice Presidents for Research (attachments)
 - b. Advice about research foundation structure (discussion with vice presidents)

3. Committee considerations (discussion) (attachment)
 - a. Commercialization as a goal?
 - b. More focus on start-ups?

Updates

4. Committee workplan (information) (attachment)

5. Convening Closed Session (action) (attachments)

Agenda Item #1: Attachment



3300 METZEROTT ROAD
ADELPHI, MD 20783-1690

TO: Committee on Economic Development and Technology Commercialization
FROM: Joe Vivona
Carol Berthold
DATE: May 4, 2011
RE: Jack Brittain's visit

The following summary is a first attempt at synthesizing the major points which Jack Brittain made in his meeting with the committee last week. We've taken the approach of summarizing the meeting in terms of factors that might be regarded as critical to the success of the technology commercialization function within a university. As you read through these, you may want to add your own thoughts about our conversations with Jack.

1. *The real goal: Commercialization*

The real goal of the technology transfer function should be commercialization. Accordingly, activities should be focused on increasing the numbers of licenses and start-ups.

2. *Underlying value: Add value as a university to the commercialization process.*

Traditionally, universities have added value through developing concepts and ideas and sometimes in developing proof of concept, but those, while serving as a foundation for commercialization, do not necessarily result in commercialization. The new value which a university can add focuses on generating spin-offs. By providing myriad services – prototyping, incorporation, website, logo design, corporate secretary, CFO solutions, umbrella insurance, market research, and grants programs, to name some – a university can facilitate the establishment of start-ups that are not available from any single source for faculty wishing to commercialize a technology, discovery, or invention. This is the added value that a university can bring to commercialization and economic development and that often needs strengthening.

3. *Philosophy: Service and brokering*

a. *Change from a cost recovery model to a high volume technology broker.*

The university needs to look upon a technology transfer operation, not as a mechanism for recovering costs, but as a vehicle for brokering technology that can result in commercialization. This means having the right number of experienced and qualified licensing managers. It also means a quick turn-around time for judging the marketability of an idea or a technology, from deciding whether to take it to the

proof of concept stage, to whether it is patentable, or the subject of a license and start-up. It means spending a small amount of money to test the marketability of a technology and deciding quickly what route each technology, discovery, or invention will take: commercialization or release back to the faculty member. It also means having a flexible IP policy that is not overly protective and restrictive.

b. Adopt a philosophy of being a service organization to the faculty.

A technology transfer operation that serves the faculty provides sufficient licensing managers to establish a personal “high touch” relationship with the faculty. A service organization provides a full array of services to take an idea from the discovery stage to the market and assistance to the faculty member at every stage of the process.

4. An appropriate structure to do the job.

a. Technology transfer must be totally integrated with the whole mission of the university.

This ranges from research through the academic programs and reward of faculty through the promotion and tenure process.

b. A separate research foundation.

A research foundation can engage in some activities that might otherwise be restricted to the university but which would greatly benefit commercialization and economic development (e.g., owning real property and owning equity in start-ups). A research foundation can also serve as a vehicle for handling patents, making seed money available, and can provide a separate capacity to support programs within the tech transfer operation.

Please feel free to add to this list, reorganize it, or amend it, since its purpose is to serve as a starting point for debriefing the committee and for helping to determine which factors are relevant to the USM and which ones the committee thinks most important to discuss and pursue in the coming year. As always, we’d be glad to discuss with you before the committee meets again.

cc: Brit Kirwan
Brian Darmody
Janice Doyle

Agenda Item #2: Attachments



3300 METZEROTT ROAD
ADELPHI, MD 20783-1690

TO: Norma Allewell
Jim Hughes
Geoff Summers
FROM: Joe Vivona
DATE: May 10, 2011
RE: Follow-up from meeting with Jack Brittain

The feedback from those who participated in the meetings with Jack Brittain seemed to be quite positive. Most attendees thought the meetings generated many ideas about how the USM technology commercialization operations might be strengthened. As a starting point, I'd like to analyze what your institutions might need if we were to use Utah as an approximate model for our technology commercialization activities. To assist in the analysis, please assess what he said in the context of your institution's technology commercialization efforts, and develop a series of recommendations for your program based upon the ideas and models he discussed.

Your recommendations should be based upon changes that you would like to make in your institution's approach to technology commercialization. Keep in mind that although Utah might be a good model in general, every Utah program might not be appropriate or effective within your institution. Please include an organization chart if you are recommending changes in your program's organizational structure. If you recommend adding new staff, include a meaningful description of each new staff member's job, the expected salary, and where the person would fit into the organization. In addition to new staff salaries, your recommendation should also include a general estimate of other costs and where you would find or seek funding for the changes. Please also estimate how your proposed improvements would affect measurable outcome (e.g., increase number of start-ups to n).

If you'd like to talk about this, don't hesitate to call or email me.

Please send your responses to Carol Berthold at berthold@usmd.edu by June 1.

Thanks.

cc: Carol Berthold

UMB's response to May 10 memo

Reactions to the University of Utah Model

The University of Utah has clearly made great strides in the past five years in becoming the leading University for creating start-up companies. Although differences exist in the research base, Utah offers some excellent lessons for UMB's evolving Office of Technology Transfer (OTT).

UMB already has an organizational structure that is very similar to that of Utah's tech transfer office: tech transfer and corporate sponsored research are combined into a single central unit. UMB has taken additional steps and integrated its Center for Clinical Trials and the BioPark into the same central unit. Like Utah, issues such as research compliance, conflict of interest, and human research protection are handled by other offices within UMB.

However, there are a series of important differences between Utah and UMB:

1. **Staffing/Budget:** Despite having 20% less in total awards for grants and contracts in FY2010 (\$450 million versus \$567 million), Utah has three times as many tech transfer staff as does UMB. Also, Utah's salaries seem higher - the May 16th article in The Salt Lake Tribune "Fits and startups: Is U. Tech transfer flawed?" reports that the out-going director of Tech Transfer for Utah made \$249,000 per year. Although it was not enough to retain him (Ohio State hired him for \$365,000), it is nearly twice what UMB has paid its director in the past.

RECOMMENDATION: As outlined in the enclosed organizational chart (Attachment 1), UMB is seeking to more than double the size of tech transfer office over the next two years. This would achieve near parity with UMB's peer institutions, but would still be below the staffing level at Utah (Attachment 2). In addition to increasing the number of staff, UMB needs to recruit more staff with experience as biotech entrepreneurs, which means that average salaries will need to rise to get the best talent. Enclosed are job descriptions for the key positions (Attachment 3).

This additional staffing will also enable UMB to more effectively market its translational research and clinical trial capabilities to pharmaceutical and biotech companies. These collaborations will generate research revenue and often lead to tech transfer opportunities.

UMB is self-funding a \$1.4 million increase in its OTT budget for FY12. \$800,000 of this covers a structural deficit in its patent budget. Two-thirds of the remaining \$600,000 will be dedicated to increasing staff and one-third to increasing the patent budget. In order to bring UMB OTT to the level of its

peers (see attachment 3), the budget will need a further increase of \$2,283,500 in FY13:

	FY11	FY12	FY13
Salaries	\$800,000	\$1,200,000	\$2,333,500
Marketing	\$50,000	\$50,000	\$200,000
Net Patent Budget	\$800,000	\$1,000,000	\$2,000,000
Totals	\$1,650,000	\$2,250,000	\$4,533,500

2. **Emphasis on devices:** 75% of UMB’s invention disclosures are for new drugs. A successful drug can have a huge impact on royalty income, economic development, and improving healthcare; however, it is very difficult to bring a new drug to market – most fail and those that succeed can take a decade or more and require \$500 million to \$1 billion in investment. According to Dr. Brittain, Utah is focusing its efforts on inventions that are lower risk and quicker to market, such as devices and software. Arguably, these are also technologies that can succeed with less experienced entrepreneurs at the helm.

RECOMMENDATION: As indicated in the attached organizational chart, UMB plans to develop a licensing team dedicated to “Devices, Imaging, and Software” that will help to bring more technologies to market quicker and create relatively more start-up companies than the Biotechnology team. However, I expect that the biotechnology team will ultimately have the greater impact on Maryland’s economy and UMB’s licensing revenues. Utah seems to have structured its office in a very similar way.

