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Dear Regents:

Attached is the final report from our Research to Jobs Task Force, which I appointed in February. Under the leadership of WARF Managing Director Carl Gulbrandsen, the group has produced several provocative ideas and recommendations.

The world's current financial crisis condition dictates that we focus our vision and limited resources on strategies that will help our citizens, our business, and our entire state survive and thrive. The Task Force recommendations support both short- and long-term approaches.

As I review this report, I believe that most, if not all, of the Task Force's recommendations can be tied to four strategic areas:

1. Fostering and attracting human talent fueled by innovation
2. Focusing on the kinds of jobs that leverage innovation and entrepreneurial skills, and reward those talents
3. Attracting the research and development, along with financial investment needed to support the generation of new knowledge
4. Creating an entrepreneurial culture in all people and in all corners of the state so all citizens can contribute to, and have a stake in, the state's better economic future.

The report focuses on several actions that the University of Wisconsin System and its public-private partners can take to strengthen and advance a sound economic development agenda. Many key findings emerge from the report – some reflect work that is already under way, some can be accomplished in the short-term, and some will require a long-term approach.

While this report marks the culmination of a great deal of hard work by the Task Force members, it is only the beginning of our fuller discussion of the UW System's strategic direction. I look forward to a fuller discussion of the report, which should serve as a catalyst for bigger, bolder thinking about the University's role in creating new jobs, new opportunities, and greater prosperity.

A handwritten signature in black ink, appearing to read "Kevin P. Reilly".

**RESEARCH TO JOBS TASK FORCE  
FINAL COMMITTEE REPORT**

**Submitted to  
Dr. Kevin Reilly  
UW System President  
September 2009**

## **RESEARCH TO JOBS TASK FORCE COMMITTEE**

### Chair:

Carl Gulbrandsen, Managing Director, WARF; President, WiSys Technology Foundation

### Members:

Kris Andrews, Assistant Vice President, Office of Federal Relations, UW System

Bill Berezowitz, Vice President and General Manager of Imaging Subsystems, GE Healthcare

Paula Bonner, President & CEO, Wisconsin Alumni Association

Pat Brady, General Counsel, UW System

Mark Bugher, Director, University Research Park, UW-Madison

Mark Cook, Board Chair and Founder, Isomark, LLC

Terry Devitt, Assistant Director, University Communications, UW-Madison

Kathleen Enz-Finken, Provost, UW-La Crosse

Rebecca Faas, President, INOV8 International, Inc.

Charlie Hoslet, Managing Director, Office of Corporate Relations, UW-Madison

Maliyakal John, Managing Director, WiSys Technology Foundation

Ralph Kauten, Chief Executive Officer, Quintessence Biosciences

Frank Langley, President and CEO of MPP Group

Thomas (Rock) Mackie, Co-founder, Chairman of the Board, TomoTherapy, Inc.

Greg Meier, Executive Vice President, Physiogenix

Mark Mueller, President, Botanic Oil Innovations, Inc.

John Neis, Managing Director, Venture Investors

Noel Radomski, Lecturer and Associate Researcher, Wisconsin Center for the Advancement of  
Postsecondary Education, UW-Madison

Charles Sorensen, Chancellor, UW-Stout

Tom Still, President, Wisconsin Technology Council

Brian Thompson, President, UWM Research Foundation

John Torinus, Chairman, Serigraph, Inc.

David J. Ward, then Interim Chancellor, UW-Green Bay; and President and Founder, NorthStar  
Economics

John Wiley, Academic Program Director, Wisconsin Institute of Discovery, UW-Madison

## EXECUTIVE SUMMARY

In early February 2009, UW System President Kevin Reilly created the Research to Jobs task force. The task force was chaired by Carl Gulbrandsen, managing director of the Wisconsin Alumni Research Foundation. The group was geographically and professionally diverse. It included individuals from large and small companies, university faculty and administration, and organizations involved in university technology transfer and technology development. (Committee roster attached as Appendix A.)

President Reilly urged the committee in a letter to examine ways to make a positive contribution to the quality of life, job growth, and economic development of the State. Reilly said, "All our universities in the UW System have the capability to play a key role in developing clusters of new and growing knowledge-based companies, and to work closely with the industries and companies of Wisconsin that already exist to ensure that they remain competitive in the 21<sup>st</sup> century." (Attached as Appendix B.)

The charge to the committee was as follows:

"The task force is entrusted with developing recommendations on creating jobs through UW-led research and increasing the technology transfer to Wisconsin's companies. The recommendations must be generally applicable to all UW institutions and industry sectors."

"Therefore, it is important to get feedback from diverse sources. The recommendations must be:

- Practical and implementable in the near future;
- Quantifiable with benchmarks for success; and
- Specific in defining the roles of all UW research institutions, industry, and government entities."

"The committee may want to consider addressing the task in three distinct approaches:

- Job creation through start-ups;
- Growth of mature business; and
- Effective ways to communicate the critical role of UW research to the public and industry.

The committee may want to form three groups to address each of these issues. The groups are also encouraged to recruit advisers for their respective tasks."

In response to President Reilly's charge, three subcommittees were created:

- 1) Job Creation Through Start-ups, led by John Neis of Venture Investors, Madison;
- 2) Growth of Mature Business, led by David J. Ward, President and Founder of NorthStar Economics and then Interim Chancellor of UW-Green Bay, and Charles Sorensen, Chancellor of UW-Stout; and

- 3) Effective Ways to Communicate the Critical Role of UW Research, led by Wisconsin Technology Council president, Tom Still.

The committee examined successful models from other states and universities for job growth, assessed the special needs of the UW System and the State of Wisconsin, and considered ideas from diverse business and public sector leaders.

Overall, the committee recognized that job growth through start-up companies is generated through the two major research campuses of Madison and Milwaukee. Efforts to further stimulate company formation in these two regions must be supported and strengthened; this includes continuing to support the “growth agenda” at UW-Milwaukee which is essential to ensuring that UWM’s research program has the resources to act as an engine for economic development in the Milwaukee region. The committee further identified an opportunity to engage the UW System comprehensive campuses and Wisconsin’s small companies in creating jobs through UW-industry partnerships. Finally, a focused effort at the UW System and individual campus levels must be carried out to incentivize research efforts, nurture entrepreneurship among faculty and students, and effectively communicate to the public UW’s role in economic growth.

Committee recommendations are broken down into two sections. The first section identifies actions that can be taken by the UW System and individual campuses. The second section lists several suggestions for the private sector and State government that will improve start-up activities within the UW System and Wisconsin. Research to jobs is a complex challenge that will require continued joint efforts by both public and private sectors.

The committee’s primary recommendations for the UW System on improving job growth through research are summarized below, and encompass three main topics:

- 1) Better connect to Wisconsin’s industry needs;
- 2) Promote entrepreneurship; and
- 3) Gain a competitive advantage for our students in high-paying jobs through research and development training.

### **Recommendations and Action Items for the UW System**

- **Connect with Wisconsin Industry**

The mission of the University of Wisconsin to advance scholarship and educate students can be connected to Wisconsin’s industry needs, which will result in increased economic growth and job creation.

Several thousand Wisconsin small companies need technical innovation to grow, which can be supplied by UW faculty experts and students through joint research and development programs.

This initiative would engage the underutilized research capacity of the comprehensive campuses, allow student participation in industry related research and development, and lead to job creation both at the university and in Wisconsin's small companies. Following are the specific action steps suggested:

- 1) Develop seven or more Emerging Technology Centers administered by individual campuses to focus on specific technologies and connect with Wisconsin companies throughout the State. Each Center must have joint research and development programs that will engage students through internships. The Centers must be committed to educate faculty and students in entrepreneurship. These Centers also must gather data and information on the needs and challenges of Wisconsin companies and form partnerships with medical institutions (such as Marshfield Clinic, Aurora Health Care, and the Wisconsin Medical College), as well as educational centers (such as UW-Madison's Wisconsin Institutes for Discovery and Great Lakes Bioenergy Research Center, and UW-Milwaukee's Great Lakes WATER Institute). Wisys Technology Foundation may be charged to lead the effort, to be completed by 2011, after commitment of resources. The estimated cost for the UW System per center is \$450K the first year and a total of \$650K for the remaining four years, after which the centers are expected to become self-sufficient. A detailed proposal can be found in the Growth of Mature Business Committee report (Appendix D2).
  - 2) Expand the Wisconsin Discovery Portal database to include all UW campus faculty and allow public and private parties to seek campus partners for collaborations. This dynamic digital database will compile information regarding faculty expertise, campus resources and collaboration interests, and will eventually serve as a front gate to industry and inter-campus collaborations. The estimated cost for the first year is \$115K and \$75K per year thereafter for maintenance costs. A detailed proposal can be found in the Growth of Mature Business Committee report (Appendix D2).
- **Promote a Culture of Entrepreneurship**

UW System's flagship research campuses, UW-Madison and UW-Milwaukee, as well as the eleven 4-year campuses, have strong research programs developing cutting-edge technologies. Enhancing and facilitating a culture of entrepreneurship among our students and faculty throughout the System will increase the number of start-up companies and assist in job creation.

    - 1) Promote entrepreneurship as a desirable endeavor. Top administration at UW System and on the campuses must lead the charge in fostering a culture of entrepreneurship among faculty, staff and students and may partner with State organizations such as the Wisconsin Entrepreneurs' Network (WEN), Wisconsin Manufacturers & Commerce (WMC), and Wisconsin Technology Council (WTC). UW System leadership can proactively actively engage the campus leadership in effecting such a change.

- 2) Establish a Systemwide business plan competition for faculty, staff and students. The committee sees student involvement as one of the most critical and promising aspects for entrepreneurship success. Participants may receive mentoring on business start-ups and technology transfer issues through UW's technology transfer offices, the Wisconsin Technology Council, UW business schools, and UW-Extension Small Business Development Centers. After commitment of resources, the Wisconsin Technology Council (WTC) may be charged with developing the plan in partnership with the WARF/UWMRF/WiSys technology transfer offices. The estimated annual cost is ~\$125K. Details are included in the Start-up Committee report (Appendix D1, Proposal 4).
  - 3) Amend the UW leave of absence policy to allow the Board of Regents to extend leaves of absence for up to five years for faculty engaged in start-up activities. System leadership may enact this change. Details are included in the Start-up Committee report (Appendix D1, Proposal 8).
  - 4) Re-vamp and re-establish the Wisconsin Economic Summit to showcase UW technologies and assess economic growth opportunities. The Wisconsin Technology Council may be requested to lead this charge. Details are included in the Communications Committee report (Appendix D3).
  - 5) Duplicate UW-Madison's successful entrepreneurial programs on other UW System campuses. UW-Madison has several stellar programs that promote entrepreneurship that can serve as models for other campuses. WARF may host a workshop for other System campuses on entrepreneurship initiatives such as the Merlin Mentor program, the Kauffman Foundation initiative, and the Gilson Discovery Series. These UW-Madison initiatives can be replicated/adapted on other campuses at low cost. Regional companies may be approached to host social hours with faculty and students interested in promoting UW-industry interaction and entrepreneurship. Specific suggestions on improving entrepreneurship are included in all three committee reports. (Appendix D1-D3)
- **Promote Research as an Integral Component of Teaching in the Comprehensive Campuses**  
 The majority of students (~90,000) and faculty (~3,500) reside in the System's 11 comprehensive campuses. Students with hands-on experience in solving challenges through research have a competitive advantage in finding high-paying jobs. The UW System and campus administrations can promote and facilitate increased research across the System by removing existing barriers and incentivizing faculty and students to conduct research through the following methods:
    - Discoveries being patented must be counted for career advancement
    - Students must receive credits for engaging in research
    - Release time must be provided to faculty for student mentorships
    - Summer salary must be provided to faculty for conducting research
    - Internships must be provided for students conducting research

The UW System could develop guidelines and offer financial assistance in initiating these incentivizing programs. The cost for many of the steps is already included in the Emerging Technology Centers proposal included in the Growth of Mature Business Committee report (Appendix D2).

