(FORM UPDATED: 08/11/2010)

WISCONSIN STATE LEGISLATURE ...
PUBLIC HEARING - COMMITTEE RECORDS

2009-10
(session year)

Senate
(Assembly, Senate or Joint)

Committee on ... Economic Development (SC-ED)

COMMITTEE NOTICES ...

➤ Committee Reports ... **CR**

➤ Executive Sessions ... **ES**

➤ Public Hearings ... **PH**

INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

➤ Appointments ... **Appt** (w/Record of Comm. Proceedings)

➤ Clearinghouse Rules ... **CRule** (w/Record of Comm. Proceedings)

➤ Hearing Records ... bills and resolutions (w/Record of Comm. Proceedings)
  (**ab** = Assembly Bill)   (**ar** = Assembly Resolution)   (**ajr** = Assembly Joint Resolution)
  (**sb** = Senate Bill)   (**sr** = Senate Resolution)   (**sjr** = Senate Joint Resolution)

➤ Miscellaneous ... **Misc**

* Contents organized for archiving by: Gigi Godwin (LRB) (July/2011)

WISCONSIN
TECHNOLOGY
COUNCIL

September 15, 2009

TO: Senate Julie Lassa, chair, Senate Committee on Economic Development
FROM: Tom Still, president, Wisconsin Technology Council
RE: "Research to Jobs" task force report

Thank you, Senator Lassa, for inviting me to speak today, and thank you to all of the members of the Senate Committee on Economic Development for taking time to hear about the work of the "Research to Jobs" task force.

I was honored to serve as the chair of the Communications Committee of the task force, which made a number of recommendations that were included in the final report. I will summarize those recommendations and speak to another core recommendation – the creation of Emerging Technology Centers – that reflects upon the work of the Wisconsin Technology Council.

The mission of our Communications Committee was fairly simple. We began with the notion that 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.

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 academic 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.

To that end, our committee made these specific recommendations:

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. These publications reached thousands of people who are hungry for news about Wisconsin.

3. **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.

4. 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.

5. A **Wisconsin Idea bus tour** and 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.

6. **Gain a better grasp of "new media"** and determine ways to better help news organizations in performing an increasingly difficult, resource-restrained job.

7. **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.

8. **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.

9. **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.

10. **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.

11. **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.

12. **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.

13. **Commit the resources** for the UW System's "Growth Agenda" to be successful.

These aren't necessarily new ideas, but are committee believed they were good ideas.

Perhaps the central recommendation by the task force can be traced back a few years. That is the proposal to open seven "emerging technology centers" on University of Wisconsin System campuses to better serve industry while engaging faculty and student research talent.

The report recommends spending $7.7 million in UW dollars over five years on the seven technology, plus two existing centers. It's an idea that can be traced back more than six years to "Vision 2020: A Model Wisconsin Economy."

Here is what the Wisconsin Technology Council said in late 2002 in its Vision 2020 report:

"Research Centers of Excellence located around the state will be… organized around large-scale opportunities to build high-technology businesses. The Research Centers will focus on applied research that

transfers new, public-sector science and technology to the private sector to solve unique problems of a particular industry. The Research Centers will identify disruptive technology that can be expected to force changes in the competitive landscape for Wisconsin's leading industries, thereby helping to prepare market leaders for the coming challenges and to create opportunities for new entrants."

The Vision 2020 report even identified unifying concepts built around research disciplines, such as biology, genetics and computer science, that often work together to form interlocking commercial clusters. Tissue regeneration, personalized medicine, nanometric systems, pharmaceuticals, extreme materials and electronics were some examples.

Here is a chart from Vision 2020 that demonstrates the interdisciplinary nature of the centers.