3. **Entrepreneurial Faculty Advisors:** UMB has an active and effective “Scientific Advisory Board” that is comprised of faculty who advise UMB’s tech transfer office on invention disclosures that it receives. However, Utah’s “Faculty Entrepreneurial Advisors” play a more active role in nurturing and spurring entrepreneurial activity, not simply evaluating it.

RECOMMENDATION: UMB is creating “Faculty Scouts” to increase the number and quality of invention disclosures. They will also advise faculty on the entrepreneurial opportunities and balancing/integrating entrepreneurial activities with teaching, clinical, and research responsibilities. The Faculty Scouts will be tenured faculty with entrepreneurial experience who will dedicate approximately 10% of their time to this effort. They will be appointed by the President and serve for one-year renewable terms.

In addition, the School of Medicine is creating a tech transfer committee of leading researchers to advise UMB’s OTT. This committee will also consider changes to UMB’s faculty policies and incentives to encourage entrepreneurial activities.

4. Start-up Companies: It appears that about 25% of Utah's start-up companies are virtual companies, owned entirely by the University with no dedicated employees. This seems to be a vehicle for pursuing SBIR funding. Traditionally, UMB seeks experienced entrepreneurs to run its start-up companies. Particularly when we're licensing a drug candidate, we are very focused on the ability of the company to raise at least \$1 million in the first year and \$10 million within the first three years. Compared to Utah, we've erred on the side of doing fewer start-up companies of higher quality. As our "Device, Imaging, and Software" team becomes active, we will commercialize more technologies that do require such substantial investments.

RECOMMENDATION: First, USM should pursue fully funding Innovate Maryland. Seed grants and MIPS grants are invaluable to start-up companies. Then, rather than creating 100% UMB-owned, virtual companies, I recommend that USM launch a program similar to one being devised at NIH: Maryland-based start-ups would pay a flat \$2,500 fee to receive an exclusive one-year option on a University technology. If the option is converted to an exclusive license, the start-up company would not pay any milestone payments or back patent expenses for an additional two years or until the first sale is made, whichever comes first. The program would cost approximately \$50,000 per start-up company. This program would partially level the playing field between Maryland-based start-up companies and established companies, most of which are out-of-state. DBED or TEDCO may be receptive to helping to fund this initiative.

UMB is also intrigued by a number of other programs at Utah, including the USTAR, Entrepreneurs in Residence, Student Interns, Micro grants, Venture Philanthropy, and translational research centers. Interactions among Utah's health sciences, law, business, and engineering schools are also of great interest. Accordingly, in late June, three senior faculty and two senior administrators from UMB will be traveling to Utah to explore these programs and issues in detail.

Funding Strategy

As indicated above, UMB is eliminating an \$800,000 structural deficit and enhancing the OTT budget by an additional \$600,000 in FY12. However, we will not be able to achieve our goal of matching our peer institutions by FY13 without new funds. We are pursuing a U.S. Department of Commerce grant and we are developing a strategy for raising philanthropy for entrepreneurial activities. Teaming with UMCP and UMBC to seek additional State of Maryland funding is very attractive. The three Universities, perhaps in collaboration with Johns Hopkins, may want to consider ways to tap into the InvestMaryland fund, such as setting up a University-focused venture fund.

Metrics

Utah is very effective at presenting its technology transfer activity. When it reports revenues, it includes total commercial sponsored research, total clinical trials, and licensing royalties. Typically, we only report licensing revenues. Utah also reports equity in companies, the majority of which are private valuations of non-public companies. We do not value equity at all until and unless it is sold. Perhaps most significantly, Utah's economic impact study defines "University of Utah companies" as both start-ups and Utah-based licensees. For UMB, this would mean that we would include the employment, payroll, and taxes of established companies such as BD and Martek in such a study. It may be worthwhile for USM to commission such a similarly expansive study on our economic impact on the State.

Regarding the number of start-ups, UMB's number will rise significantly but I don't think that trying to meet Utah's reported rate of one start-up per every \$22.5 million in grant and contract awards is the best way for UMB to bring new products to market or to have the greatest economic impact on the State of Maryland. This is largely due to the types of technologies being developed by UMB faculty. For example, UCSF, which has a similar constellation of schools as UMB, has been clearly a primary driver of San Francisco's world-leading biotech community. UCSF is the second largest recipient of NIH funding and has been issued the second most life sciences patents of any university in the world. UCSF discoveries have led to some of the biggest selling drugs on the market, resulting in over \$60 million a year in royalties to UCSF. However, it has only created 90 start-up companies since the early 1970s.

As indicated below, we project significant increases in UMB's licensing activities, including disclosures, licenses and options, and start-up companies, but aside from lives saved or improved by new drugs brought to the market, I think that the most important measures are royalty income and cumulative jobs at Maryland-based start-up companies.

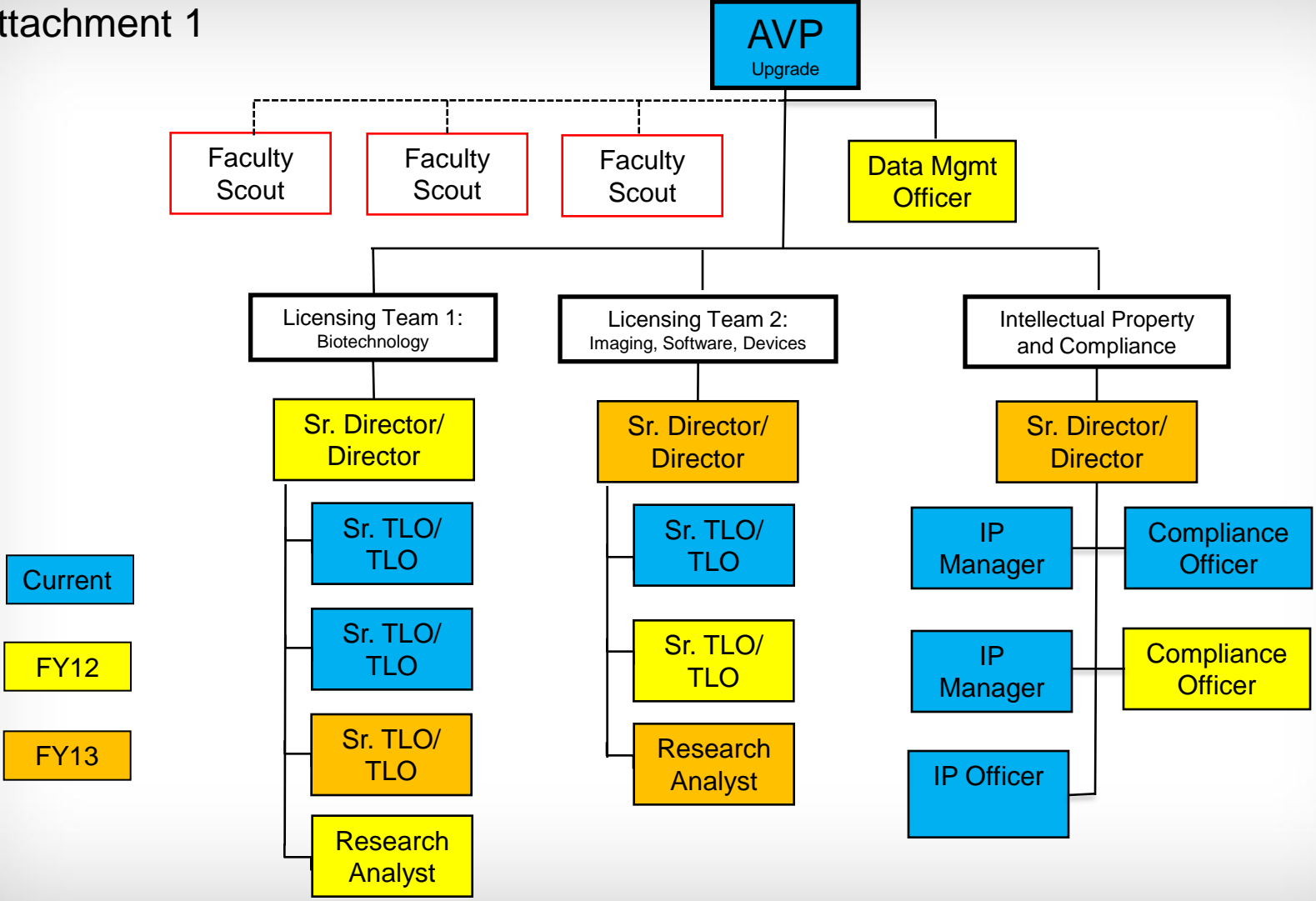
	Recent Average	Goal by FY2014*
Invention Disclosures	100	150
Licenses and Options	20	35
Royalty Income	\$1.2 million	\$4 million
Start-up Companies	2	5**
Total jobs at Maryland-based Start-up Companies (cumulative)	50***	200

* Assuming full funding of UMB OTT and Innovate Maryland.