### **Recommendations for Private Sector or Joint Public–Private Sectors**

Specific recommendations have been developed to improve start-up activities in the State. The committee assessed deficiencies specific to Wisconsin in terms of start-up and early-stage companies. Many of these recommendations require synergetic actions by venture capital and angel investors, as well as economic development organizations and State government. UW System leadership is encouraged to work with public and private sector leadership in advancing the following action items:

- 1) The Wisconsin Entrepreneur-in-Residence Program would identify and retain qualified and experienced CEO candidates, for a limited time period, in start-up companies within Wisconsin. This will address a critical lack of skilled company managers in Wisconsin. The program is envisioned to be funded through private sources and matched by the State. The estimated cost per CEO will be \$150K/year. Details are provided in the Start-up Committee report (Appendix D1, Proposal 6).
- 2) The Wisconsin Tech Transfer CEO placement program is a loan award program that allows the recruitment of qualified CEOs for early-stage companies that are strapped for cash. A cash award is provided that is sufficient to fund a CEO for up to one year. Funding comes from private sources matched by the State. The estimated cost is \$300K per year per CEO. Details are provided in the Start-up Committee report (Appendix D1, Proposal 7).
- 3) Recruit SBIR grant writers and coaches. Wisconsin lags behind most other states in acquiring SBIR funds. This program can be facilitated through working with organizations such as the Wisconsin Entrepreneurs' Network or other economic development organizations to develop a pool of qualified writers and coaches. The estimated cost is \$75K per grant writer. Details are provided in the Start-up Committee report (Appendix D1, Proposal 1).

### **Implementation Plan**

The committee recommends the following specific steps to monitor the implementation of Research to Jobs task force recommendations:

- A) Formation of a standing committee to continue the momentum of this task force's activities. Several members of the task force have volunteered their time to serve on this committee. The Research to Jobs Implementation Committee, which will report its findings to President Reilly and the task force on an annual basis, will provide quantitative assessments and may suggest corrective measures, as necessary. It is important that the committee members make a sufficient time commitment for this task.



- B) The UW System should on a regular basis communicate its efforts on job creation and economic growth to public officials, business and community leaders.
- C) The UW System could provide leadership in canvassing campuses regarding the implementation of the action items.

**Appendices:**

A: Committee Member List and Guidelines

B: Letter from President Reilly

C: List of Recommendations

D1-D3: Full Committee Reports

## **Appendix A**

### **Committee Members and Guidelines – Research to Jobs Task Force**

#### **Task Force Members:**

Chair: Carl Gulbrandsen, Managing Director, WARF; President, WiSys Technology Foundation  
Kris Andrews, Assistant Vice President, Office of Federal Relations, UW System  
Bill Berezowitz, Vice President and General Manager of Imaging Subsystems, GE Health Care  
Paula Bonner, President & CEO, Wisconsin Alumni Association  
Pat Brady, General Counsel, UW System  
Mark Bugher, Director, University Research Park, UW-Madison  
Mark Cook, Board Chair and Founder, Isomark, LLC  
Terry Devitt, Assistant Director, University Communications, UW-Madison  
Kathleen Enz-Finken, Provost, UW-La Crosse  
Rebecca Faas, President, INOV8 International, Inc.  
Charlie Hoslet, Managing Director, Office of Corporate Relations, UW-Madison  
Maliyakal John, Managing Director, WiSys Technology Foundation  
Ralph Kauten, Chief Executive Officer, Quintessence Biosciences  
Frank Langley, President and CEO of MPP Group  
Thomas (Rock) Mackie, Co-founder, Chairman of the Board, TomoTherapy, Inc.  
Greg Meier, Executive Vice President, Physiogenix  
Mark Mueller, President, Botanic Oil Innovations, Inc.  
John Neis, Managing Director, Venture Investors  
Noel Radomski, Lecturer and Associate Researcher, Wisconsin Center for the Advancement of Postsecondary Education, UW-Madison  
Charles Sorensen, Chancellor, UW-Stout  
Tom Still, President, Wisconsin Technology Council  
Brian Thompson, President, UWM Research Foundation  
John Torinus, Chairman, Serigraph, Inc.  
David J. Ward, Chancellor, UW-Green Bay & President; Founder, NorthStar Economics  
John Wiley, Academic Program Director, Wisconsin Institute of Discovery, UW-Madison

Note: Additional names may be added.

#### **Executive Committee**

Carl Gulbrandsen, John Neis, Tom Still, David Ward

## **Timeline:**

March 11, 2009, 2.00 p.m.

First committee meeting, at WARF. Introduction and discussion of work plan

April 16, 2009, 3.00 p.m.

Teleconference to report progress, issues

April 30, 2009 3.00 p.m.

Teleconference to report progress, issues. Preliminary report will be due from each sub-committee by May 5, 2009.

May 11, 2009, 11.00 a.m.

Second committee meeting at WARF. Discussion on preliminary report and suggestions for improvement. Final report from each sub-committee due on May 25, 2009.

June 2, 2009, 11.00 a.m.

Final committee meeting at WARF. Discussion on final report

## **Objective:**

The task force is entrusted with developing recommendations on creating jobs through UW-led research and increasing the technology transfer to Wisconsin's companies. The recommendations must be generally applicable to all UW institutions and industry sectors.

Therefore, it is important to get feedback from diverse sources. The recommendations must be:

- Practical and implementable in the near future.
- Quantifiable with benchmarks for success.
- Broadly applicable to all regions of the state.
- Specific in defining the roles of all UW research institutions, industry, and government entities.

The committee may want to consider addressing the task in three distinct approaches:

- Job creation through startups
- Growth of mature business (UW –industry partnerships to grow jobs), and
- Effective ways to communicate the critical role of UW research to the public and industry.

The committee may want to form three groups to address each of these issues. The groups are also encouraged to recruit advisers for their respective tasks.

## **Subcommittees**

Note: Carl Gulbrandsen is Ex Officio for all Committees

### **Job Creation through Startups**

**Lead:** John Neis

**Members:** Mark Bugher, Ralph Kauten, Frank Langley, Rock Mackie, Greg Meier, Mark Mueller, Brian Thompson, John Wiley

**Advisors:** Suggested names - Dr. Bill Barker (Associate Dean, College of Letters and Sciences, UW-Madison), Winslow Sargeant (Managing Director, Venture Investors), Bill Gregory (Professor, Human Movement Science, UW-Milwaukee)

The startup subcommittee will draw up a work plan, including a timeline to increase startups throughout the state. The committee may consider ways to improve the research environment conducive to development of platform technologies. Discussions with representatives of all campuses, Wisconsin Medical College, Marshfield Clinic and other research institutions are necessary. The committee may interview a diverse segment of faculty to understand some of the following issues:

- Hurdles at the UW level (faculty incentives, resources, conflict of interest issues, lack of guidance, etc)
- Hurdles at startup levels (capital, tax laws, resources, lack of CEOs)
- Special issues of small cities/UW comprehensive campuses
- Role of research parks or incubators
- Lessons from out-of-state universities

The committee would also:

- Develop a list of recommendations
- Develop benchmarks for success
- Develop a set of questionnaires to get feedback from public and private citizens.

Public input is very critical and the members are encouraged to set up interviews with opinion leaders.

### **Growth of Mature Business (UW-industry Partnerships to Grow Jobs)**

**Co-Leads:** David Ward, Charles Sorensen

**Members:** Bill Berezowitz, Mark Cook, Rebecca Faas, Kathleen Enz Finken, Charlie Hoslett, Maliyakal John, John Torinus

**Advisors:** Suggested names - Kathy Collins (Technology & Development Finance Manager, Dept. of Commerce), Mark Bradley (President, UW System Board of Regents)

The group will develop a work plan and timeline to address how research at the universities can be translated into job creation and additional specific benefits for Wisconsin companies. Several hundred of Wisconsin's small- and medium-size companies lack R&D infrastructure or resources. The committee would look at the following issues to determine how UW System campuses can partner with industry to develop new technologies and products for growth and jobs:

- Hurdles for companies in partnering with UW (lack of confidence, unfavorable terms, timely completion, lack of funds, lack of a known entry gate, lack of understanding of tech transfer, etc.)
- Hurdles for faculty and campuses (time, funds, technical support, campus support, career hurdles, lack of incentives, lack of interesting challenges, lack of guidance, etc.)
- Special issues for comprehensives (teaching versus R&D, infrastructure)
- Incentives for partnership (seed funds, tax incentives, centralized leadership)
- Examples of initiatives from out-of-state universities

The Committee would also:

- Develop specific recommendations
- Develop benchmarks for success
- Obtain feedback from public and industry opinion leaders.
- Develop a questionnaire for interviews.

### **Communication of the Critical Role of UW Research to the Public and Industry**

**Lead:** Tom Still

**Members:** Kris Andrews, Paula Bonner, Pat Brady, Terry Devitt, Noel Radomski

**Advisors:** David Ward

Historically, Wisconsin industries, especially small- and medium-size companies, have not benefited significantly from UW research. UW willingness to work with companies, and the mutual benefits that would result, need to be communicated to all Wisconsin companies.

This subcommittee would focus on ensuring that public and political leaders know the advantages of this important partnership for Wisconsin's economy, leading to the likelihood that necessary funding will be provided. This cultural shift will improve the environment for UW-industry partnerships.

#### **Contact Information:**

Carl Gulbrandsen, Managing Director, WARF

**E-mail:** [Carl@warf.org](mailto:Carl@warf.org); **Phone:** 608-263-9395

P.O. Box 7365, Madison, WI 53707

Kris Andrews, Assistant Vice President, Office of Federal Relations, UW System Administration

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## Appendix B

March 11, 2009

Dear Members of the Research to Jobs Task Force:

Thank you for agreeing to serve on the UW System's "Research to Jobs" Task Force. I regret that I cannot be with you today to extend my thanks in person; however, I will plan to join you in May – when the weather is warmer and you have solved all the issues at hand!

Truly, I do want to thank Carl Gulbrandsen for undertaking this assignment. There's a famous saying about if you want something done, ask a busy person. That must have been written about Carl. I am very grateful to Carl and his team at WARF/WiSys for their willingness to lead these efforts.

About a year ago, the UW System completed a strategic planning process. One of the action steps that grew out of our strategic planning process was for the University of Wisconsin System to evaluate not only what it could do, but what it should do more of, to transform university research and faculty expertise into high-paying, knowledge-based jobs for Wisconsin.

At a time when our state and nation desperately need a more educated workforce and activities that will build on our economic strength and lead to new jobs and a higher quality of life, our nation's universities are being challenged to support economic development in a positive and progressive way. Rightly so. All our universities in the UW System have the capability to play a key role in developing clusters of new and growing knowledge-based companies, and to work closely with the industries and companies of Wisconsin that already exist to ensure that they remain competitive in the 21<sup>st</sup> century. If we can move more of our intellectual fire power down the chain to the point that it is indeed creating new industries and jobs that have a future in Wisconsin, we will have made an enormous contribution to all our futures – throughout Wisconsin and throughout the United States.

I thank you for taking on this important work – an assignment I know will be well worth the effort. I look forward to hearing about your progress, and will plan to be with you personally when you meet again in May.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin P. Reilly".