Roll forward to 2009 and the "Research to Jobs" task force, formed early this year, has recommended launching seven centers and building upon current centers at two more campuses:

- UW-River Falls: Tissue and cellular engineering, launched in early 2009.
- UW-Platteville: Nanotechnology applications, such as carbon nanotubes and graphene, for use in electronics, aerospace, computer and energy fields. This center was launched in late 2008.
- UW-Oshkosh: Super-capacity energy storage for next-generation electric cars and other energy intensive applications.
- UW-Stevens Point: Nanowire and nanostructure manufacturing for applications in solar energy, hydrogen sensors and nanoinstruments.
- UW-Whitewater: Interactive media and distance learning.
- UW-La Crosse: Pharmaceuticals based on medicinal plants and fungi.
- UW-Green Bay: Value-added products from waste, such as paper waste.

- UW-Stout: Plastics and composite materials, in collaboration with UW-Stevens Point.
- UW-Parkside: Biomedical sciences.

What's the value of these centers to the average Jane or Joe? Economic growth is the long-term answer, assuming these centers do what they're designed to do – which is to serve the needs of Wisconsin industry.

Study after study has established links between academic research and development and job creation through what is called "technology transfer," or moving ideas from the laboratory bench to the marketplace. Wisconsin is a state that consistently ranks in the top quartile of states in academic R&D – but it has not matched that performance when it comes to turning those ideas into jobs and economic production. That's why UW System President Kevin Reilly created the "Research to Jobs" task force and asked Carl Gulbrandsen, managing director of the Wisconsin Alumni Research Foundation, to lead it.

Over the past 80 years, WARF has done as good a job as any similar organization in transferring R&D into patents, licenses and economic activity. There are scores of companies in the Madison area that testify to the fact that UW-Madison research has moved from lab to commerce.

But most R&D apples don't fall far from the tree. The national rule of thumb is that most campus spinoff companies land within 50 miles of campus. That's why WARF spawned a related tech transfer office, called WiSys, about six years ago to handle inventions from other UW campuses. The Emerging Technology Centers proposal is an effort to accelerate the transfer of technology from those campuses – and to spur economic development in or near those campus communities.

Executing the plan won't be easy. In addition to the UW System investment of $7.7 million over five years, about $3.9 million in industry and private funding will be needed, along with roughly $4.9 million in federal grants. It may turn out that what industry wants doesn't precisely

overlap with the centers. Also, it may be necessary to involve the system's two doctoral campuses – Madison and Milwaukee – in some, if not many, projects.

But the payoff could be big. "We believe that each successful project (produced by an Emerging Technology Center) will result in 10-fold or more returns to the industry and UW," concluded the "Research to Jobs" task force report.

Some critics of the UW System contend its mission is divorced from the needs of private industry in the state. The "Research to Jobs" report is an effort to better align the educational mission of the UW with the needs of industry to stay competitive. It deserves a chance to grow from a seed to a plant that bears fruit for Wisconsin.
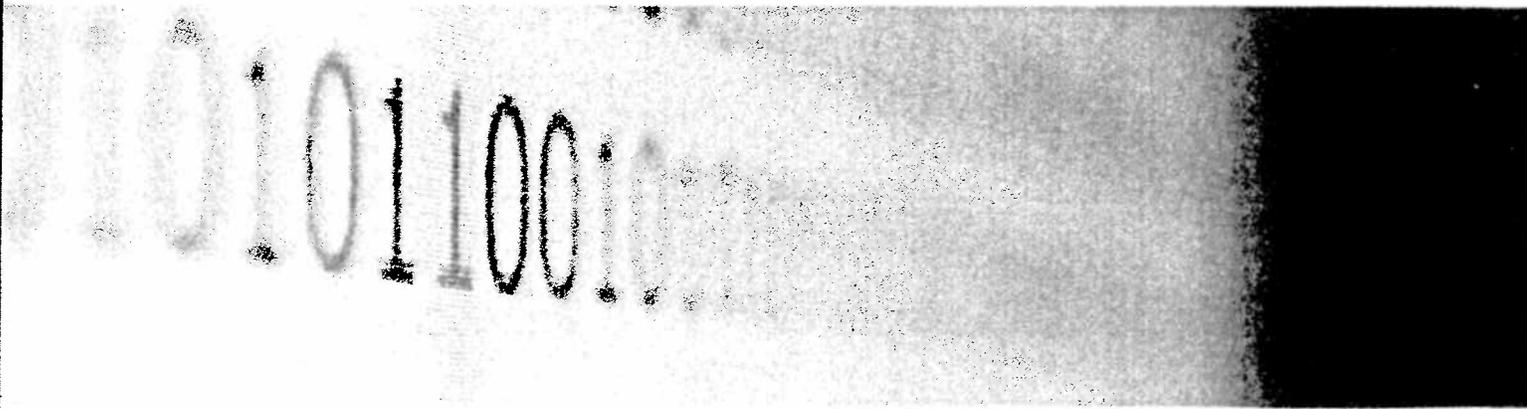
Thank you for your time today.