**UMB's goal for Innovate Maryland was 100 new companies over ten years. This included companies new to Maryland that located in the University of Maryland BioPark. The above numbers are for UMB tech transfer start-ups.

*** Estimate - this is not something that we currently track, but we should. However, unlike Utah, I think that we should limit the count to actual UMB start-up companies, and not include all licensees.

Attachment 1



- Current
- FY12
- FY13

Attachment 2

Technology Transfer

Institution	Research (millions)	Staff	Research per staff (millions)	Extrapolated UMB Level
UMB	\$567	8	\$71	8
Alabama at Birm.	\$420	13	\$32	18
Illinois at Chicago	\$300	12	\$25	23
Michigan	\$1,140	35	\$32	17
Johns Hopkins	\$1,100	45	\$24	23
University of Utah	\$450	24	\$19	30
Non-UMB Ave.	\$682	26	\$26	21

Attachment 3

Job Descriptions:

Assistant Vice President, Office of Technology Transfer

Salary Range: \$150,000 to \$200,000

JOB SUMMARY:

Responsible for overall management for the licensing, intellectual property (IP), and strategic investment/start-up functions within the Office of Technology Transfer (OTT). Collaborates with faculty researchers, senior university officials, licensees and investors to support the transfer of University technologies to commercial markets and to the general public. Functions as the senior authority for the University in intellectual property protection and commercialization, technology licensing and strategic investment functional areas. Senior official responsible for marketing, outreach and public relations relevant to University technology transfer.

ESSENTIAL FUNCTIONS:

- Designs, maintains, and implements Office of Technology Transfer (OTT) group policies and/or services by establishing standards and procedures; measuring results against standards; making necessary adjustments. Partners with senior management in establishing strategic goals/objectives and budgets; serves as an advisor on business, legal and technical matters related to intellectual property and technology licensing and represents the group and department as needed.
- Provides oversight and considerable expertise in the development of patent applications, including negotiation of terms and interaction with patent counsel.
- Provides oversight and considerable expertise drafting and negotiating license and option agreements including negotiation of terms and interaction with University Counsel and licensees.
- Provides oversight and considerable expertise working with faculty and business partners to establish University start-up companies.
- Considerable responsibility in representing the OTT group or department on internal and external committees, organizations and bodies.
- Counsels department leadership on developing and monitoring sound organizational structure, improving management methods and procedures and ensuring effective use of resources.
- Provides technical expertise and strategic leadership in the development and implementation of programs and communications to improve familiarity with and support for the group and department's technology commercialization mission and programs.
- Manages assigned staff within the framework of the organization's overall plan. Is responsible for recruiting, selecting, evaluating and training group staff; planning, monitoring and appraising job results.
- Oversees the management of records, billing, reporting, purchasing and disbursements related to patent protection and licensing revenue disbursement per University System of Maryland and University of Maryland, Baltimore policies.
- Provide strategic leadership in planning special events that allow others in the University, alumni, or corporate partners to learn more about the technology commercialization mission and successes.
- Manage grants awarded to the group for entrepreneurial and technology commercialization initiatives.
- Responsible for the management of the patent budget including accounting for revenue from OTT operations.

MINIMUM QUALIFICATIONS:

- MS in life science field, MBA, or Master's degree in related field
- 7 years of experience in managing intellectual property and technology commercialization operations with at least 5 years at a management or project management level.
- Current registration with United States Patent and Trademark Office preferred.
- Credit history review may be required.
- Financial disclosure may be required.

KNOWLEDGE, SKILLS, AND ABILITIES:

- Skill in exercising initiative, resourcefulness, and sound judgment with an ability to solve problems and make decisions.
- Knowledge of life sciences and intellectual property law including all related federal and state regulations and compliance programs/policies related to commercial ventures and intellectual capital.
- Knowledge of best management practices in the field of commercial ventures and intellectual capital
- Ability to network, interact, work cooperatively as well as support effective partnerships with key individuals, groups and officials.
- Ability to prioritize ongoing and new projects necessary to implementing a specific organizational program.
- Skill in analytical and persuasive writing and effective verbal communications with internal and external parties. Must also be able to effectively present complex material to non-scientific audiences in a lecture or interactive setting.
- Skill in continuously seeking to improve the quality of services and processes.
- Advanced skill in relevant PC applications.
- Demonstrated leadership ability, including skill in teamwork and mentoring to develop and lead subordinate staff. Ability to establish policies and procedures and evaluate program effectiveness.

Senior Director, Intellectual Property

Salary Range: \$125-\$155K

The Senior Director, Intellectual Property is a professional who is responsible for managing the I.P. strategy and protection activities. The Intellectual Property Director will provide scientific and intellectual property expertise, mentorship, team building for members working within the IP group. Reporting to the AVP, this position will play a key role in the development of I.P strategy, in making investment and patenting decisions.

Essential Job Functions:

• Assists the Licensing Teams and the AVP in the evaluation and management of intellectual property. • Generates IP landscape for invention disclosures to identify market opportunities. • Evaluates inventions for intellectual property protection probability and freedom to operate. • Recommends a technology transfer path for new inventions (e.g., patent, waive rights, assign rights to inventors). • Develops IP protection strategy for inventions retained by the university in consultation with licensing staff, inventors and IP counsel. Implements the strategy. • Directs patent counsel in the preparation, filing and prosecution of U.S. and international patent applications. • Tracks and fulfills filing obligations for licensed technologies in portfolio. • Provides oversight and management of the patent budget. • Establishes and maintains contacts with industry IP managers, patent counsel and representatives at other academic institutions. • The Senior Director must be a team player, be sensitive to faculty needs and work in accordance with university-wide policies. Qualifications: J.D degree with experience in patent prosecution or management strongly preferred. A degree in science is required, concentrated on life sciences, biotechnology, basic sciences or engineering. Significant experience managing patents in the sciences may be considered in lieu of a specific science degree.

Must have a background in the development, implementation and management of intellectual property strategy. • Registered Patent Agent desired. Candidate must have a working knowledge of strategic intellectual property planning and I.P management and patenting that is typically gained through at least 7 years of related business or technology transfer experience. Prior university experience is desirable but industry experience is highly preferred. Supervisory experience is desired.

Intellectual Property Manager

Salary Range: \$110,000 to \$125,000

<http://hr.umaryland.edu/compensation/ejdfamily/gm/intellectualpropertymanager>

Reporting to the Senior Director, Intellectual Property, the I.P. Manager works to identify and protect inventions resulting from university research. Through interactions with faculty members, staff, students, and outside counsel, the I.P. Manager manages patent prosecution and disclosure-related tasks. Patent bar and 3 years patent law experience, JD and/or PHD in life sciences.