Kevin P. Reilly  
President

Universities: Madison, Milwaukee, Eau Claire, Green Bay, La Crosse, Oshkosh, Parkside, Platteville, River Falls, Stevens Point, Stout, Superior, Whitewater. Colleges: Baraboo/Sauk County, Barron County, Fond du Lac, Fox Valley, Manitowoc, Marathon County, Marinette, Marshfield/Wood County, Richland, Rock County, Sheboygan, Washington County, Waukesha. Extension: Statewide.

## Appendix C

### List of Recommendations – Research to Jobs Task Force

#### Job Creation through Start-ups (see Appendix D1)

1. **Recruit experienced SBIR grant writers** to assist University of Wisconsin System start-ups attract early non-dilutive funding.
2. **Week long course to teach basic business and entrepreneurial skills** to students, staff, and faculty in the scientific and engineering disciplines. This is modeled after the successful entrepreneurial boot camp on the UW-Madison campus.
3. **A UW System website for posting start-up ideas and requests** for support, which may include employment, advisors, financial support, etc. (the “UW Innovation Machine”).
4. **A UW system-wide business plan competition** modeled after the Burrill Business Plan Competition on the University of Wisconsin-Madison campus.
5. **A UW Certificate Educational Program on Technology Transfer** for economic development professionals and business incubator managers.
6. **Wisconsin Entrepreneur-in-Residence Program** to identify and retain qualified and experienced CEO candidates for start-ups.
7. **Wisconsin Tech Transfer CEO Placement Program** to award loans to early-stage companies to recruit CEOs.
8. **UW System Leave of Absence policy** be modified to encourage faculty to engage in Wisconsin startup companies.

#### Growth of Mature Business (See Appendix D2)

9. **Development of Emerging Technology Centers in the UW System** to focus on specific technologies and connect with companies throughout the State.
10. **Expand Wisconsin Discovery Portal database** to include all UW campus faculty to facilitate inter-campus and industry collaborations.
11. **Remove existing barriers** and promote research as an integral part of undergraduate teaching.

#### Communicating the Critical Role of UW Research to the Public and Industry (See Appendix D3)

12. **Improve the UW’s tele-presence statewide**, whether through internal communications tools or through mediums such as Wisconsin Eye, the Big 10 Network, WisBusiness.com, the Wisconsin Technology Network and other targeted sources that offer online video options. These are opportunities to showcase UW R&D success stories.
13. **Make better use of alumni publications**, both print and online.

14. **Use available “ambassadors” more effectively.** These include alumni, “star” business partners and license-holders, faculty and staff who have successfully worked with business, and students – who are ultimately the No. 1 “tech transfer” product of the university.
15. Consider establishing a **UW System version of the UW-Madison Office of Corporate Relations**, working through that existing framework, to better connect businesses working with the non-doctoral comprehensive campuses.
16. A **Wisconsin Idea bus tour** or similar outreach function such as The Wisconsin Edge, which is co-sponsored by WARF. This process and others have highlighted “best practice” examples of university-industry collaboration.
17. **Gain a better grasp of “new media”** and determine ways to better help news organizations in performing an increasingly difficult, resource-restrained job.
18. **Start-up funding for the Center on Public Opinion and Technology (CPOT)** within the UW-Madison Department of Life Sciences Communications would help put that research into the right hands – and launch a national center that could eventually pay dividends to the university.
19. **Routinely capture business community opinion using survey research tools.** The Wisconsin Technology Council and WisBusiness.com have launched a “Tech Leadership Survey” to regularly sample business opinion in that sector.
20. **Improve marketing of the technologies in the WARF, UWM Research Foundation, and WiSys portfolios**, especially to small- and medium-sized businesses and Wisconsin trade associations that often represent those businesses.
21. **Leverage UW System graduates in the Milwaukee area**, where there are excellent examples of collaboration (the GE Healthcare “master agreements” with WARF, for example) but a lack of recognition. The UW System should work harder to close the Milwaukee-Madison cultural and business divide while supporting the growth of the UW-Milwaukee research infrastructure.
22. **Use statewide and regional groups to communicate** the fact that UW-Madison R&D is available to be deployed anywhere in Wisconsin (or the world) and that all UW System campuses offer significant R&D capacity, either individually or collectively.
23. **Consider reviving the Wisconsin Economic Summit.** The focus of the next summit might be twofold: “best practices” in Wisconsin and elsewhere, and getting direct feedback on business needs.
24. **Commit the resources** for the UW System’s “Growth Agenda” to be successful.



## **Appendix D1**

### **Start-up Committee Final Report - Research to Jobs Task Force**

#### **Committee Members:**

Mark Bugher, Director, University Research Park, UW-Madison

Ralph Kauten, Chief Executive Officer, Quintessence Biosciences

Frank Langley, President and CEO of MPP Group

Thomas (Rock) Mackie, Co-founder, Chairman of the Board, TomoTherapy, Inc.

Greg Meier, Executive Vice President, Physiogenix

Mark Mueller, President, Botanic Oil Innovations, Inc.

John Neis, Managing Director, Venture Investors, Committee Chairperson

Brian Thompson, President, UWM Research Foundation

John Wiley, Academic Program Director, Wisconsin Institute of Discovery, UW-Madison

#### **Report Summary**

The Start-up Committee of the Research to Jobs Task Force developed a number of ideas to stimulate more start-up activity and job creation from entrepreneurial ideas hatched on University of Wisconsin System campuses. Knowledge will be the principal driver in transforming our state's economy and creating high paying, sustainable jobs in the 21<sup>st</sup> Century. The University of Wisconsin System is recognized worldwide for its research prowess, attracting research dollars which it transforms into knowledge that offers the potential to greatly benefit mankind. The goal of the Start-up Committee was to offer ideas to help the University of Wisconsin System become equally adept at transforming that knowledge back into dollars by actualizing that potential.

The achievement of this objective requires the development of a complex entrepreneurial ecosystem that nurtures entrepreneurially minded faculty, staff, and students, enabling them to access the assistance, expertise, and resources necessary to achieve their goals. We want to remove obstacles to new business formation, encourage the pursuit of their entrepreneurial dreams, and improve their probability of successful commercialization and sustainability. The committee considered the continuum of needs from idea generation and development, to assembly of teams and access to early financing, to commercialization and successful growth. The ideas that we advanced also consider a number of characteristics of this process and the attributes of the University of Wisconsin System:

- We want to be certain to extend the reach to all participants in our ecosystem. The UW System has more than 6,500 faculty members, nearly 3,000 of which are at doctoral granting institutions that are engaged in significant research. There almost 29,000 staff

members, nearly 17,000 of which are on doctoral granting campuses, and many of which are holders of advanced degrees and engaged in research. Whether working in conjunction with faculty or independently, their greater numbers could provide entrepreneurial potential of similar or even greater magnitude. There are more than 173,000 students in the System, and they may offer the greatest potential based on their sheer numbers, youthful energy, and capacity for taking risks. We believe that the vision for stimulating entrepreneurship should be inclusive of all of these groups and have advanced proposals that engage all of these key members of the ecosystem.

- In this increasingly complex and competitive world, connections and knowledge from outside the sphere's in which we live and work daily helps us identify problems, solutions and opportunities sooner and address them more effectively. Furthermore, 24 of the 26 universities and colleges that are not doctoral granting are unlikely to generate the kind of critical mass of research activity that is often the starter material for start-ups. As a result, they are less likely to produce clusters of related entrepreneurial start-ups that create spontaneous interconnectivity and the resulting synergy within the boundaries of each campus. As a result, we want to encourage increased interdisciplinary and inter-institutional interaction to effectively utilize the specialized support networks that can nurture development and enhance the competitiveness of the businesses that emerge from our campuses.
- Research and commercial development require very different skill sets. We have included ideas to attract and engage experienced business professionals earlier in the process.
- We are conscious of the severe budget constraints in this difficult economic climate. We are promoting ideas with modest overall costs, and in some cases offering strategies for more than one potential funding source.

Our proposals acknowledge the nature of the transition from ideas hatched in the University of Wisconsin System to private sector companies. As a result, they begin with ideas that operate within the System under the System's control, and end with ideas to foster success after full transition into the private sector.

We have proposed budgets that presume each program stands on its own. However, we believe that several of these programs are synergistic and could be operated under a single administrative umbrella. Additionally, many of these activities could be administered outside the University of Wisconsin System, either by a university affiliated foundation (such as WARF or Wisys) or by economic development organizations that are either statewide (such as the Wisconsin Technology Council) or regional (like BizStarts, Thrive, or NEW North) with shared staffing that could reduce overall cost and avoid creating a new UW System staff position.

## **Proposal #1**

### **New Idea Generation**

#### **UW System Grant Writing Coaches**

Proposed Start-up Initiative: Recruit experienced SBIR grant writers to assist University of Wisconsin System spin-outs attract early non-dilutive funding.

Estimated Program Cost: \$50,000 - \$75,000 in direct and indirect costs per grant writing coach. Total costs could be lowered with the initial position being that of an independent contractor status with no benefits.

Funding Sources: Seek donor support to initiate program. Supplement with fees from assisted companies. If successful, could be considered for additional legislative funding.

Program Description: SBIR Grants are an excellent source of initial and non-dilutive funding and with outcomes often acting as a catalyst for a technology foundation for potential commercialization. However, faculty members/university administration often lack the time, expertise, or industry connections to gain a full appreciation for how successful SBIR grant submissions differ from academic research grant proposals. The objective of the Grant Writing Coach program is to improve the probability of receiving grant funding by receiving constructive feedback from individuals that are familiar with the attributes that translate into a score that is likely to receive funding. A couple alternative models should be examined:

- Have a shared pool of grant writing coaches, each serving spin-outs from all UW System campuses in a particular field of study. This model has the advantage of domain expertise of the grant writing coach in the area of research of the grant submission. Additionally, a shared resource is more likely to be cost effective because of a lack of critical mass for the non-doctoral granting universities in the System.
- Alternately, place on an experimental basis at least one grant writing coach in a department on a UW System campus that has an opportunity to capitalize on the investment. This model has the advantage of more routine interaction with spin-outs from a particular campus.

With either alternative, it is recommended that there be at least one grant writing coach located on the Madison and Milwaukee campuses.

With this program:

- May be attractive to private sector donors who wish to collaborate with a university department/faculty member with respect to certain technology and expertise.
- The metrics of success/failure are easier to quantify by looking at grants prepared and granted. This will be more palatable to prospective private sector donors who are looking for a more definitive accountability for their contribution.
- Enables faculty to focus on the technical aspects of the proposal instead of researching the program's nuances, freeing up faculty to pursue more grants of interest and helping other faculty members to get into the grant process.
- The profile of the participating university could be raised in the private sector through these and follow-on collaborations.
- Opportunity to generate royalty revenue as an offset against (or gain) on future program costs.
- Will help spur economic growth when companies are formed around the commercializing core technology.

Actions required for implementations:

1. Identification of UW Schools interested in program – applicant school would have to identify department for placement of initial grant writer at their institution.
2. Solicitation of private donors that want to support this initiative.
3. Develop program description and guidelines.
4. Provide some initial training on SBIR grants and develop interest among faculty members.

Targeted milestones:

Develop a program dummary / fescription

Secure private sector donations for initial program

Recruit and place grant writing coaches at interested sites

Evaluate success / prepare next funding requests

## **Proposal #2**

### **Development of Entrepreneurial Skills**

### **UW System Entrepreneurial Boot Camp**

Proposed Start-up Initiative: Week long course to teach basic business and entrepreneurial skills to students, staff, and faculty in the scientific and engineering disciplines. This is modeled after the successful entrepreneurial boot camp on the UWMadison campus and could be coordinated with other entrepreneur training programs, such as the “Entrepreneurs’ Edge” presentation skills-building program run through the Wisconsin Angel network.