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POTENTIAL HIGH-TECH RESEARCH CENTERS OF EXCELLENCE

#	Unifying Concept	Computer Science	Engineering	Mathematics	Physics	Biology	Chemistry	Genetics	Immunology	Molecular Biology	Pharmacology	Proteomics
1.	Tissue Regeneration	●	●		●	●	●	●	●	●	●	●
2.	Personalized Medicine	●	●	●	●	●	●	●		●	●	●
3.	Error-free Hospitals	●	●	●			●				●	
4.	Genetically Modified Organisms	●	●			●	●	●		●	●	●
5.	Zoonotics Disease Control		●			●	●	●	●	●	●	
6.	Small Molecule Pharmaceuticals	●	●	●	●	●	●	●			●	●

#	Unifying Concept	Computer Science	Engineering	Mathematics	Physics	Biology	Chemistry	Genetics	Immunology	Molecular Biology	Pharmacology	Proteomics
7	Intelligent Networks	●	●	●	●							
8	Mass Data Storage	●	●	●	●							
9	Nanometric Systems	●	●		●	●	●					●
10	Computing & Communications	●	●	●	●							
11	Extreme Materials	●	●	●	●		●			●		
12	Homeland Security	●	●	●	●	●	●		●		●	●

Creating Centers of Excellence

Step #1

Local business leaders identify potential Research Center of Excellence for the region.

Step #2

Business and community leaders prepare and submit plans and justifications for the proposed Research Center to the Wisconsin Technology Council.

Step #3

Wisconsin Technology Council evaluates proposals from all the regions and assists in implementing the best ideas and locations for proposed Research Centers.

Step #4

Wisconsin Technology Council works with regional Research Centers and local leaders to provide on-going, state, national and international support.

Research to Jobs

Task Force Charged to Develop Recommendations to Create Jobs through UW-Led Research and Technology Transfer to Wisconsin Companies

Carl Gulbrandsen
Managing Director, WARF
September 15, 2009

▌ꓕ WARF

Task Force Charge

- Job creation through start-ups or growth of mature businesses
- Job creation through increasing research within system schools
- Industry sponsored research as well as government sponsored research
- Effective ways to communicate the role of UW research to the public and industry

Recommendations must be:
- Practical and implementable in the near future
- Applicable to all UW institutions
- Quantifiable with benchmarks
- Roles of UW, industry and government to be defined

▌ꓕ WARF

Expert Committee Represented Broad Sectors of Education and Business
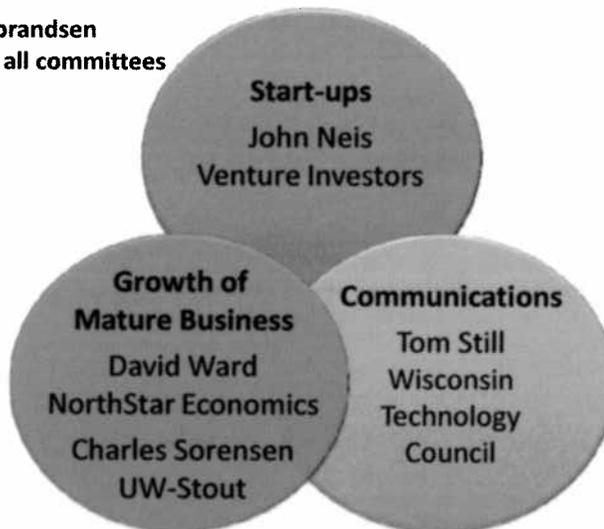
Committee membership: 25 total
- Private sector = 9
- Research campuses = 7
- Technology transfer organizations = 4
- Comprehensive campuses = 3
- UW System = 2
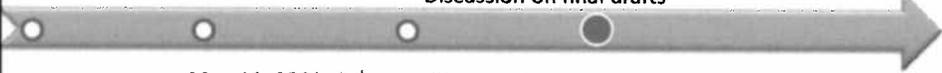
Committee expertise
- Chief Executive Officers = 13
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- Legal expertise = 2