Intellectual Property Officer

Salary Range: \$50,000 to \$70,000

http://hr.umaryland.edu/compensation/ejdfamily/gm/spec_patent

Conducts patentability searches and analysis for newly disclosed inventions. Assists in making recommendations to patent based on research of prior art and the potential for encumbrances. Works in concert with team members determining commercial potential, licenses and contractual agreements. Bachelors in Biological Sciences, Pharmacy, Mechanical Technology, Computer Science, or a technical science, such as engineering. Registration with the United States Patent & Trademark Office (USPTO) Bar

Senior Director, Licensing:

Salary Range: \$99,000-\$114,000

Promotes, coordinates and facilitates successful interaction among and between UMB groups, potential licensees (companies), attorneys and other groups to improve UMB's technology licensing position. Manages and provides planning and direction for technology marketing projects and cases. Develops and implements marketing plans for UMB's discoveries and products. Complements current technology marketing and licensing activities by broadening UMB's message and customer base. Represents UMB and the Technology Transfer Group with companies, other potential partners and at major industry conferences and workshops. Maintains marketing presence for UMB's research, discoveries and intellectual property, directed primarily to the biotech and pharmaceutical industry, fosters and supports a consultant/client environment that values client input as a critical component of successful technology commercialization. Develops and implements marketing plans for UMB's discoveries, resources and capabilities. Works in tandem with licensing, facility and research activities. Bachelor's degree in life sciences, marketing or a related discipline. MBA preferred. 4-6 years of progressively responsible marketing experience in biotech, pharmaceutical and/or medical environment.

Licensing Officers:

Salary Range: \$70,000 to \$90,000

Negotiates intellectual property (IP) licenses, option agreements, inter-institutional agreements, and confidential disclosure agreements (CDAs). Ensures that third parties of University IP meet contractual obligations to the University. Serves as the University's primary point-of-contact with prospective and current licensees. Functions as part of an interdisciplinary team that assures the University optimizes and protects its materials and discoveries. Negotiates contract terms, to include royalties and payment. Graduate degree in Science, Business or Law. Bachelor's degree and certification as a Patent Agent may be substituted for the graduate degree. Three years of progressively building experience in a corporate or technology transfer environment.

Research Analyst:

Salary Range: \$50,000 to \$65,000

General Summary:

This position supports the technology licensing activities by performing assessments of new technologies and assisting licensing associates in planning the department's management of these technologies. The Technology Analyst, in the course of normal assignments, will learn about all of the various components of technology licensing.

This position reports to Portfolio Director, Licensing Associate or designee.

Essential Job Functions:

Reviews and understands technologies disclosed to JHTT.

Searches relevant prior art to determine the ability to patent this new technology.

Analyzes commercial factors such as market size, developmental risk and competitive environment.

Identifies obligations incurred through funding sources, material transfer agreements and other agreements that may impact the ability of JHTT to license the technology.

Through on-the-job training, develops a working knowledge of the technology licensing process, marketing, patent management and the negotiation of technology transfer agreements.

Scope of Responsibility:

Works closely with licensing associate(s) and other technology analysts. Works independently with the Internet and other technology tools to perform research on the new technology.

Decision Making:

Makes recommendations but not the final investment decision concerning how the organization should proceed with particular technologies.

UMBC's response to May 10 memo

White Paper

on

Establishing an INNoVATE Program for Entrepreneurship Training in the University System of Maryland

David J. Fink, PhD
Director, Entrepreneurial Services
bwtech@UMBC

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Objectives

UMBC proposes to develop and implement an entrepreneurship training program for faculty and staff from all institutions of the University System of Maryland (USM) who want to start technology-based companies. The INNoVATE-USM Program will be designed to:

- Train scientists and engineers, regardless of field of expertise or gender;
- Promote technology transfer from the institutions comprising USM;
- Create new companies to stimulate job creation in Maryland.

Entrepreneurship Training Programs at UMBC

bwtech and its collaborators at UMBC have taken an active, successful role in developing the base of entrepreneurs in Maryland and in developing models for technology commercialization and entrepreneurship.

In early 2004, a group of collaborators at UMBC recognized two historical problems for technology transfer in Maryland:

1. The single greatest obstacle for technology commercialization through start-up companies is the lack of qualified entrepreneurs.
2. Contributing to the problem of the inadequate entrepreneur pool is the under-representation of qualified women in technology start-ups in the state.

To address these issues, the UMBC team created a systematic model to train entrepreneurs to create technology-based, start-up companies. With funding from an NSF Partnerships-for-Innovation grant, UMBC developed the ACTiVATE[®] Program (www.activateprogram.org), a year-long technology commercialization model driven by an entrepreneurial training program customized for women. The target participants are experienced women with educational training in a technical/science field or in a business field, and at least 5-10 years of work experience.

Since ACTiVATE began in 2005, over 120 women have participated in the program at UMBC (Table 2), and over 35 companies have been formed.

In April, 2010, UMBC licensed the ACTiVATE[®] program trademark and program materials to The Path Forward Center for Innovation and Entrepreneurship (PFCIE), a not-for-profit company formed by two of the program's instructors. PFCIE will continue to support the

Maryland program and will pursue expansion of the program into other regions of the country. This expansion effort began in October, 2009 when Texas State University started the first satellite ACTiVATE[®] program with a class of 26 women. In 2011, a second program was initiated at the George Washington University campus in Northern Virginia.

Table 2. ACTiVATE[®] Participant Statistics

	2005	2006	2007	2008	2009	2010	Total to Date
Participants	21	22	25	20	21	16	125
Graduates	16	18	25	17	18	13	107
Education Levels and Minorities							
PhD/MD	5	7	8	5	9	6	40
MBA's	12	6	8	7	2	5	40
Attorneys	2	0	1	0	0	0	3
Minorities	19	11	13	8	6	8	65

Another goal of the ACTiVATE[®] Program was to develop a model for technology transfer, entrepreneurial training, and economic development that could be replicated in other regions. To demonstrate this goal, UMBC partnered with Johns Hopkins University's Carey Business School to develop the mixed-gender INNoVATE[™] Program, which is now offered in its second year. UMBC and JHU won a second NSF PFI Award in 2009 to develop INNoVATE. The program is offered in Montgomery County, MD and targets life science postdoctoral fellows from federal labs in the region. Outcomes from INNoVATE's first 2 years are summarized in Table 2.

Table 2. Summary of Statistics for 2010 and 2011 INNoVATE classes.

	2010 Total	2011 Total	Program Total
Inquires	41	44	85
Accepted	29	24	53
Participants	25	23	48
Graduates	20	NA	20
MD & PhD	0	3	3
MD	2	2	4
PhD	17	16	33
MBA	2	1	3
JD	1	0	1
Minorities	16	18	34
Companies Formed	6	0	6

ACTiVATE® and INNoVATE have also been successful in gaining and maintaining support across a broad spectrum of Maryland’s universities, state funding agencies, corporations, entrepreneurs and service providers. The programs have:

- provided a focal point for developing an interactive working relationship between the Technology Transfer Offices of all research institutions in Maryland to provide patented technologies for evaluation by participants of the program;
- formed key partnerships with state development agencies, including Maryland TEDCO, which has established infrastructure for the identification and evaluation of candidate technologies;
- assembled a significant number of corporate partners that have provided business expertise or other support for the training programs. The programs maintain a list of over 70 advisors who volunteer their time to assist in class discussions and team activities.

ACTiVATE® and INNoVATE, through their participants, graduates, collaborators and advisors, form a network and a collaborative environment in which entrepreneurs can be successful in creating technology companies. CETI builds on this success.

INNoVATE-USM

Based on its successes with ACTiVATE and INNoVATE, UMBC proposes to develop and implement a similar entrepreneurship training program (“INNoVATE-USM”) designed to train faculty and staff from the institutions comprising the University System of Maryland, regardless of discipline or gender.

The proposed program will be designed to:

- recruit and train 15-20 entrepreneurial scientists and engineers per year from the USM campuses;
- foster technology transfer from USM tech transfer offices;
- create at least 5 new companies per year based on USM intellectual property.

The new program will have a curriculum modified from the INNoVATE program, which is focused on life science technologies.

The Program Manager for INNoVATE-USM will be David J. Fink, PhD, bwtech’s Director of Entrepreneurial Services and an instructor for both the ACTiVATE and INNoVATE programs. Dr. Fink will be responsible for all operations of the program including recruiting participants, modification of curriculum, recruiting entrepreneurial instructors, and implementation of the training program.

INNoVATE-USM will be offered at the bwtech@UMBC Life Science and Technology Incubator.

Budget

bwtech@UMBC requests a total of \$120,000 annually to fund INNoVATE-USM. Estimated costs are summarized in Table 3. Non-grant income is estimated for tuition at \$2000 per participant for 17 participants.