Estimated Program Cost: \$50,000 - \$75,000 in direct and indirect costs, dependent on form of implementation.

Funding Sources: Seek donor and foundation support to initiate program.

Program Description: Many individuals trained in the sciences have had little or no formal exposure to basic business principles. Even if they have some knowledge of business matters, they may lack specific knowledge about common strategic and finance strategies typically encountered by early stage companies. By developing core knowledge, analytical skills, and key considerations in the early decisions they will face, they improve their probability of hiring the right employees and advisors at the right time, of approaching the right investors at the right time with the right expectations, and avoiding the common early missteps that can cripple a company’s long term prospects. The week-long intensive learning from experienced instructors in a class setting with like minded individuals has proven to be a popular, rewarding experience for participants. The program is scheduled during the summer when classes are out of session, avoiding interference with most regular commitments of participants. A couple alternative models should be examined:

- Expansion of the existing program in Madison to accommodate the inclusion of faculty, staff and students from around the state. If done with sufficient expansion in the number of instructors and break-out sessions to avoid dilution, this is probably the most efficient alternative while maintaining consistent quality. Given that Madison has the state’s most vibrant entrepreneurial climate, the participants from outside of Madison have an opportunity to experience the climate and activity first hand, making it a more tangible experience.
- Simulcasting the program to several locations around the state on UW System campuses, with support instructors on location. Some quality control is lost and there

may be less critical mass at remote locations, but participants are spared lodging costs during their stay in Madison.

- Create one or more separate boot camps for faculty, staff, undergraduate, and/or graduate students throughout the System. Obviously, there is greater variability and cost and the number of separate boot camps increases.
- Record the UW-Madison boot camp and make it available on demand online for all in the UW System. Part of the learning experience is the interactive, hands on nature of the learning experience and the networking and social interaction that runs into the evenings of the event. Nevertheless, this is superior to not participating in any fashion. This alternative could be combined with any of the alternatives above.

The existing program is open to graduate students in physical/life sciences, engineering, and law at UW-Madison. Clearly there is a broader universe within the System than could benefit from the program, For more information on the existing program at UW-Madison, go to:

<http://www.bus.wisc.edu/weinertcenter/Web.asp>

Actions required for implementations:

1. Determine scope, scale, and format of the desired expansion.
2. Solicit private donors that want to support this initiative.
3. Develop detailed plans, logistics, and infrastructure plans for proposed expansion.
4. Promote and recruit participants from the broader targeted audience.

Targeted milestones:

Determine expansion plans

Secure private sector donations for initial program

Develop implementation plans

Promote expanded program and recruit participants

Hold inaugural expanded boot camp

### **Proposal #3**

#### **Early Team Development and Funding**

#### **UW Start-up Website**

Proposed Start-up Initiative: A UW-System website for posting start-up ideas and requests for support, which may include employment, advisors, financial support, etc. (the “UW Innovation Machine”)

Estimated Program Cost: Year 1: \$100,000 to build the website; thereafter, about \$120,000 to 200,000 for staffing, support, and maintenance.

Funding Sources: UW System

Program Description: The UW Innovation Machine (“UWIM”) would be organized around two groups: (i) UW System students and faculty and (ii) supporters. Patterned after Berkeley’s Big Ideas ( <http://bigideas.berkeley.edu/>), students and faculty would post ideas by broad categories, such as “Information Technology,” “Life Sciences,” and “Environment and Energy.”

Supporters would be able to provide assistance to the student/faculty posted idea based on the needs listed, which may include services (e.g., web development), advisors, and financial support.

Students and Faculty: You must be a UW System student or faculty member and have a valid UW System identification username and password. Students and faculty would register with the website, and once registered they would be able to submit project ideas for which they are seeking support. The UWIM team would review the project idea and either approve or make further suggestions as to how a proposal might be modified to conform more closely to UWIM’s requirements before it can be posted live. If approved, the poster would then be able to provide more information on the project and publish it live to the marketplace. The student/faculty could go back in at any time and edit the information. People would be encouraged to post progress reports, and there would be a mandatory bi-annual progress report.

All donations made to initiatives go through the foundations affiliated with each of the System campuses. UWIM would appropriately allocate those funds to the specific student/faculty projects. There would be a small administrative fee to cover UWIM costs.

- Supporters: There are three categories of supporters, donors, team members, and advisors.
- Donors: Once a donor clicks on “Give to this Project” on any of the project description pages, they will be given three options for supporting a project. A donor can make a financial contribution by filling out an online form on the affiliated Foundation’s secure site using a credit/debit card or check. Additionally, a donor can collect donations from their social network by creating a ChipIn event. Finally, a supporter can make an in-kind donation of products or services if these are requested by the project. Airline tickets for student travel are always appreciated.

Donors will receive two “thank you” emails – one from the University and one from the UWIM Initiative. The second will contain a password for viewing progress reports of projects they are supporting.

All contributions directly support the work of the UWIM student/faculty-led teams who are tackling major challenges at the local, regional, and global level. All donations go through the foundation affiliated with the System campus where the student/faculty teams are located.

- Team Members: Students/faculty can also ask people to join their efforts. This option will allow them to recruit other students and faculty that may have specific skills necessary to work on a particular project.
- Advisors: Students/faculty can also post for advisors, who may have deeper expertise in a particular area, to join their team. Advisors who are not students or faculty must register and agree to terms similar to those required for Merlin Mentors.

Each classification of supporter can register with key words to trigger notification of new postings that are in their area of interest. Key objectives of this program are to catalyze early definition of the business opportunity, to encourage interdisciplinary involvement (including business) at early stages, and to increase inter-institutional interaction within the UW System. Individuals interested in investing, rather than donating to projects, need to be pre-qualified as accredited investors. Member groups in the Wisconsin Angel Network have taken responsibility for assuring that all of their members are accredited. A hot link could be placed on the Wisconsin Angel Network website for those members that have logged in, enabling investment opportunities in the projects to be viewed. For accredited investors that are not a



member of the Wisconsin Angel Network, a contact at WiSys could be provided that enables an accredited investor to pre-qualify and examine investment opportunities.

Actions required for implementations:

1. Obtain UW system budget approval
2. Establish University Foundation relationships for financial contributions.
3. Financial commitment for the UWIM.
4. Build website.

Targeted milestones:

Board of Regent approval

Establish University System Foundation relationships

Select team to manage the program and develop the website

Complete website development

Launch the program and website

## **Proposal #4**

### **Business Launch for Funding**

### **UW System Business Plan Competition**

Proposed Start-up Initiative: A UW System-wide business plan competition modeled after the Burrill Business Plan Competition on the University of Wisconsin-Madison campus.

Estimated Program Cost: \$125,000 annually consisting of \$25,000 in part time staff support, and \$100,000 in annual prize money.

Funding Sources: Donor supported.

Program Description: Business plan competitions with prize money can serve as a catalyst for the formation of new ventures by entrepreneurially minded students. The benefits are achieved in many ways:

- The availability of prize money is a significant motivator for students to fully explore their entrepreneurial ideas.
- All students engaged in the process learn from the experience of researching their ideas, developing their plan, and defending their ideas to a panel of judges.
- The prize money can serve as seed capital for the most promising ideas.
- Winners could be assured of being a finalist in the Wisconsin Governor's Business Plan competition that is managed by the Wisconsin Technology Council.

It is recommended that there be two tracks for this competition: one that includes plans based on intellectual property developed by faculty or staff and licensed or optioned from a University of Wisconsin System technology transfer office (these submitting teams could include students), and a student competition that is open to student teams pursuing their own ideas. The competition would be promoted on campuses across the System. Orientation sessions would be conducted for interested participants. (It is recommended that a half-day educational session of be conducted from a central location and available through a satellite feed to each campus, recorded for later viewing for those unable to see it live.) Student teams of at least two students would submit plans for review. Staff would review for completeness, and those meeting the minimum submission criteria would be forwarded to teams of judges for different four broadly defined technology categories. Twelve finalists would be selected for in-person presentations to a panel of judges. Prizes of \$25,000, \$15,000, and \$10,000 would be awarded to the winners. (An additional prize of \$10,000 for "social entrepreneurship" is encouraged to

engage idealistic faculty, staff, and students to develop ideas for a sustainable solution to a societal problem.)

If the proposed UW Start-up Website idea is adopted, this competition and staffing requirements could be under a common umbrella and the competition could be promoted on the website.

Actions required for implementation:

1. Identification of a leadership team for the program
2. Solicitation of donors that want to encourage and reward entrepreneurship on our campuses
3. Develop the program plans and curriculum
4. Attract volunteers to teach the orientation session and serve as judges.

Targeted milestones:

Identify a Leadership Team

Secure donations for initial program

Develop orientation program

Hold inaugural competition

## **Proposal #5**

### **Fostering Entrepreneurial Collaboration with System Campuses Economic Development Professional Tech Transfer Certification**

Proposed Start-up Initiative: A UW Certificate Educational Program on Technology Transfer for economic development professionals and business incubator managers

Estimated Program Cost: \$50,000 for part time director

Funding Sources: WARF, WiSys, and the UW System

Program Description: The University of Wisconsin System needs to be very proactive in fostering a rich environment of interaction and collaboration between its faculty researchers, entrepreneurs, business incubator managers, and community based economic development professionals.

Rather than a technology push or market push, this program is aimed at technology pull. That is, entrepreneurs pulling research and innovation from the university which can result in more successful startups or business expansions. Entrepreneurs and businesses are often more in tune with market opportunities and through collaboration, UW researchers can better focus research and development activity toward commercial opportunities.

There is a great opportunity to expand the collaboration potential between entrepreneurs and UW researchers by partnering with local or community based economic development organizations and business incubators in a more formal and consistent way.

Wisconsin has a reasonably well developed infrastructure of economic development organizations and business incubators which are staffed by economic development professionals. While in the past, much of the local economic development work in Wisconsin, and elsewhere for that matter, has been focused on attracting business, economic development strategies have now shifted to growing local businesses. For example there are now 35 business incubator facilities in the state, encompassing 1.1 million square feet of space and housing more than 250-start up and early stage companies. These community based organizations and their staffs are of varying levels of capacity and sophistication. They are in touch with literally hundreds of entrepreneurs and businesses on a day to day basis who are faced with challenges in growing their business. While they frequently recognize that opportunities exist within the University of Wisconsin System, they often may not have a good understanding of how to engage in a search for the best possible means for interaction.

The University, together with WARF and WiSys, could create an educational program around technology transfer aimed at increasing the capacity and sophistication of economic development officials and their organizations.. The educational program could be something less than a degree, but more than a one- or two-day seminar, and perhaps result in a certificate that would provide credentials and credibility for the community based economic development organizations and their staff. The Technology Transfer Program could cover principles of intellectual property protection, licensing practices , assessing economic and market feasibility of new technologies, as well as more conventional business practices such as business planning, financing and raising venture capital. Such an educational program would have a two-fold benefit:

- Improve the capacity and measurable outcomes of economic development organizations and their staffs throughout the state,
- Enhance the opportunities for interaction, exchange, and collaboration between entrepreneurs and the University which ultimately will lead to more start ups and jobs.