W A R F

Division of Labor

Carl Gulbrandsen
Ex officio for all committees

Start-ups
John Neis
Venture Investors

Growth of Mature Business
David Ward
NorthStar Economics
Charles Sorensen
UW-Stout

Communications
Tom Still
Wisconsin
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W A R F

Timelines

• **March 11, 2009:** 1st committee meeting
• Formation of 3 subcommittees
• Work plan development

• **June 2, 2009:** Final committee meeting
• Prioritization of recommendations
• Discussion on final drafts

• **May 11, 2009:** 2nd committee meeting
• Discussion on white paper drafts
• Compilation and prioritization of ideas

• **July-Aug 2009:** Feedback from Dr. Reilly
• Research and analysis
• Finalization of report
• **September 2009:** Report to Regents

Committee work facilitated through frequent teleconferences and
email exchanges among members

WARF

Salient Points of Committee Work

• Extensive discussions with business, educational and community leaders

• Review of nationally acclaimed model systems for job creation and business growth

• Identification of hurdles and potential solutions

• Special attention to cost effectiveness of recommendations

• Recommendations with state-wide implications

WARF

Task Force Recommendations

- 24 key ideas were identified for implementation or further study

- Recommendations include steps for UW System and public-private sectors

- Most of the recommendations are low cost and high return

WARF

Recommendations and Action Items for the UW System

- **Better connect to Wisconsin's Industry needs**
  - Promoting faculty and student participation in industry related research and development will result in increased economic growth and job creation.

- **Promote a culture of entrepreneurship among students and faculty**
  - Promoting entrepreneurship will result in an increased number of start-up companies and assist in job growth.

- **Promote research as an integral component of teaching in the comprehensive campuses**
  - Students gain a competitive advantage in high-paying jobs through research and development training.

  - Removing existing barriers and incentivizing faculty and students to conduct research is key.

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Recommendations and Action items for Private Sector or Joint Public-Private Sectors

- Identify and retain qualified and experienced CEO candidates, for a limited time period, in start-up companies within Wisconsin though a Wisconsin Entrepreneurship Program

- Provide early-stage start-up companies assistance in recruiting qualified CEO's through a loan award program (Wisconsin Tech Transfer CEO Placement Program)

- Provide start-up companies with the tools to submit successful SBIR grant applications though recruiting SBIR grant writers and coaches.

WARF

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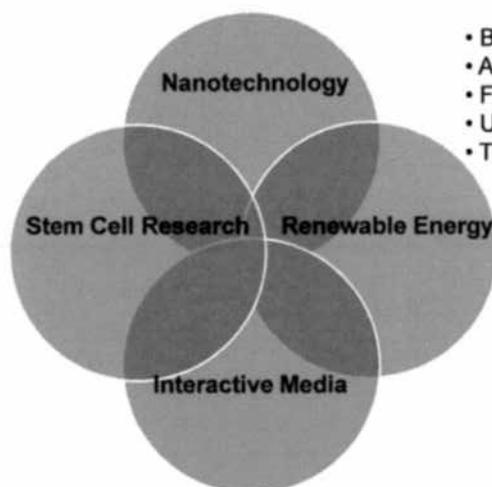## Key Ideas Emerging From Committee Work