Table 3. Estimated budget for INNoVATE-USM

<u>EXPENSES</u>		Total
Salaries and Benefits		
	Program Manager	60,000
	Instructors (2)	40,000
Marketing and Recruitment		10,000
Facilities		18,000
Supplies		7,000
Accounting Services		9,000
Travel		5,000
Miscellaneous Expenses		5,000
Estimated Annual Expenses		154,000
<u>INCOME</u>		
USM grant		120,000
Tuition	17 @ \$2K	34,000
Estimated Annual Income		154,000

May 27, 2011

UMBC

Response to USM: Follow-up on Meeting with Jack Brittain

by

Geoffrey P. Summers, D.Phil.

Vice President for Research

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I. INTRODUCTION

Jack Brittain, VP for Technology Venture Development at the University of Utah, gave a presentation to USM on April 26, 2011. Technology transfer at Utah has been particularly successful since 2005, when newly hired President Young substantially reorganized the commercialization office. However, there are a few special attributes of the Utah program that are difficult to replicate elsewhere, i.e., a substantial supportive revenue stream of tens of millions of dollars based on finance and administration (F&A) return from corporate sponsored research and royalties from legacy licensing deals, and the presence of a pool of semi-retired entrepreneurs, who are available as potential CEOs of new start-up companies. Having said this, there are underlying ideas in the Utah model that are useful pointers as UMBC enhances its own technology transfer program.

Through its revenue stream, Utah is able to heavily invest in all facets of the technology transfer continuum, spanning from discovery to disclosure. These investments include proof-of-concept funding, patent applications, IP marketing and licensing, identification of CEOs, creation of start-ups, pursuit of venture funding, and other related activities. UMBC has relatively limited resources, and is therefore able to only cover portions of these facets. One key interwoven aspect of any program is relationships. Utah recognized the critical nature of the relationships between their Office of Technology Development (OTD), their faculty, and their commercial partners. An OTD must bridge the gap between commercial needs and faculty research. Recommendations on how UMBC's program can be enhanced are described below.

It should be noted that UMBC has a rapidly growing interest in entrepreneurship at all levels of the university, which can be attributed in part to a Kaufman Foundation grant. This proposal focuses on faculty. However, UMBC students have also shown significant interest in entrepreneurship, inspired in part by the Alex Brown Center. A new minor degree program in entrepreneurship has just been introduced. In addition, our OTD frequently makes presentations to UMBC undergraduate and graduate student groups, educating them about the innovation process and about the work done by OTD itself.

II. OVERVIEW OF UMBC'S OFFICE OF TECHNOLOGY DEVELOPMENT

UMBC's Office of Technology Development (OTD) was formed in 1994. OTD is part of the Office of Research Administration and reports through the Assistant Vice President for Research to the Vice President for Research. OTD is the single technology transfer office for the whole campus. It currently consists of a director, an intellectual property coordinator and an administrative assistant. An Advisory Board, comprised of faculty inventors and administrators, advises OTD on policy and assists in identifying benefits, needs and challenges. A subcommittee of the Advisory Board makes

recommendations to the director as to which technologies have the most potential for success. A full list of OTD activities is given in Appendix A.

OTD receives disclosures at the rate of about 25-30 per year. The total number of disclosures received over the last 16 years is over 400, with an active docket of well over 200. Disclosures are received from many departments on campus. The addition of faculty as a result of the reorganization of UMBI significantly increased the number of active inventions that need to be managed. OTD's annual revenue from licenses, reimbursed patent expenses and other revenue sources has been ~\$200k for several years. The annual patent budget for the office, supported by the university, is currently ~\$200k/ year. It is clear that higher revenue could be generated if more IP could be developed. This will require enhanced resources as discussed below.

Licensing activity has been fairly constant with a range of one to six licenses per year for the last ten years. Over this period, 32 licenses were completed, 12 of which were to Maryland companies and six of which were to start-ups. Six small company licensees are, or were at some point, affiliated or located within the bwtech@UMBC Research and Technology Parks. This record reflects on UMBC's mission of promoting economic development in the region and the state. The majority of licensed technologies to date have been developed by faculty in the mechanical engineering, chemical/biochemical engineering, chemistry/biochemistry and computer science/electrical engineering departments. OTD has been in existence for long enough that many licenses are now being amended or are at the sublicensing stage. A fair amount of time has been devoted to sublicensing activity in recent years.

OTD has been reasonably successful at licensing inventions in that all of its metrics are on par with peer institutions according to data from the Association of University Technology Managers. However, OTD is limited by the number of disclosures received and by the resources available for patenting, marketing and licensing. As noted by Katherine Ku of Stanford, technology transfer is a "numbers game." In order to find big winners, there needs to be a large number of disclosures and the ability to protect them at an early stage. In addition, OTD's relationships with faculty and corporate partners are crucial, as was stressed by Jack Brittain during his presentation.

To see significant increases in the number of licenses, OTD needs additional resources for patent expenses and for staff to assist in building relationships with faculty and companies not currently being reached. It is also essential to be able to provide proof-of-concept funding for projects targeted for patenting. Internal mechanisms are already in place for reviewing proposals; more resources will go a long way toward creating stronger relationships with faculty and toward making potential technologies more attractive to licensees.

It should be noted that if OTD had to be recreated from scratch, UMBC would follow a similar model to that which exists now.

III. PROPOSAL: Recommendations for Enhanced Entrepreneurship and Technology Transfer

i. A Culture of Entrepreneurship

One of the key features of the culture of entrepreneurship at Utah is that commercialization activities by Utah faculty have direct presidential endorsement and are accepted in department promotion policies.

There is no doubt that creating a deeper commitment to entrepreneurship at the departmental level needs to come from the highest levels of the university and certainly needs strong support from the deans. Exactly how this will be achieved at UMBC will need further discussion with the president and other campus leaders. Suggestions included the creation of a Presidential Executive Commercialization Council and the annual recognition of a Presidential Faculty Entrepreneur, in addition to the long-standing Presidential Faculty Teaching and Research awards.

OTD would continue to work closely with our corporate relations group in the Office of Institutional Advancement and bwtech@UMBC to build relationships with existing companies and to focus on providing good customer service to the faculty and campus at large.

ii. Patent Expenses

Enhancing the innovative culture provides the basis for development. Drafting the disclosure and going through the process takes up valuable faculty time. If inventors believe good technology is not protected because of budget constraints, it does not take long for it to be a disincentive to disclosing. In addition, as the portfolio grows, the cost of maintaining protection of existing technology increases. As a result, UMBC is currently only able to support three or four new technologies each year.

UMBC is requesting \$150,000 to cover the cost of protecting additional inventions. These types of costs are typically called “patent expenses” and cover costs like filing fees, legal patent application costs and prosecution costs. Patent expenses vary greatly depending on the technology. UMBC estimates the application cost for one patent in the U.S. typically runs from \$25,000 to \$30,000.

With the proposed enhancements UMBC could increase the number of technologies it is able to protect to around ten per year, with a concurrent increase in the number of faculty entrepreneurial activities and disclosures.

iii. Proof-of-Concept Funding

A common roadblock in commercializing faculty inventions is a lack of funding opportunities for translational or developmental studies. Regular research funding does not support this activity and rarely does a faculty member have private resources to bring a disclosed invention sufficiently far along to support a high quality patent application. There is also time pressure in advance of the one-year deadline for filing a full patent application.

A Kaufman Foundation analysis of proof-of-concept centers at MIT and UCSD found that there was a return of more than 15 to one in investment capital from initial center investment. The UMBC program would invest amounts of a few tens of thousands of dollars per proposal.

UMBC is requesting \$150,000 to fund an initial annual investment targeting this concept. The UMBC Proof of Concept Fund (POC Fund) is not intended as a source of funding for new research or high-risk investigations. These funds are to be used solely for targeted awards with highly defined deliverables designed to improve UMBC patent applications during the 12-month period between filing a Provisional Patent Application and a full Patent Application.

Details how the proof-of-concept program would be administered are shown in Appendix B.

iv. Additional Staff Member with Expertise in Physical Sciences/Engineering

As previously mentioned, a key concept throughout the continuum and an integral part of the success is expansion of our internal and external relationships. Internally, this means meeting with the faculty in their labs, understanding their research and discussing those aspects that might have commercial potential. Externally, it means working with our commercial partners to match UMBC skills and resources with commercial and societal needs. Although UMBC has commercialization expertise in the life sciences, we do not have such expertise in the physical sciences. Funding as prevented us from filling this very important gap.