Actions required for implementations:

1. WARF, WiSys, and UW Regent budget approval
2. Recruitment of a program director
3. Development of a curriculum
4. Recruitment of volunteers to participate in lecture sections
5. Launch of program

Targeted milestones:

Funding approval

Director recruitment

Curriculum development

Launch of program

## **Proposal #6**

### **Combining Opportunities with Entrepreneurial Start-up Managers Entrepreneur in Residence Program**

Proposed Start-up Initiative: Wisconsin Entrepreneur-in-Residence Program

Estimated Program Cost: Growing to as much as \$1,500,000 annually (10 EIRs)

Funding Sources: Public/Private collaboration with 50% by State of Wisconsin, 50% private match (private sector and/or foundations)

Program Description: The entrepreneur-in-residence model has a long history in the venture capital community. It is a method for capturing the full attention of a highly skilled CEO candidate with a proven track record and matching them with an emerging high potential growth company that is in need of seasoned leadership.

In the traditional entrepreneur-in residence model, a sponsor places a CEO candidate on the sponsor's payroll for a finite period of time (12-18 months maximum) while the CEO candidate and sponsor seek opportunities of mutual interest for the candidate to step into the role of CEO. This accomplishes multiple objectives:

- A commitment is received from a pre-qualified candidate to seek their next position as a CEO within a universe of opportunities that match the sponsor's objectives as defined by the sponsor. This serves as a powerful retention tool for experienced CEOs who create successful exit events in Wisconsin, or as a recruitment tool to attract skilled managers into the state.
- The pre-qualification provides an indication of confidence on the part of the sponsor that the candidate will be able to attract financing. When matched with an early stage company, it addresses the chicken and egg challenge of which comes first.
- The program is designed to address the perception that Wisconsin has difficulty in attracting experienced management to its emerging companies.

In the proposed program, a venture capital firm, angel investor group, or university tech transfer office would submit a candidate to a governing board for designation as a Wisconsin Entrepreneur-in-Residence. For those receiving the designation, the State of Wisconsin would provide a cash grant to the sponsor for up to one year for the lesser of 50% of the salary paid to the candidate by the sponsor, or \$75,000. The candidate would contractually agree to focus

their full time effort to identify a Wisconsin based company in which they would assume a role as CEO or member of the senior management team. Additional criteria are established by the sponsor, such as it being a company in which the sponsoring venture capital firm or angel group would agree to invest, or a company that is a licensee of the sponsoring tech transfer office.

If the designee assumes a managerial role in a company that meets the defined criteria in less than one year, a grant from the state for the remainder of the term shall go to the company. If an opportunity has not been identified within a year, an extension of up to six months can be sought from the governing board.

If the designee accepts a position that is outside the criteria defined by the State and the sponsor, the amount paid to the designee shall convert to a note with a repayment term of two years. The candidate can separately seek forgiveness for all or part of the amount from the State of Wisconsin and the sponsor, who can consider criteria such as whether they accepted a job in Wisconsin and whether they played a role in fostering the development or advancement of targeted companies through advice or assistance during their tenure as an entrepreneur in residence.

The governing Board would include a mix of public and private sector representatives who have experience that would give them the tools to assess an applicant's qualifications, commitment, and likelihood for success.

Actions required for implementations:

1. Legislative adoption of an EIR Program
2. Promulgation of rules by governing agency (Department of Commerce)
3. University (and private sector) obtaining private matching funding
4. Recruitment of EIR candidates, submission for approval of governing body
5. Matching of candidates with opportunities

Targeted milestones:

- Legislative approval
- Rules and governing body
- Approval of first EIRs
- Match of candidates and companies

## **Proposal #7**

### **Attracting Experienced Management after Commercial Launch**

#### **Wisconsin Tech Transfer CEO Placement**

Proposed Start-up Initiative: Wisconsin Tech Transfer CEO Placement Program

Estimated Program Cost: Growing to as much as \$3,000,000 annually (10 CEOs)

Funding Sources: Public/Private collaboration with 50% by State of Wisconsin, 50% private match (private sector and/or foundations)

Program Description: Recruitment of a qualified CEO is one of the most significant steps that an early stage company can make to accelerate their trajectory. However, the cost of conducting a national search or providing first year compensation can be a significant obstacle to recruitment at a time when capital is scarce or expensive. The Wisconsin Tech Transfer CEO Placement Program is designed to accelerate the translation from research to jobs by assisting high potential companies with the cost of recruitment and/or first year salary.

Any Wisconsin-based venture capital firm or angel group and their new or existing Wisconsin-based university spin-out portfolio company may apply to the Wisconsin Tech Transfer CEO Placement program to receive a loan award for assistance in either one, or any combination, of the following:

- CEO recruiting fees
- CEO's first year salary

The applying company must show its ability to match half of the funds by having at least \$500,000, or other amount of sufficient capital, readily available or in commitments to operate the company for at least 12 months. The company must also demonstrate in its use of funds a provision to hire a CEO.

All application submissions will be prescreened to ensure applicants meet the initial program criteria. Applicants passing the prescreening round will be required to meet in front of the program selection committee. All program applicants will be screened against certain predetermined criteria, as well as their program strategy prior to being awarded a loan award. such as it being a company in which the sponsoring venture capital firm or angel group would agree to invest, or a company that is a licensee of the sponsoring tech transfer office.

All CEO placement awardees will receive a negotiated loan award through the Department of Commerce not to exceed \$200,000. The loan award will be disbursed as follows:



- For CEO recruiting fees, the DOC will disburse the loan award upon receipt of invoices provided to the company by the recruiting firm.
- For CEO salary, DOC will disburse the loan award in four quarterly installments.
- The company is required to pay back 50% of the loan award to the DOC in the following manner:
  - The payback schedule begins one year after receiving the first DOC loan disbursement.
  - The company will pay back the loan in the form of cash; paid in quarterly installments over a two year period.
  - If the company receives equity round funding at any time prior to the end of the pay back schedule, then any remaining payment becomes due.
- Applications for the CEO Placement Program will be accepted on an ongoing basis until all program funds are fully utilized. The VC or Angel group and their Portfolio Company should together submit a package including the following content:
  - A description of the company and its management talent needs, including a job description.
  - A description of the strategic plan for finding and hiring a CEO.
  - A description of the venture firm applying and its history of success within Wisconsin and elsewhere.
  - A summary of the most recent and year-end financial statements (include audited statements when available).
  - A summary of financing history (equity and debt) and capitalization table.
  - The governing Board would include a mix of public and private sector representatives who have experience that would give them the tools to assess an applicant's qualifications, commitment, and likelihood for success. It would be the same governing body as the EIR Program if that is also adopted.

Actions required for implementations:

1. Legislative adoption of an Tech Transfer CEO Placement Program
2. Promulgation of rules by governing agency (Department of Commerce)
3. Private sector financing that provides matching funding
4. Recruitment of applicant companies, submission for approval of governing body
5. Recruitment of qualified CEOs

Targeted milestones:

Legislative approval

Rules and Governing Body

Approval of first applicant companies

Recruitment of first qualified CEOs

## **Proposal #8**

### **Encourage Faculty to Engage in Start-Ups**

### **Modify Leave of Absence Policy**

Proposed Start-up Initiative: Amend leave of absence policy for faculty engaged in Wisconsin company startup activities.

Estimated Program Cost: None

Program Description: Current UW rules (Regents policy documents, Section 20; 20-6 leave of absence policy for non-medical reasons) state that an initial leave for UW staff members of 2 years or less duration may be approved by the chancellor, and an additional extension for one year can be approved by the System president. Extensions beyond the third year must be approved by the Board of Regents and must be for a fixed period of time. The first few years for start-up companies require extensive attention from the founders, especially technology guidance from the faculty. Faculty engaged in start-up activities of a Wisconsin company may require five or more years to guide the firm to a healthy state. Current restrictions cause undue difficulties for faculty and the company.

- We recommend the UW System policy be modified to encourage faculty to engage in Wisconsin startup companies. The initial leave for up to 3 years may be allowed by the chancellor and can be extended for another 2 years by the UW System president. Any leave beyond 5 years can be considered by the Board of Regents.

Actions required for implementations:

1. Request System legal office to draft policy changes and get approval from the Board of Regents.

Targeted milestones:

Near future

## Appendix D2

### Growth of Mature Business Committee Final Report – Research to Jobs Task Force

#### Development of Emerging Technology Centers in the UW System

##### Committee Members:

Bill Berezowitz, Vice President and General Manager of Imaging Subsystems, GE Healthcare

Mark Cook, Board Chair and Founder, Isomark, LLC

Rebecca Faas, President, INOV8 International, Inc.

Kathleen Enz-Finken, Provost, UW-La Crosse

Charlie Hoslet, Managing Director, Office of Corporate Relations, UW-Madison

Maliyakal John, Managing Director, WiSys Technology Foundation

Charles Sorensen, Chancellor, UW-Stout

John Torinus, Chairman, Serigraph, Inc.

David J. Ward, Chancellor, UW-Green Bay and President and Founder, NorthStar Economics

##### Executive Summary

We recommend that the comprehensive campuses develop centers of excellence for technologies key to Wisconsin's growing economy. We propose the formation of seven Emerging Technology Centers (ETCs) encompassing new and growing market opportunities such as super-capacity energy storage, distance learning and development of nanomaterials and structures. Additional beneficial opportunities for Wisconsin include research into value-added renewable materials from waste, and plastics and composites. Each of the Centers would form partnerships with regional companies to undertake joint research and development and provide internship opportunities for students, leading to high-paying jobs and economic growth.

##### ETC Objectives:

- Undertake cutting-edge R&D in selected emerging technology areas
- Develop products and technologies useful for Wisconsin industries
- Engage students in R&D training and instill passion for research
- Encourage the development of technologies leading to start-up companies
- Educate students and faculty in entrepreneurship
- Attain self-sufficiency in five years
- Generate opportunities leading to the creation of high-paying jobs
- Engage emeritus faculty and retired industrial scientists in productive R&D

Forming ETCs in a given campus will spur R&D interest among faculty and students and act as a primer for changing attitudes regarding the role of research in undergraduate education. The specific focus of ETCs to partner with Wisconsin companies and research organizations will encourage the formation of regional alliances. These alliances are important for the state's economy and job creation, and they will solidify UW System's role as a leading driver of economic growth.

#### Estimated Program Cost for 7 Centers over 5 Years:

- Total seed funding by System for years 1-4 = \$7.7 million
- Total industry in-kind support for years 1-5 = \$2.63 million
- Private funds procured by Centers in years 1-5 = \$1.23 million
- DINs or extramural funding (NSF, DOD etc or state funds) to be procured by Centers with assistance by System for years 1-5 = \$4.9 million

Funding Sources: State of Wisconsin, UW System, federal and private sources

#### **Background**

UW comprehensive campuses train and educate a majority of the students (90,000 or ~56%) and engage 55% (3,500) of all highly trained faculty in teaching in the UW System. In recent years, many of the faculty from the comprehensive campuses have taken the initiative to conduct cutting-edge research and engage students in research. This closely matches the national trend in encouraging undergraduate research and preparing students for a knowledge-based economy. However, the total number of faculty involved in research is currently minimal, versus the total number of faculty interested in research. Thus, we are not using this valuable intellectual potential to benefit the state. Furthermore, Wisconsin has allowed many industry sectors to lose their competitive edge through a lack of investment in research and development. Thousands of Wisconsin small companies do not have the resources to undertake research to stay competitive and grow in the global economy. We propose an initiative to take advantage of the underutilized intellectual potential to solve the industrial challenges and spur job creation and economic growth of Wisconsin through technology development.