- Entrepreneurship is key
    - Special attention to students
    - Leadership at UW System and campuses must lead the charge
    - Emulate successful UW-Madison programs in other campuses
    - Remove hurdles for faculty to form start-ups

WARF

Key Ideas Emerging From Committee Work

- Emerging Technology Centers in comprehensive campuses

  - Cost effective way to conduct research in the comprehensives

  - Trains undergraduates in research leading to high-paying jobs

  - Connects with Wisconsin companies and clinical organizations

  - Leads to job growth at the university and Wisconsin companies

  - Connects other UW campuses by a virtual network

  - Provides entrepreneurship education for faculty and students

WARF

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Strategic Elements in Emerging Technology Center Concept

Emerging Technologies that may Promote Business and Job Growth

Nanotechnology

Stem Cell Research

Renewable Energy

Interactive Media

- Business and job growth potential
- Avoid duplications
- Fits with state's long term development
- UW has edge in research
- Timely

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Example of Emerging Technology Center

Tissue and Cellular Innovation Center at UW-River Falls

Emerging Technology Centers would form partnerships with clinical organizations and companies

Several Campuses have already Embraced the Idea

ETCs are also suggested for UW-Oshkosh, UW-Parkside and UW-Green Bay

Emerging Technology Research Centers Promote Specialized Research Expertise

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- Communicating UW Research to public and industry
  - Improve the UW's tele-presence statewide
  - Revive the Wisconsin Economic Summit

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Next Steps

- Report submitted to UW Board of Regents by President Reilly and Carl Gulbrandsen