The new Technology Development Manager will be responsible for commercializing inventions made as a result of the research conducted at UMBC in the physical sciences and engineering. This responsibility includes meeting with faculty to better understand their research and to promote invention disclosures; evaluating invention disclosures; securing intellectual property protection for selected disclosures; understanding the needs of commercial partners; marketing intellectual property; negotiating license agreements; and other technology commercialization activity. The Technology Development Manager will advise faculty, students, and staff on intellectual property matters and will educate faculty about the technology transfer process. The Technology Development Manager will work to ensure compliance with research agreements, federal guidelines, and other obligations that UMBC has with respect to inventions created as part of UMBC's research enterprise.

In order to hire someone with the necessary skill set, \$100K is requested.

IV. SUMMARY OF COSTS

\$400K would be allocated as follows;

- \$150,000 for patent expenses
- \$150,000 for proof of concept/prototype funding
- \$100,000 for a staff member with licensing experience in the physical sciences and engineering. This would complement the current director's area of expertise in the life sciences.

If all of the necessary tools are supplied and relationships are built and maintained, then faculty will submit inventions, the technology transfer office will patent and license these inventions, and the financial rewards will be reaped and returned to support additional research and education. Catalyzing the growth of this healthy cycle is a sound and important investment.

V. IMPLEMENTATION of INNoVATE-USM

Based on the success of its ACTiVATE and INNoVATE programs, UMBC proposes to develop and implement a similar entrepreneurship-training program ("INNoVATE-USM") tailored for the faculty and staff from across the university system, regardless of institution, discipline or gender.

The proposed program will be designed to:

- recruit and train 15-20 entrepreneurial scientists and engineers per year from the USM campuses;
- foster technology transfer from USM tech transfer offices;

- create at least 5 new companies per year based on USM intellectual property.

The new program will have a curriculum modified from the INNoVATE program, but unlike INNoVATE, this modified program will not be specifically focused on life science technologies.

The Program Manager for INNoVATE-USM will be David J. Fink, PhD, bwtech’s Director of Entrepreneurial Services and an instructor for both the ACTiVATE and INNoVATE programs. Dr. Fink will be responsible for all operations of the program including recruiting participants, modification of curriculum, recruiting entrepreneurial instructors, and implementation of the training program.

INNoVATE-USM will be offered at the bwtech@UMBC Life Science and Technology Incubator.

A detailed white paper about INNoVATE-USM is attached to this e-mail as a separate document.

Budget

bwtech@UMBC requests a total of \$120,000 annually to fund INNoVATE-USM. Estimated costs are summarized in Table 1. Non-grant income is estimated for tuition at \$2,000 per participant for 17 participants.

Table 1. Estimated budget for INNoVATE-USM

<u>EXPENSES</u>		Total
Salaries and Benefits		
	Program Manager	\$60,000
	Instructors (2)	\$40,000
Marketing and Recruitment		\$10,000
Facilities		\$18,000
Supplies		\$7,000
Accounting Services		\$9,000
Travel		\$5,000
Miscellaneous Expenses		\$5,000
Estimated Annual Expenses		\$154,000
<u>INCOME</u>		
USM grant		\$120,000
Tuition	17 @ \$2,000	\$34,000
Estimated Annual Income		\$154,000

APPENDIX A: OTD Activities

OTD has “cradle to grave” responsibility for all facets of technology transfer, including:

- evaluating invention disclosures
- reporting inventions and utilization to federal sponsors in compliance with Bayh-Dole
- securing intellectual property protection (patents, copyrights, trademarks) for selected disclosures
- determining commercial potential, identifying potential licensees and marketing inventions
- drafting and negotiating licensing agreements and other IP related agreements such as inter-institutional joint invention management agreements, material transfer agreements and non-disclosure agreements linked to a disclosed technology and advising sponsored programs on IP matters in sponsored and unsponsored research agreements and related agreements
- license maintenance, which includes patent reimbursement and license payment collection and royalty distribution under the IP Policy
- advising faculty on intellectual property matters
- campus outreach in the form of presentations to student groups and classes
- working with faculty to cultivate industry-faculty interactions
- identifying possibilities for interdisciplinary collaborations
- supporting and encouraging entrepreneurial activities and entrepreneurial training such as the ACTiVATE and INNoVATE programs
- advising administration on policy interpretation and implementation
- serving on advisory boards and review committees for bwtech@UMBC Research and Technology Parks

APPENDIX B: Process for Allocation Proof-of-Concept Funds

Note any funded studies will be designed to provide data to support UMBC Patent Filings. This means they must be completed prior to the eleven (11) month anniversary of filing a Provisional Patent Application.

1. OTD will identify in consultation with the Patent Advisory Committee invention disclosures, which would benefit from additional information to strengthen claims and/or commercial potential
2. OTD will decide in consultation with the inventors what data is required to enhance patentability or commercial potential
3. Inventors are invited, by OTD, to participate in the process. Inventors will be asked to;
 - Agree to perform work in time frame necessary for PTO filings
 - Agree to submit required budget to OTD in a timely manner
 - Understand money is supplied for specific IP development aims, not innovative research
 - Agree to report monthly status to OTD until project is completed
4. Inventor meets with OTD representatives to jointly define milestones for study objectives
5. Upon approval by OTD, inventor will present a statement of work and budget to the Center who will route it to OTD, via the OSP process. OTD will have final approval of statement of work and budget and will award funds
6. The College and Inventor will be informed of the award, budget allocation and milestones timeline by OTD representatives, often within two weeks of statement of work and budget submission
7. OTD will release funds on the following schedule;
 - Initial 30% of agreed budget to initiate work
 - 20% of budget funds released with completion of mid-project report
 - Final 50% released upon receipt of final report

Budgets might be expected to include:

- External contractual expenses
- Fee for service core lab charges
- Materials
- Animal Charges
- Limited labor (e.g., for one technician, not for PI support)

Agenda Item #3: Attachment



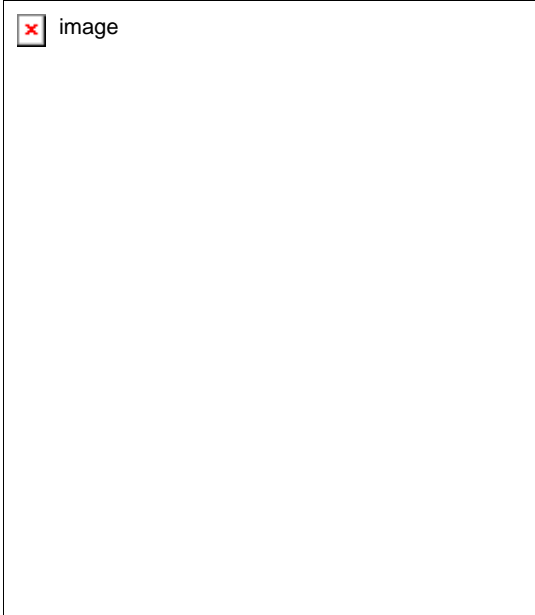
Fits and startups: Is U. tech transfer flawed?

By Brian Maffly

The Salt Lake Tribune

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University of Utah TCO chief Brian Cummings is a registered agent or officer of at least 32 companies, according to incorporation records kept by the Utah Department of Commerce. He starts a new job with Ohio State University in June.

The University of Utah boasts it has spun off more than 100 companies in the past six years, based on ideas developed on campus. While the school touts its status as No. 1 among research institutions for starting companies, some appear to be companies in name only.

The U. has launched 35 companies as wholly owned entities of the university since 2007, 20 of which it lists as startups. Many have no office, payroll, permanent leadership or assets. In state filings, most list as their address the suite at 615 Arapeen Dr., where the U.'s Technology Commercialization Office (TCO) operates in Research Park.

TCO chief Brian Cummings is a registered agent or officer of at least 32 companies, according to incorporation records kept by the Utah Department of Commerce. By setting up corporate shells owned by the U., officials say they can pursue federal grants and venture capital during the early phase of an invention's development and speed it to market. Critics say this novel approach, taken by few other schools, raises the potential for conflicts of interest and antagonizes independent entrepreneurs.