#### **Underutilized Faculty Expertise**

Each comprehensive campus has leading experts in selected technology areas. Dr. Timothy Lyden, a well known developmental biologist from UW-River Falls, has established broad ranging collaborations with industry and clinical organizations. Dr. Michael Zach, an acclaimed nanotechnologist at UW-Stevens Point with an adjunct appointment at Argonne National Laboratory, was one of the first scientists to develop nanowires as hydrogen sensors, and his discovery was featured on the cover of Science Magazine. Dr. James Hamilton, a nationally recognized nanotechnologist at UW-Platteville, made breakthroughs in applications of carbon nanotubes and graphene and has received national and international press coverage for his work.

All of these faculty members train many students in their laboratories, leading to high-paying jobs upon graduation. Many of the comprehensive campuses have established robust research programs in selected topics and are making discoveries relevant to economic growth, as seen by Table 1 on the following page.

**Table 1: Indicators of technology development and economic growth in comprehensives 2007-09**

Nano-Technology Discoveries	Pharmaceutical & Biomedical Discoveries	Medical Device Discoveries	Computer Science Discoveries	Renewable Energy Discoveries	ETCs Opened (2008-09)	Start-up Companies
15	10	2	2	6	2*	3**

**Footnote: The discoveries shown are those reported to WiSys Technology Foundation**

State allocation of R&D funds for eleven comprehensive campuses is \$1.6 million, and allocation for Madison/Milwaukee is \$81 million. Despite the low resource allocation for these 4-year comprehensive campuses, they are becoming a force in emerging technology development.

\* *Nanotechnology at UW-Platteville and tissue & cellular engineering at UW-River Falls*

\*\* *Graphene Solutions, Platteville; Oshkosh Nanotechnology LLC, Oshkosh and Mycophyte Discoveries, LaCrosse*

The UW comprehensives have more than 400 faculty members with appropriate technical expertise who may engage in research and development. Examples of technical expertise include chemistry, plant and animal sciences, clinical and medical expertise, engineering, computer sciences, bioinformatics, physics, nanotechnology, microbiology and molecular biology.

The nation’s leading educational experts are recognizing the value and need for undergraduate research and training. The UW System can be a leader in this important shift by committing to establish and support research in the comprehensives. Comprehensive campuses educate and train the majority of students in the UW System (~90,000 or 56% versus ~71,300 or 44% in UW-Madison and UW-Milwaukee, Wisconsin’s two main research campuses). Establishing a culture of research among students attending these comprehensive campuses would stop brain drain and instead lead to high-paying jobs and economic growth in Wisconsin. However, the research conducted in comprehensives must lead directly to quantifiable benefits for the state. Here, we identify an opportunity to engage faculty in research that will directly impact the state’s economic growth and lead to high-paying jobs for students.

**Need for Technological Innovation for Wisconsin Industry**

Wisconsin is home to several multinational businesses. Included in these businesses are 100 companies, 41 of which are located in the Madison-Milwaukee area, with sales of more than \$450 million. The Madison and Milwaukee campuses are in an excellent position to develop research opportunities with them.

Wisconsin is also home to several thousand small- and medium-size technology oriented companies with less than 100 employees. The 2009 *Wisconsin Plastics Directory* by Forward Wisconsin lists more than 1,050 plastic companies in the state, and approximately 900 are located outside of Madison and Milwaukee. The *Wisconsin Biotechnology and Medical Device Business Directory* lists 341 life science companies, and 207 of the companies are in the Madison-Milwaukee area. Many of these companies do not have sufficient internal R&D efforts to remain competitive or grow their market share. Therefore, the UW System must focus on assisting Wisconsin’s small companies that lack R&D resources. Some of Wisconsin’s once premier industries, such as paper and foundry, have been decimated through neglect in technological innovations. Another example of lost opportunity in Wisconsin is the lack of effort regarding the development of novel technologies in the emerging markets of digital printing and specialty papers and inks.

WiSys Technology Foundation has already identified approximately 200 small companies throughout Wisconsin that may benefit from additional technical and research assistance. WiSys has a small-scale, ongoing successful program for building industry partnerships. Examples of existing productive partnerships are: Weinbrenner Shoe Company, Inc. (Merrill), Brownseed Genetics and BioDiagnostics, Inc. (River Falls), Cool Science LLC (Colfax), Bubbling Springs Solar Inc. (Menomonie), and Botanic Oil Innovations, Inc. (Spooner).

***Carpe diem***

Thus, the UW System has several hundred leading experts in selected technology areas who would like to engage themselves and their students in research and development. Our state also has a dire need to infuse technological innovations into small- and medium-size Wisconsin companies to stay competitive and grow. Our proposal bridges these two gaps for the benefit of the state.

**Proposed Emerging Technology Center Initiative**

The comprehensive campuses would establish Emerging Technology Centers to direct and stimulate research in specific technology areas, important for Wisconsin's growth. A comprehensive strategy is needed for these centers to avoid duplicating their efforts, provide sufficient resources, identify future growth opportunities, and appoint dynamic faculty to lead the centers. The number one priority of the center would be to establish productive partnerships with Wisconsin companies and jointly develop products or technologies that will allow their businesses to grow. Advancing scholarship, training students in high-paying jobs, and encouraging entrepreneurship leading to new company start-ups are also priorities for the centers.

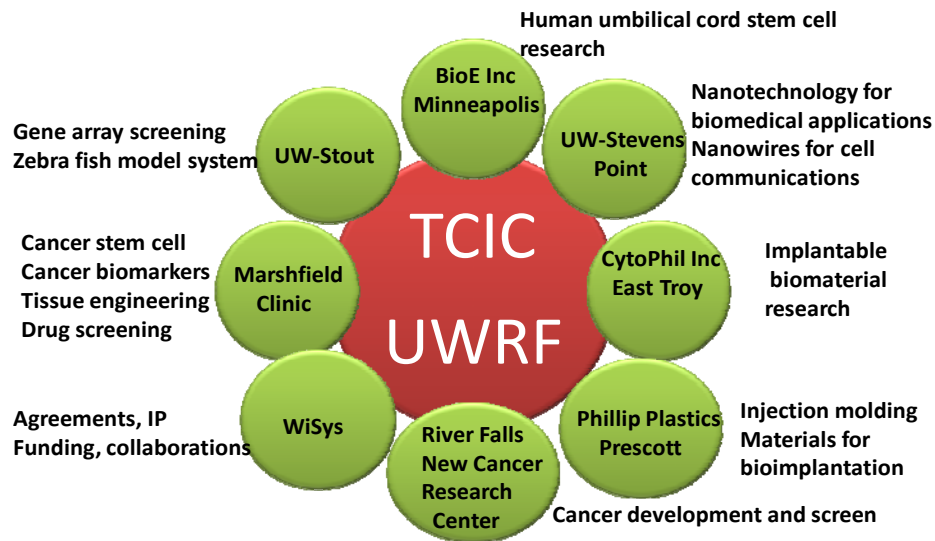
The formation of an ETC is a mechanism to recognize highly advanced research by a group of faculty, prime the research initiatives of a given campus, engage students in research and development, promote UW-industry collaboration and encourage job growth in the state. The ETC concept has already been embraced by some UW campuses including UW-River Falls, UW-Platteville, and UW-Stout.

**UW-River Falls Tissue and Cellular Engineering Center**

UW-River Falls inaugurated the Tissue and Cellular Engineering Center (TCIC) on March 8, 2009. The number of collaborations and partnerships established by the TCIC in a short period of time is a testament for the need and enthusiasm that exists among Wisconsin's small companies and clinical organizations to collaborate with leading scientists in comprehensive campuses.

## UW River Falls Tissue and Cell Innovation Center (TCIC)

March 8, 2009



Discussions with Stemina LLC, Madison on stem cell applications, Aurora BayCare for Breast cancer screens and Hysitron Inc, Minneapolis for instrumentation are in progress

### Other examples of emerging technology areas suitable for UW comprehensive campuses:

- Carbon nanotubes and graphene for applications in electronic, aerospace, computer, and energy industries [UW-Platteville's Nanotechnology Center for Collaborative Research is focused in this area]
- Tissue engineering for applications in transgenic protein production for vaccines, bioimplantation, cancer diagnosis and treatment, drug screening, and clinical research [UW-River Falls's Tissue and Cellular Innovation Center is focused on this subject matter]
- Super-capacity energy storage for next generation electric cars and other energy intensive applications. UW-Oshkosh has a cutting-edge research program in this area and has already made breakthroughs in electrode technology.
- Novel nanowire/nanostructure manufacturing for applications in solar energy, hydrogen sensors, and nanoinstruments. UW-Stevens Point has a suite of patent applications in an elegant and simple way to manufacture complex nanowires from several materials. Argonne National Laboratory, who has recognized the value of these breakthroughs, has established a collaboration with UW-Stevens Point.
- Value-added products from waste materials (UW-Green Bay), biofuels from lignin (UW-Stevens Point), isoprene production (UW-Stevens Point), interactive media for distance learning (UW-Whitewater), biofuels from microbes (UW-Superior), hydrogen fuel cells and solar panels coated with nanomaterials (UW-Stout), pharmaceuticals from Wisconsin medicinal plants and fungi (UW-La Crosse), and safer warfarin derivatives (UW-Eau Claire) are other examples of technology innovations suitable for ETCs.

We propose the formation of seven new ETCs in the comprehensives in addition to the two existing centers (UW-Platteville’s Nanotechnology Center for Collaboration and Research and UW-River Falls Tissue and Cellular Engineering Center).

**Suggested new ETCs (UW-Platteville and UW-River Falls have already initiated the centers)**

<b>Campus</b>	<b>Suggested technology area</b>	<b>Industrial Potential</b>	<b>Potential partners</b>
UW-Oshkosh	Super capacity battery storage	Energy sector	Silatronix Inc, Madison
UW-Whitewater	Interactive media and distance learning	E-Learning	Academic ADL Co-lab Madison
UW-Parkside	Biomedical sciences	Health Care	Marshfield Clinic and Aurora BayCare Clinics
UW-Stout	Plastics and composites in collaboration with UW Stevens Point	Plastics	Phillips Plastics, Inc
UW-Stevens Point	Nanowire applications and manufacturing	Electronics, energy, automobile	Argonne National Lab and Makel Engineering Inc.
UW-La Crosse	Pharmaceuticals based on medicinal plants and fungi	Health Care	Mithridion LLC , Madison NeuroAmp LLC Milwaukee
UW-Green Bay	Value added products from waste	Energy, sustainable agriculture	Encap LLC, Green Bay

**Emerging Technology Center Proposal Objectives**

- 1) Establish a series of Emerging Technology Centers (ETC) among comprehensives campuses to spur cutting-edge research among faculty and students, leading to job opportunities for students in a knowledge-based economy
- 2) Create strong and productive partnerships with local and regional Wisconsin companies, leading to economic growth and job opportunities for students
- 3) Encourage entrepreneurship among faculty and students, leading to start-ups, growth in economy and jobs, as well as a leading role for the UW System in the state’s economic growth

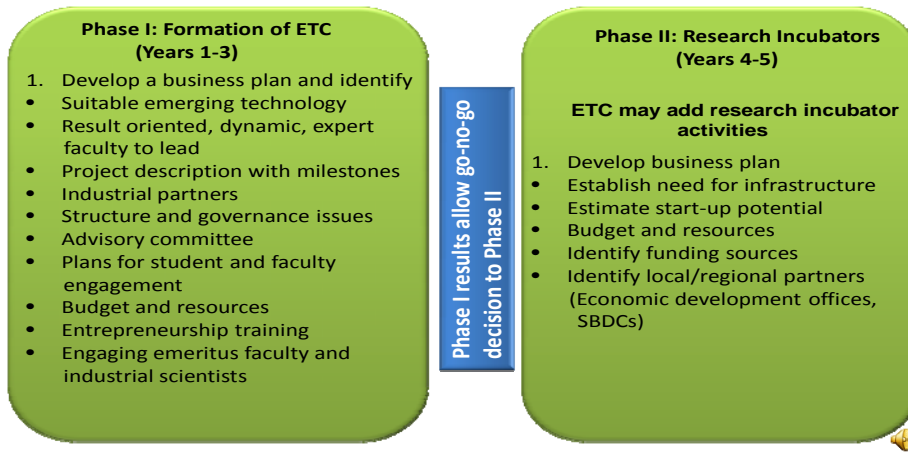
**Additional ETC objectives and benefits include:**

- Attain self-sufficiency in five years
- Engage emeritus faculty and retired industrial scientists in productive R&D
- Develop technologies or products that mature businesses utilize to grow market share
- Provide specialized worker training for companies
- Provide technical consultation by expert faculty for companies to meet challenges



These objectives can be achieved through a two-phase development program.