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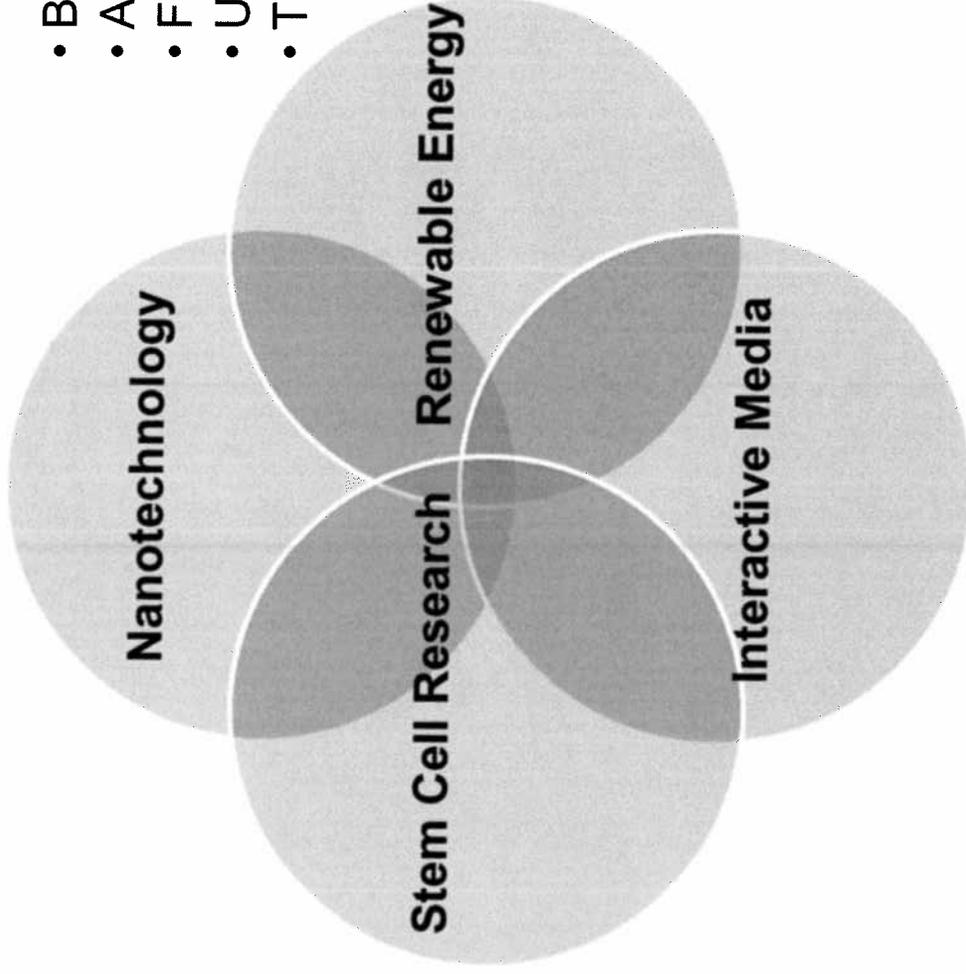
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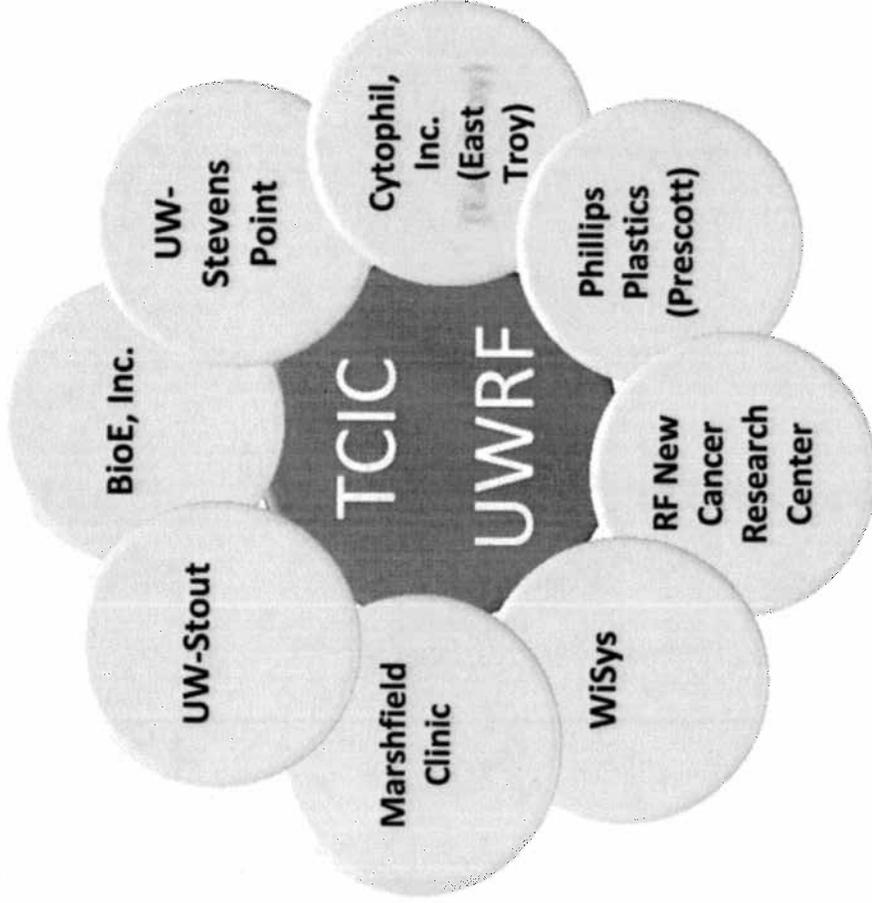# Strategic Elements in Emerging Technology Center Concept