“If the TCO can provide assistance in finding a supportive management team to lead a startup company into a thriving commercial entity, then the program should be considered a success,” said Sheryl Hohle, a one-time TCO licensing manager who quit a few years ago. “However, if the TCO approaches the

inventor rather than the other way around, if the inventor isn't a founder in the company, if the management team is composed of university employees who clearly don't have time to run a startup company, and if there is no technology license and no payroll, then is it really a startup company?"

Hohle is concerned that the U.'s model, which "cherry picks" technologies to sell as companies rather than just licensing technologies, could undermine tech transfer by "creating higher price tags for Utah's local entrepreneurs" to participate.

Since 2005, the U. has aggressively pushed technology into the marketplace, using graduate students to develop business plans, help faculty turn inventions into products and in many cases, establishing the businesses and pursuing grants. The process is shrouded in secrecy because of confidentiality agreements, yet the TCO operates outside of a policy framework and with limited faculty oversight.

Meanwhile, some entrepreneurs who want to license technology complain that the TCO is slow to propose terms, costing them precious time and sweat. When the terms finally come, entrepreneurs say, the terms won't sustain a successful business.

Suzanne Winters, the state's former science officer who now leads USTAR's BioInnovations Gateway, said the TCO could do a better job.

"If the University of Utah has economic development as part of its mission, they have an obligation to structure the terms of the licenses to enable those companies to succeed, to get the licenses out in a timely manner and the terms are standard within the industry," she said.

University officials deny they demand untenable deals, claiming their intent is to help licensing partners, not make the university rich.

Duane Ruffner, founder and CEO of Symbion Discovery and Sheryl Hohle's partner, is investigating how to synthesize potentially therapeutic compounds based on technology developed by a U. chemist. The firm hopes to produce molecules that occur naturally in bacteria found in sea squirts and other tiny ocean creatures, then test them for anti-cancer properties.

But after three years of negotiating with the TCO, Ruffner has yet to secure a licensing agreement. TCO officials initially urged him to cede ownership of his company to the University of Utah Research Foundation (UURF), the nonprofit that owns the U.'s intellectual property.

"There's nothing attractive about all this. You're asking me to do all this research, create this value only to be forced to buy it," Ruffner said. "The terms kept changing. You think you have an agreement, and the next thing you know the terms get more onerous."

But TCO Associate Director Zach Miles said Ruffner and Hohle gummed up negotiations by seeking terms unfair to the university.

Ruffner's experience illustrates the contentious underbelly of the university's innovative approach to transferring technology to the private sector. While the system is credited with driving a boom in business startups, some entrepreneurs believe it stacks the deck against independent operators. Only Ruffner would speak on the record; others said they didn't want to jeopardize ongoing negotiations.

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The TCO innovation • U. administrators say there are sound reasons for starting businesses under UURF control with Cummings and other officials as stand-in principals. This expedites grant acquisition, which helps advance the technology, and potentially attracts investors, according to Jack Brittain, vice president for technology ventures and the architect of the U.'s tech-transfer system. When venture capital and grants arrive, the U. officials resign their roles in the companies.

Said U. general counsel John Morris: "We provide a bridge, a vehicle where the early work can be done while it's still owned by the university, so it's more likely to get the SBIRs [Small Business Innovation Research grants] or other outside funding. We may retain up to 49 percent interest, but that is in the nature of a passive investment."

When they incorporate the companies, officials file papers with the state Department of Commerce outlining stock-issuing arrangements so that the university's stake is watered down as investors buy in. According to data provided by the university, eight of the 35 UURF companies have been transferred to outside management and three have dissolved.

Proponents say this arrangement allows entrepreneurial faculty to shift commercialization risks to the university and to keep up their research.

Short Solutions, started by four electrical engineering students last year, is one UURF success story. For their senior project, the students explored a technology developed by professor Cynthia Furse for diagnosing electrical faults in aviation systems. The team adapted Furse's patented inventions for use in automobiles, then received invaluable help from the U.'s Lassonde Entrepreneur Center to develop a prototype called SmartFuse, set up a UURF-owned business and secured grants totalling \$85,000, according to Furse.

Management of Short Solutions has been handed to the students, but Cummings and Brittain are still listed as officers of the company.

And some new startups not owned by UURF are reeling in venture capital, creating prototype products that could make a big splash, particularly in the medical device arena. Catheter Connections recently released a medical device that is expected to substantially cut IV-related infections in hospital settings. Veritract, started by U. gastroenterologist John Fang, is developing a safer feeding tube. Another firm markets a device that rids people of head lice by blowing warm air through their hair, while another uses ozone microbubbles to neutralize industrial pollution.

"We are not in this for money. We are in it so the inventions of our faculty are available to public. We want to make deals that are going to fertilize the research process," said Morris.

Valued employee • Excluding the UURF companies, the U. has spun off about 90 firms since Brittain hired Cummings in 2005 to run the TCO and its 10 employees.

According to annual rankings issued by the Association of University Technology Managers (AUTM), the U.'s closest competitor in startups is MIT, which has a research enterprise four times larger.

Cummings' \$249,000 base salary could be an indication of how much the university values his talents. It exceeds the median for chief technology transfer officers by \$89,000, according to the Chronicle of Higher Education's survey of administrative salaries. Although he does not hold a doctorate, Cummings

earns more than the deans of the U. colleges of Social and Behavioral Science, of Mines and Earth Sciences, and of Science.

Last month, Ohio State University, whose research enterprise dwarfs the U.'s but which lags in commercialization, hired Cummings and will pay him \$365,000. He starts the new job in June.

Cummings did not respond to phone and email requests for an interview.

Under the direction of U. President Michael Young, technology commercialization was moved out of the research division into a new unit led by Brittain. The former business dean restructured what was then called the Technology Transfer Office to speed commercialization of intellectual property, help faculty inventors become entrepreneurs and be active partners in the early phases of development.

The changes were also intended to maximize the possibility of commercial success, according to Brittain. The new approach has won kudos from the U.'s leading faculty entrepreneurs, such as Glenn Prestwich and Furse, and outside observers like AUTM.

“The real mission of the university is education and the development of new ideas. This is exactly a marriage of these two,” said Furse, an electrical engineer who serves as the U.'s associate vice president for research.

But the U.'s tech-transfer overhaul has meant abandoning some key National Academy of Sciences guidelines: At the U., tech transfer is no longer run by the research division, and the faculty oversight committee is inactive. When it did meet, its task was to vet invention disclosures, not provide the oversight called for under university policies.

“Universities are really slow and deliberate,” Morris said. Tech transfer “is an area that requires quick action.”

The U.'s published policies have yet to be updated to reflect current practices. Morris said those policy revisions are pending.

Tom Parks, vice president for research, said commercialization is a better fit in the tech ventures division, which fosters outside-the-box thinking, than in the research division's “culture of compliance.” Park also said that as the president of the UURF board, he is the academic voice in the process, with veto power over every licensing deal.

“It could be win-win” • In the 1990s, Ruffner, then a researcher with the U. College of Pharmacy, tasted the promise of technology transfer when he helped launch Salus Therapeutics with Dinesh Patel, Utah's leading venture capitalist. He returned three years ago to give commercialization another go and waded through the U. portfolios of intellectual property.

One invention disclosure whetted his appetite: A genetic pathway to synthesize natural compounds that could form the basis of new drugs. The inventor is Eric Schmidt, a young professor of medicinal chemistry. Schmidt discovered these compounds in tiny marine organisms, but those organisms are available only in quantities too small to be of practical value. In a 2006 study, Schmidt described how to synthesize the compounds.

Ruffner spent more than a year trying to get the TCO to provide him “a term sheet,” which proposes licensing fees and royalties entrepreneurs pay in exchange for use of a patented invention. But the office lacked confidence in Ruffner’s business acumen, according to Moj Arams, the licensing officer negotiating with Ruffner.

“He is a researcher, not a businessperson. We vetted Duane for his expertise and we didn’t find him a suitable candidate for running this company,” Arams said. “The recommendation [to form a UURF company] was to help him, not put a hurdle in front of him, to get a management team and to get grants.”

Ruffner said he was not interested in the TCO’s help because it did not appreciate the potential of Schmidt’s idea until he pointed it out.