Development strategy for ETCs. Phase I is less capital intensive, whereas Phase II may involve capital intensive activities. Each Phase is a stand alone and can fully meet objectives.



**Phase I:** In phase I, we will establish ETCs based on the available technical talent of the campus, growth opportunities, and need for the technology in Wisconsin industry. A fully developed business plan would guide this formation. Phase I would achieve the first two major objectives of the program, including jump-starting the research for a given campus and establishing critical partnerships with Wisconsin companies to solve their challenges. During Phase I, ETCs are expected to educate faculty and students in entrepreneurship. We believe it will take three years to fully develop the programs for a given ETC. However, the capital investment needed to achieve this is modest (see budget). In year 3, an evaluation must be conducted to determine the success of each ETC and make a decision to continue, discontinue Phase I, or move to Phase II. In instances with further economic growth potential, such as a start-up company formation, the program should move to Phase II.

- Assess the level of interest among faculty and students for entrepreneurship and start-up company formations. A quantitative estimate must be given with specific examples of faculty and student interest.
- Estimate resources needed, including space, administrative support, and technical personnel.
- Identify cost effective ways to achieve the objectives, such as using space in a nearby research park or incubator. Partner with local and/or regional economic development offices or a private industry partner.

**Phase II:** This phase will involve facilitating start-up company formation by faculty or students and may require dedicated space, personnel, and other equipment and resources. Moving into Phase II should be considered only after proper evaluation, due to cost. It is possible to achieve some of the objectives of Phase II without engaging in very capital intensive activities such as

new buildings by partnering with regional consortiums, research parks, and using UW System core facilities such as the Keck-UWCCC Small Molecule screening facility.

### **Key Activities of Emerging Technology Centers**

The following programs would fall under the Emerging Technology Center umbrella.

#### **1) UW-Industry Partnership to advance economic growth**

In order to achieve the Research to Jobs objective, each ETC would establish a “UW-Wisconsin Industry Partnership Program”. This program, which would be targeted to solving industry challenges, would initiate between 5 and 7 UW research-industry and development projects within the next three years, and continue on to conduct between 2 and 5 UW-industry R&D partnership projects per year on an ongoing basis.

Projects will be targeted to advance products and processes useful for the company, and the UW will receive royalty income to continue the projects over the long-term. These research programs must have proper milestones and timelines. Proper legal agreements, budgets, project descriptions, expected outcomes, intellectual property and marketing plans must be in place before the start of the program. The salient features of the proposal are as follows:

- The program would require seed funds of ~ \$450K dollars per ETC for the first year and a total of ~ \$650K thereafter for the next 3 years. The program is then expected to be self-supported by extramural funding (federal/state) and tech transfer revenues.
- The program is targeted to small companies. Large companies must be encouraged to partner with the UW Madison and Milwaukee and pay for the research.
- Partner companies must receive preferential treatment in tech transfer and royalty payments, yet the partnership must be profitable to both the UW and industry.
- Partner company will share the R&D costs either by funding or through in-kind support.
- Collaborative projects will be conducted by post-docs and/or technicians and through faculty time buy-outs.
- Intellectual property protection is key and may be jointly owned with the partner company or solely owned by either of the partners.
- Each project must have provisions for student engagement.
- WiSys Technology Foundation should be entrusted to manage the program and should be provided sufficient resources for success. The collaborative projects require active monitoring in terms of accountability for product quality, timeliness of delivery, and proper customer relations.

#### **2) Expanding Wisconsin Discovery Portal (WDP) database to all System campuses.**

The WDP is a web-based database that can be freely accessed by the public to identify UW-Madison faculty, their research interests, technical expertise, grants, publically known industry

partnerships, resources available, and potential interest in collaborations. This can be a Portal for industry to identify potential collaborators, to identify consultants, to sponsor R&D, and to use available resources or facilities. WARF developed and manages the WDP and keeps it updated on a monthly basis in a very cost-effective manner. Currently the database portfolio has close to 3,000 Madison faculty listings. The UW System should consider expanding the database to include all UW campuses and subsequently to include all state research institutions. Because it will be such a broad database, the Department of Commerce should be contacted to become a partner in developing the expansion and updating it on a regular basis.

- Approximate cost of expanding the WDP is \$150K in 2009 and \$75K per year thereafter (assuming WARF will continue to pay for Madison campus).
- Database for other System campuses can be completed in about 4-6 months after initiation.
- Database will be available for public access through the web.
- Marketing campaign is needed to publicize the site (cost of ~ \$15K).
- Total cost of the first year is \$150K.
- WiSys and WARF will manage the site and keep it updated

### **3) Entrepreneurship Training**

Educating faculty and students in entrepreneurship must be a priority for ETCs. WiSys has devised a 3-phase program involving web-based education in the first phase, and training through workshops and individual and classroom instruction during the 2<sup>nd</sup> and 3<sup>rd</sup> phases. Foundations such as the Kauffman Foundation and the National Collegiate Inventors and Innovators Alliance (NCIIA) are interested in supporting entrepreneurship among students. WiSys has received an offer of support from the UW-Madison Office of Corporate Relations to develop entrepreneurship training in ETCs.

### **4) Engaging Emeritus Faculty and Retired Industrial Scientists**

Each year dozens of faculty from comprehensive campuses and industrial scientists with 20-40 years of technical experience retire from active duties in regions of Wisconsin outside of the Madison and Milwaukee metropolitan areas. Some of these regions, unlike metropolitan areas, lack the facilities to allow these scientists to continue to be engaged in productive research. An ETC can be a magnet to attract and engage them in highly productive research programs. They will work with faculty and students on product oriented research and development and will share the benefits.

### **5) Intercampus Partnerships**

The ETCs must develop close working partnerships with the research institutions of Madison and Milwaukee such as the Wisconsin Institutes for Discovery and the Morgridge Institute for Research, the UW-Madison Great Lakes Bioenergy Institute, and the UWM Great Lakes Wisconsin Aquatic Technology and Environmental Research Institute.

## 6) UW/Industry Outreach by WARF, WiSys and UWM Research Foundation

Effectively communicating to both faculty and industry the technology transfer mission, activities, and resources of WARF, UWMRF and WiSys would be a component of the ETC program. Tech transfer orientation for new faculty is important. A clear understanding of the IP process from both the faculty and industry sides will bolster effective collaborations. See Appendix 1.

### Emerging Technology Center Funding and Self-sufficiency

The funding requirements of ETCs are very modest. Attaining self-sufficiency in five years must be a priority for ETCs. Our proposal does not recommend any new buildings for ETCs, but rather requests that the campus find suitable accommodation in existing buildings. The typical budget (~\$400K) for an ETC is shown below. This level of support is given for the first 2 years and starting in the 3rd year the centers are expected to obtain competitive grants or private funding. Each of the faculty associated with ETCs are advised to obtain extramural funding starting in the 2<sup>nd</sup> year. The seed funding allows faculty to obtain quality data in year 1 and 2 to apply for extramural funds. Similarly, ETCs are encouraged to form partnerships with companies and obtain sponsored research or industry support for R&D.

#### Typical yearly budget for one ETC

Director 50% time-release	Faculty time release	Post-Doc (2)	Student Interns (7)	R&D supplies/IP Support	Equipment	Total Year 1
\$65K	\$60K	\$130K	\$45K	\$50K	\$100K	\$450K

#### Sources of revenue for a given ETC

	Seed funding from UW System	Industry grant or in-kind support	Extramural sources (NSF, ARG,DOE etc)	Private foundations (Kauffman, NCIIA, etc)	IP revenue	Total
Year 1	\$450K	\$25K	-	-	-	\$475K
Year 2	\$350K		\$100K	\$25K	-	\$475K
Year 3	\$200K	\$50K	\$150K	\$50K	\$25K	\$475K
Year 4	\$100K	\$100K	\$200K	\$50K	\$75K	\$525K
Year 5	•	\$200K	\$250K	\$50K	\$100K	\$600K
Total	\$1.1 million	\$375K	\$700K	\$175K	\$200K	

#### ETC Oversight

We suggest that UW System constitute an oversight committee to report the progress of the ETCs to the System.

### **Economic Impact of Emerging Technology proposal:**

Assuming 7-8 ETCs are operating, approximately 20-25 new high-paying jobs will be created in year 1 at UW campuses. In addition, approximately 50-75 students will receive stipends for high-tech training. These programs lead to high-paying jobs in Wisconsin. Furthermore, based on the benefits to the companies, we believe that each successful project will result in 10 fold or more returns to the industry and UW.

- 20-25 new high-paying jobs in UW campuses
- 50-75 students trained in high-tech subjects
- Potential for 5-10 student interns to be recruited into companies
- A 10-fold or higher monetary returns for company and UW (assuming an expenditure of \$100 to \$250K per project) over several years
- Intellectual property for UW that may generate long-term income for UW
- Development of platform technologies for start-ups
- Faculty and students who are more knowledgeable on entrepreneurship

### **Summary:**

Our proposal addresses a specific initiative that the UW System can implement to address the research to jobs issue. Creating an environment of learning through research in our comprehensive campuses is a major step in engaging the majority of our students and faculty of the System in the growth of a knowledge-based economy. Furthermore, our proposal links Wisconsin's small companies to the technical expertise of UW, and addresses a major concern regarding continued innovation and growth of our state's economy.

## Appendix 1

### UW & Industry Challenges and Potential Solutions (including those addressed by ETCs)

Our proposal overcomes several hurdles existing today in conducting research in the comprehensives. In addition it also identifies hurdles from the industry side in partnering with UW.