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Nanotechnology

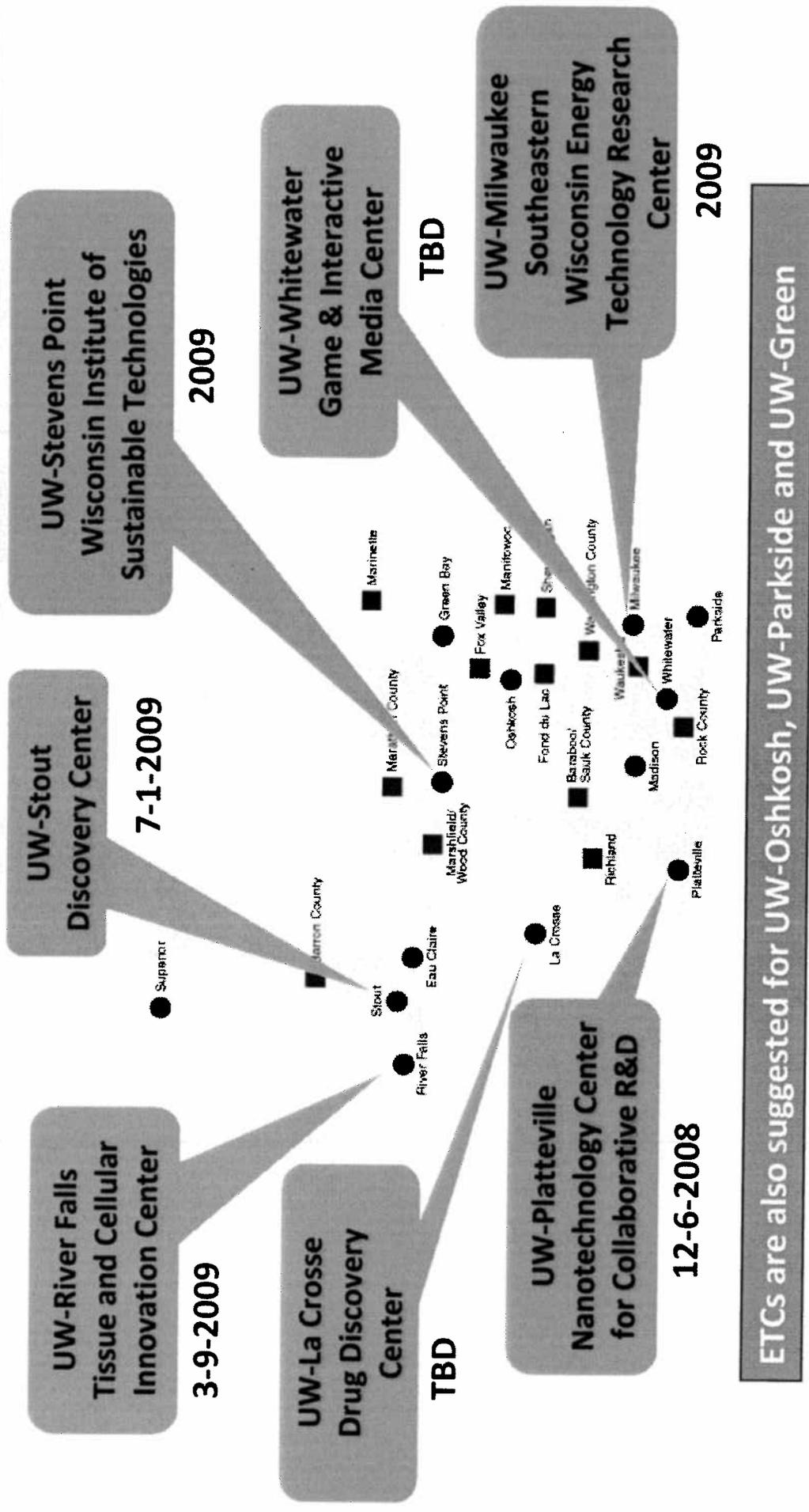Renewable Energy

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Wisconsin Institute of
Sustainable Technologies

2009

UW-Whitewater
Game & Interactive
Media Center

TBD

UW-Milwaukee
Southeastern
Wisconsin Energy
Technology Research
Center

2009

UW-Stout
Discovery Center

7-1-2009

UW-River Falls
Tissue and Cellular
Innovation Center

3-9-2009

UW-La Crosse
Drug Discovery
Center

TBD

UW-Platteville
Nanotechnology Center
for Collaborative R&D

12-6-2008

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ω A R F Wisconsin Alumni Research Foundation

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WARF Wisconsin Alumni Research Foundation

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