“If you have the skills, why make a company that you would have to buy at an elevated price?” Ruffner said.

In the meantime, he spent a year without pay in Schmidt’s lab, then secured two federal SBIR grants worth more than \$400,000 and set up Symbion with five employees.

As the negotiations lumbered along, the TCO rejected Schmidt’s applications for competitive R&D grants.

TCO lawyer Zach Miles said the grant decisions were made based on recommendations by a third party to avoid any conflict of interest.

Ruffner said he finally agreed to the TCO’s terms, only to be confronted with a last-minute “bombshell” last November in the form of “reach through” provisions claiming a stake in new applications he might discover. That provision had never been discussed in months of negotiating.

“These are idiotic terms that are deal killers. We could agree to them but it would make no business sense,” Ruffner says. Neither party could divulge their proposed terms because licensing negotiations are subject to confidentiality agreements.

Ruffner believes he has done the university a favor by testing the viability of Schmidt’s inventions.

“You would think they would wish to have a collaborative relationship with us,” he said. “If we can’t have a license, we can’t continue to develop it. Who is going to develop it? It could be win-win.”

bmaffly@sltrib.com

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Tech transfer 101: How inventions make it to the market

Under the Bayh-Dole Act of 1980, federal policy encourages universities to patent technologies developed as part of federally supported research. Commercializing inventions is believed to hold broad social benefits and spur economic development.

The first step to transfer technology to the private sector requires research faculty to file an invention disclosure with the university. Licensing managers assess the potential of the proposed invention for a

patent, which grants the holder an exclusive right to profit from the idea and license that right to others.

If the idea is deemed worthy, university officers apply for a patent and invite entrepreneurs to carry the idea forward as a commercial concept. Traditionally, schools work out a licensing agreement with the entrepreneur, spelling out terms by which the university will be compensated in the form of up-front fees and royalties, typically a percentage of gross revenue. Faculty inventors normally get a 30 percent cut.

Most often, a university licenses a patent to an established company, but sometimes the patent will go to a small business set up specifically to commercialize it. The federal government sets aside millions of dollars to invest in these efforts in the form of Small Business Innovation Research grants.

Under the University of Utah's innovative approach, officials expedite commercialization by developing business plans and market studies, securing grants, forming companies themselves and providing lab and office support.

Utah's famous startups include Myriad Genetics, which has employed up to 800 people, and the robotics firm Sarcos, later acquired by Raytheon. The U. spun off its first startup in 1970 with TerraTek, later acquired by the oil-field services firm Schlumberger and which still operates in Salt Lake City with 80 employees.

A recent report by the Utah Bureau of Economic and Business Research says U. spinoffs now account for nearly 6,000 jobs in Utah and help generate \$1.2 billion in economic activity.

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U. tech commercialization in 2009

79 • Licenses executed

246 • Active licenses

\$12.4 million • Licensing revenue

19 • Startup companies launched

60 • Jobs created

200 • Invention disclosures filed

108 • Patent applications filed

35 • Patents issued

\$11.1 million • Private financing raised

\$3.1 million • Grants awarded

Source • Association of University Technology Managers, University of Utah

This nonprofit owns the university's intellectual property arising from research, much of it publicly funded. Its assets include more than 5,000 invention disclosures and 1,661 patents, which are managed by the university's Technology Commercialization Office (TCO). The office lists 369 technologies currently available for licensing and raises more than \$12 million a year in licensing fees and royalties. About one-third of that goes to faculty inventors.

The UURF is run by a board of high-level U. administrators and two outsiders. Current board members are President Michael Young, who acts as chairman; Tom Parks, vice president for research; Jack Brittain, vice president for technology ventures; general counsel John Morris; David Pershing, senior vice president for academic affairs; Lorris Betz, senior vice president for health sciences; Arnold Combe, vice president for administrative services; Roger Boyer, a university trustee and real estate developer; and entrepreneur Jim Jensen. Its board helps oversee the TCO.

The foundation cycles some revenues back into the technology commercialization process. This revenue underwrites grants geared toward catapulting fledgling firms across "the Valley of Death" that separates the lab and the marketplace.

The TCO also has steered nearly \$1 million in federal stimulus money to projects associated with U. technologies. Each year, the UURF spends about \$5 million on administrative expenses, including patent costs and legal fees, according to IRS filings.

– Brian Maffly

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Agenda Item #4: Attachment

Committee Workplan
Status update, 6-14-11

1. Objectives for System's part in economic development
 - a. Double research funding by 2020 Agreed
 - b. Establish 5 research centers of excellence Agreed
 - c. Start 325 companies Agreed
 - d. Secure capital construction funding for research space Agreed

2. Adopt a set of dashboard indicators In progress

3. New economic impact statement Not begun

4. Hire a new person in economic development & technology transfer/staff to committee In progress

5. Annual workshop Initial discussion

6. Meeting with consultant Completed

Agenda Item #5



BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION OR DISCUSSION

TOPIC: Convening Closed Session

COMMITTEE: Economic Development and Technology Commercialization

DATE OF COMMITTEE MEETING: June 14, 2011

SUMMARY: The Open Meetings Act permits public bodies to close their meetings to the public in special circumstances outlined in Subtitle 5, section §10-508(a) of the Act. The open session of today's meeting will be adjourned following completion of the regular public agenda, and the committee will reconvene in closed session to discuss issues specifically exempted in the Act from the requirement for public consideration.

As required by law, the vote on the closing of the session will be recorded. In addition, a written statement of the reason for closing the meeting at this time, including a citation of the authority under §10-508(a) and a listing of the topics to be discussed, is attached.

ALTERNATIVE(S): No alternative is suggested.

FISCAL IMPACT: There is no fiscal impact.

BOARD ACTION:

DATE: June 14, 2011

SUBMITTED BY: Joseph F. Vivona (3100 445-1923)



STATEMENT REGARDING CLOSING A MEETING OF THE USM BOARD OF REGENTS

Date: June 14, 2011

Time: 2:00 p.m.

Location: University of Baltimore

STATUTORY AUTHORITY TO CLOSE A SESSION State Government Article §10-508(a):

- (1) To discuss:
- (i) The appointment, employment, assignment, promotion, discipline, demotion, compensation, removal, resignation, or performance evaluation of appointees, employees, or officials over whom it has jurisdiction; or
 - (ii) Any other personnel matter that affects one or more specific individuals.
- (2) To protect the privacy or reputation of individuals with respect to a matter that is not related to public business.
- (3) To consider the acquisition of real property for a public purpose and matters directly related thereto.
- (4) To consider a preliminary matter that concerns the proposal for a business or industrial organization to locate, expand, or remain in the State.
- (5) To consider the investment of public funds.
- (6) To consider the marketing of public securities.
- (7) To consult with counsel to obtain legal advice on a legal matter.
- (8) To consult with staff, consultants, or other individuals about pending or potential litigation.
- (9) To conduct collective bargaining negotiations or consider matters that relate to the negotiations.

- (10) To discuss public security, if the public body determines that public discussions would constitute a risk to the public or public security, including:
- (i) the deployment of fire and police services and staff; and
 - (ii) the development and implementation of emergency plans.
- (11) To prepare, administer or grade a scholastic, licensing, or qualifying examination.
- (12) To conduct or discuss an investigative proceeding on actual or possible criminal conduct.
- (13) To comply with a specific constitutional, statutory, or judicially imposed requirement that prevents public disclosures about a particular proceeding or matter.
- (14) Before a contract is awarded or bids are opened, to discuss a matter directly related to a negotiation strategy or the contents of a bid or proposal, if public discussion or disclosure would adversely impact the ability of the public body to participate in the competitive bidding or proposal process.
- Administrative Matters
- Consideration of the impact of possible and proposed legislation on the operation of USM under existing law and established policy.

TOPICS TO BE DISCUSSED:

Possible creation of a position for an individual to handle economic development/technology commercialization at the systemwide and/or staff level. Discussion will include roles and responsibilities, relations with the campuses, reporting relationships and funding sources and will possibly include discussion of specific individuals' appropriateness to the role.

REASON FOR CLOSING:

For the purposes listed in this closing statement and in order to comply with State Government Article section 10-508(a).