Identified hurdles for UW and companies	Potential solutions
<p><b>Lack of time for R&amp;D by UW faculty.</b> Even when faculty encounter an interesting opportunity for industry partnership, time to devote for research is not available due to teaching loads.</p>	<p>We propose time-release for faculty and hiring of technicians and post-doctoral associates.</p>
<p><b>Lack of funds to conduct R&amp;D.</b> Seed funds to conduct feasibility studies are not available. Many times specialized equipment may be needed to conduct the studies.</p>	<p>Resources requested in budget. Campus/faculty must be made aware that after initial seed funding extramural funds must be obtained to continue programs</p>
<p><b>Lack of logistical support.</b> Industry collaboration requires legal and administrative assistance for legal agreements and regulatory compliance, etc. The comprehensive campuses do not always have these resources.</p>	<p>WiSys Technology Foundation may be strengthened to provide these services to the comprehensives.</p>
<p><b>Cultural issues.</b> Research to develop commercial products is not considered a noble endeavor by some faculty, especially those in senior teaching roles.</p>	<p>Senior campus administrators (chancellors, provosts, deans and dept chairs) can often help by actively promoting and recognizing research.</p>
<p><b>Lack of incentives.</b> Often research leading to marketable products is not recognized by campuses for career advancement and other promotions.</p>	<p>Patent applications must be recognized as equivalent to journal publication for merit reviews. Research leading to marketing should get credit for career advancement.</p>
<p><b>Company concern regarding timeliness.</b> Timely development is crucial for industry, yet universities tend to move comparatively slow in R&amp;D projects.</p>	<p>Dedicating technical personnel to work full-time on such projects is the only answer to this problem.</p>
<p><b>University partnerships by Wisconsin companies are not norm.</b> Wisconsin companies and the UW have not developed the culture of partnership. Companies do not think of UW</p>	<p>A significant communication effort is needed to address this gap. Important to show early success. Dedicated resources should be made available to manage UW-</p>

Identified hurdles for UW and companies	Potential solutions
when exploring new products or when facing technical challenges.	industry partnership and assure quality on time delivery of outcomes.
<b>Concerns regarding exclusive access to newly developed product/technology.</b> Many small companies are not familiar with royalty payments and obligations to universities.	Proper communication and educating the companies are the key here. Initial success with several companies will go a long way to spread the word.
<b>Lack of trust.</b> Small companies not used to working with universities are concerned with protecting the confidentiality/proprietary nature of their ideas and products.	This can be addressed by tech transfer offices.
<b>Lack of a centralized entry port.</b> The 13 universities of the UW System have close to 1,000 technical experts, yet there is currently no known universal tool or mechanism to identify faculty experts for partnership discussions.	One of the cost-effective solutions is to expand the “Wisconsin Discovery Portal”; however, the proactive facilitation of partnership by dedicated personnel is necessary for success. WiSys may be entrusted to manage this.

**Appendix D3**  
**Communications Committee Final Report – Research to Jobs Task Force**

**Communicating the critical role of UW research to the public and industry**  
***A summary of ideas and suggestions from subcommittee members***

**Subcommittee Members:**

Kris Andrews, Assistant Vice President, Office of Federal Relations, UW System  
Paula Bonner, President & CEO, Wisconsin Alumni Association  
Pat Brady, General Counsel, UW System  
Terry Devitt, Assistant Director, University Communications, UW-Madison  
Noel Radomski, Lecturer and Associate Researcher, Wisconsin Center for the Advancement of Postsecondary Education, UW-Madison  
Tom Still, President, Wisconsin Technology Council

**Subcommittee mission:**

Not all Wisconsin industries, especially small- and medium-size companies, have routinely or overtly benefited from UW System research. UW System willingness to work with companies, and the mutual benefits that can result from such work, must be communicated to all Wisconsin companies and major trade associations. This outreach cannot be a one-way recitation of UW System assets. It must be a two-way conversation, with companies and associations being encouraged to communicate their needs through channels that make sense to them.

This subcommittee has focused on ensuring that public, political and business leaders understand the value of these important partnerships for Wisconsin’s economy – and that business leaders are encouraged to bring forward their specific ideas for how the UW System can help.

**Overview:**

Traditional ways of communicating with the public, policymakers and business leaders are undergoing massive, even disruptive, change. Established pathways of reaching these constituent groups are far less certain to work than they were in the past – in part because of changes in the news media, which are contracting in some quarters while growing in others, but also because of the communications and information gathering habits of people in the digital age.

The UW System needs to do a better job of refining traditional pathways of communications and exploring new trails that offer a convergence of media and outreach – print, broadcast, public presentations, online and social networks – that can effectively reach constituent groups that may benefit from closer working relationships with the university’s research sectors.

The UW System must also look to logical partners in the business community to establish credible ways to listen to business needs in Wisconsin. With so much of the nation’s research and development agenda being set at the federal level, it is easy to lose sight of what Wisconsin businesses see as current and next-generation needs. Those businesses must be quick to innovate and establish market trends, which are not necessarily the highest priorities for federally sponsored research.



In essence, this is a recommitment to the “Wisconsin Idea,” which is the century-old principle that higher education should influence and improve the lives of individuals beyond those in university classrooms. It is an idea further shaped by the phrase “the boundaries of the university are the boundaries of the state.” That phrase captures the sense that much of what takes place on UW System campuses, including research, should enhance the public good. In 21<sup>st</sup> century terms, the Wisconsin Idea is a tangible “brand” that should define how business and other citizens think of the UW System.

The Research to Jobs Task Force subcommittee on communications addressed four questions:

1. What are the right target audiences for information about the potential economic and business benefits of UW research?
2. What works now?
3. What does not work?
4. What is needed to perform a better job?

### **Target audiences**

Committee members identified the following target audiences: (1) General public; (2) Policymakers at the state, federal and local levels; (3) UW System alumni; (4) Faculty and staff; (5) News media, and; (6) Business sectors and associations.

### **What works now?**

Some specific initiatives in the UW System or individual campuses and related organizations are communicating the connection between research and potential economic benefits.

1. WARF’s *Discovery Portal* is a well-organized inventory of research-related resources, but it must be strongly marketed in order to work. Similarly, the Wisconsin Idea in Action database at [www.searchwisconsinidea.wisc.edu](http://www.searchwisconsinidea.wisc.edu) is likely underused. The Wisconsin Idea in Action database is searchable by keyword, subject area, Wisconsin county or academic unit. Nearly 900 community action projects or activities are collected in the database. However, business leaders will not seek out the Discovery Portal or Wisconsin Idea in Action unless they are called to their attention on a regular basis.
2. Launched in 2006, the Wisconsin Idea Project is a systematic effort to learn from the citizens of Wisconsin about their expectations, to understand how the university is serving those needs and expectations, and to enhance the university’s relevance to the citizens of Wisconsin. One component of the project so far has been community conversations under *Founders Day*, *UW For You* and *Badger Day* programs. Two *UW For You* events have been done in conjunction with the Wisconsin Technology Council, which helped to attract a broader audience.
3. Publications such as “*On Wisconsin*” and the Wisconsin Alumni Association’s access to 300,000 alumni is a powerful tool with potential for growth. The WAA is segmenting publications and has built a database of current e-mail addresses.
4. The *Wisconsin Idea bus* is an effective tool for orienting new faculty but could be used as a way to bring researchers to all corners of the state.

5. Outreach by the *WiSys Technology Foundation* is effective but limited due to existing staffing levels.
6. *Programs designed to communicate with business* have improved at some campuses but not all. The UW-Madison Office of Corporate Relations is a good example of what has worked since it was launched about five years ago.
7. *Third-party validation* of the importance of UW R&D, such as the Wisconsin Technology Council's report on "The Economic Value of Academic R&D in Wisconsin," helps strengthen understanding in the public and private sectors.

#### **What does not work?**

1. The UW-Madison *OCR model is very much the exception rather than the rule*. While some campuses have sophisticated systems for communicating with their target audiences, few have established the equivalent on an OCR to serve as a "front door" to the university.
2. The *Small Business Development Centers*, with some notable exceptions, are not viewed as transformational when it comes to communicating the importance of UW research and development partnerships.
3. *Milwaukee-area businesses are not well aware* of the opportunities to tap into UW R&D, whether on the Madison campus or elsewhere.
4. There remains considerable *confusion among business leaders about how to tap into UW R&D*, especially the farther from Madison those businesses are located. And yet, there are often R&D resources available at the comprehensive campuses.
5. There must be an assessment of *internal communications tools* with an eye toward adding to the current "toolbox" or refitting it to meet 21<sup>st</sup> century realities.

#### **What is needed to perform a better job?**

Committee members discussed a variety of general and specific ideas for better communicating the value of UW R&D and making connections to those target audiences that need to know. Some specific ideas included:

##### *Outreach through traditional and new media:*

1. Improve the UW's tele-presence statewide, whether through internal communications tools or through mediums such as Wisconsin Eye, the Big 10 Network, WisBusiness.com, the Wisconsin Technology Network and other targeted sources that offer online video options. These are opportunities to showcase UW R&D success stories.
2. Make better use of alumni publications, both print and online.
3. Gain a better grasp of "new media" and determining ways to better help news organizations in performing an increasingly difficult, resource-restrained job.

*Outreach through affinity groups:*

4. Use available “ambassadors” more effectively. These include alumni, “star” business partners and license-holders, faculty and staff who have successfully worked with business, and students – who are ultimately the No. 1 “tech transfer” product of the university.
5. Consider establishing a UW System version of the UW-Madison Office of Corporate Relations, working through that existing framework, to better connect businesses working with the non-doctoral comprehensive campuses.
6. Business leaders who have benefited from working with the UW System, especially on the R&D side, could be asked to take part in Wisconsin Idea bus tours or similar outreach functions such as The Wisconsin Edge, which is co-sponsored by WARF. This process and others have highlighted “best practice” examples of university-industry collaboration.
7. Leverage UW System graduates in the Milwaukee area, where there are excellent examples of collaboration (the GE Healthcare “master agreements” with WARF, for example) but a lack of recognition. The UW System should work harder to close the Milwaukee-Madison cultural and business divide while supporting the growth of the UW-Milwaukee research infrastructure. Wisconsin needs both to succeed.
8. Use statewide and regional groups to communicate the fact that UW-Madison R&D is available to be deployed anywhere in Wisconsin (or the world) and that System campuses also offer significant R&D capacity, either individually or collectively. Some of what businesses need may already be available in their own backyards.

*Strategic Marketing, Survey Research and Advocacy:*

9. Make sure the wealth of public opinion and survey research work produced by the university is reaching people who could use it, not simply sitting on a shelf. Start-up funding for the Center on Public Opinion and Technology (CPOT) within the Department of Life Sciences Communications would help put that research into the right hands – and launch a national center that could eventually pay dividends to the university.
10. Make sure of survey research tools to routinely capture business community opinion. The Wisconsin Technology Council and WisBusiness.com plan to launch a “Tech Leadership Survey” to regularly sample business opinion in that sector. Such a survey could be followed by focus groups and dedicated listening sessions, such as the “Wisconsin Edge” series.
11. Improve marketing of the technologies in the WARF and WiSys portfolios, especially to small- and medium-sized businesses and Wisconsin trade associations that often represent those businesses. Some of that might be accomplished through programs similar to those being used by Georgia Tech, which works with a stable of in-house and revolving business mentors and private equity advisors to improve the chances that start-up companies will actually succeed.

12. Consider reviving the Wisconsin Economic Summit, which served a valuable role in 2000-2003 and re-established the notion of the UW System being a “player” in the economic future of the state. Direct and indirect outcomes of 2000-2003 summits included regional economic development groups, leveraging the power of the Chicago-Milwaukee-Madison-Twin Cities corridor (since dubbed the “I-Q Corridor”), emphasizing capital creation and more. The focus of the next summit might be twofold: “best practices” in Wisconsin and elsewhere, and getting direct feedback on business needs. If conducted regionally, a series of summits could examine partnerships, public and private, that have worked in specific communities. A WISCAPE symposium on the research-to-jobs process, which could bring in expertise and models from other states and highlight the work of this task force, could provide a planning forum.
13. Deploy the resources and people to get it done. For the UW System’s “Growth Agenda” to be successful, the university must commit the resources necessary to tell its own story and to market its own resources.

### **Summary**

The UW System has an excellent story to tell when it comes to translating research into jobs. The UW-Madison alone is the nation’s third-largest research university, according to 2007 National Science Foundation figures – and No. 2 if non-S&T R&D is included. The UW System is slowly building its R&D capacity on other campuses, as well. Wisconsin ranks among the top quarter of all states in overall R&D capacity, but it could do a better job of translating that innovation into jobs and economic activity. Effective communication of resources and opportunities for partnership are part of the solution. It’s also a function of listening to business needs and trying to tailor the R&D agenda of the UW System to more quickly respond to those needs.