The Role of the University of Wisconsin System in Workforce Development

Board of Regents
July 9, 2009

Overview of Presentation

1. Meeting immediate workforce needs:
   - College as a basic building block
   - JoAnna Richard, Deputy Secretary of the Department of Workforce Development
2. Economic development & the workforce
   - Kim Kindschi, Division of Entrepreneurship and Economic Development, UW-Extension
3. Developing the workforce of the future
   - Carl Gulbrandsen, Wisconsin Alumni Research Foundation

College degree as basic building block

- Key component in an economically robust Wisconsin
- Underlying purpose of the Growth Agenda
- Direct relationship between the percentage of baccalaureate degrees in a state and the per capita income of its citizens

More graduates, more jobs

- More than 32,000 graduates in 2008 (highest ever)
- More than 175,000 students in 2009 (highest ever)
- 80% of UW students who are Wisconsin residents when they start at the university are living and working in Wisconsin five years after they graduate

Baccalaureate Degree for the 21st Century

What employers want:

- Knowledge of human cultures and the physical and natural world
- Intellectual and practical skills
  - Critical thinking
  - Creativity
  - Written and oral communication
- Personal and social responsibility
- Integrative learning

UW System Shared Learning Outcomes

- Knowledge of human cultures and the natural world
- Critical and creative thinking skills
- Effective communication skills
- Intercultural knowledge and competence
- Individual, social and environmental responsibility

STATEWIDE PERSPECTIVE

Deputy Secretary JoAnna Richard

Department of Workforce Development

Building the

University of Wisconsin System Board of Regents
Policy Discussion
UW System Role in Workforce Development

Secretary Roberta Gassman
Department of Workforce Development

Overview

- Economic Update
- Workforce Challenges
- Projected Workforce Needs
- Governor Doyle's Workforce Agenda
- American Recovery & Reinvestment Act
- Role of UW System

ECONOMIC UPDATE

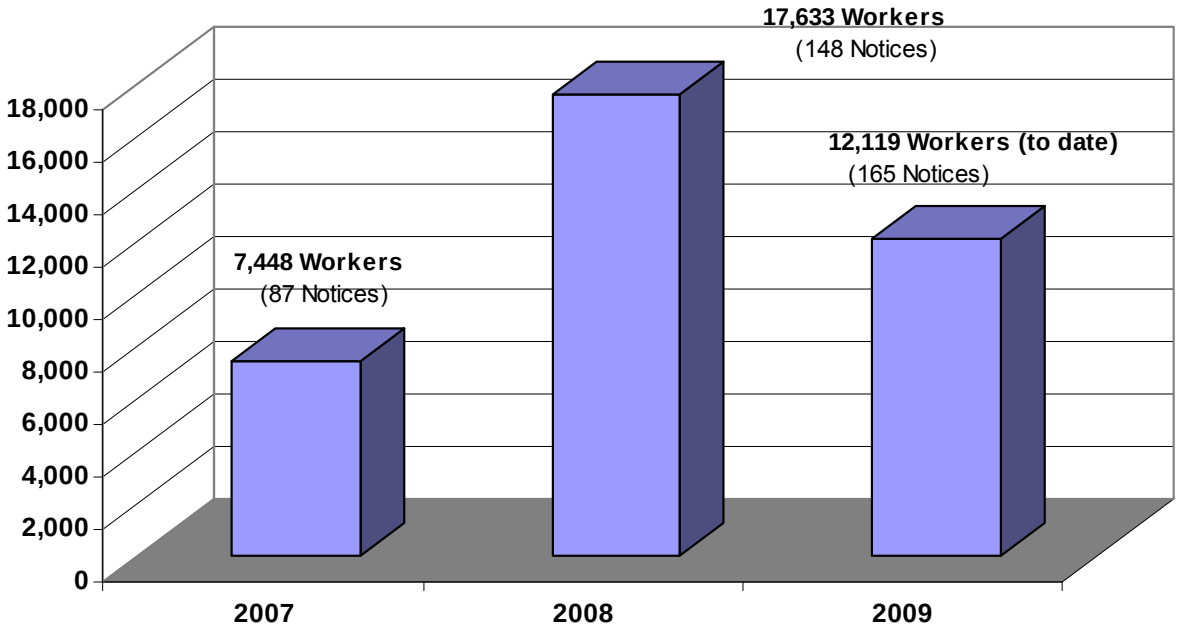
Challenging Economic Times

- National recession affecting all states
  - Impacting employment, dislocations
- Greater focus on workforce development
  - Education & training
  - New partnerships
  - Emerging industries
  - High-demand sectors

Impacts on Unemployment

- **National May ’09 unemployment = 9.1%**
  - **up from 5.2% in May ‘08**
- **State May ’09 unemployment rate = 8.7%**
  - **up from 4.2% in May ’08**

Plant Closings & Mass Layoffs

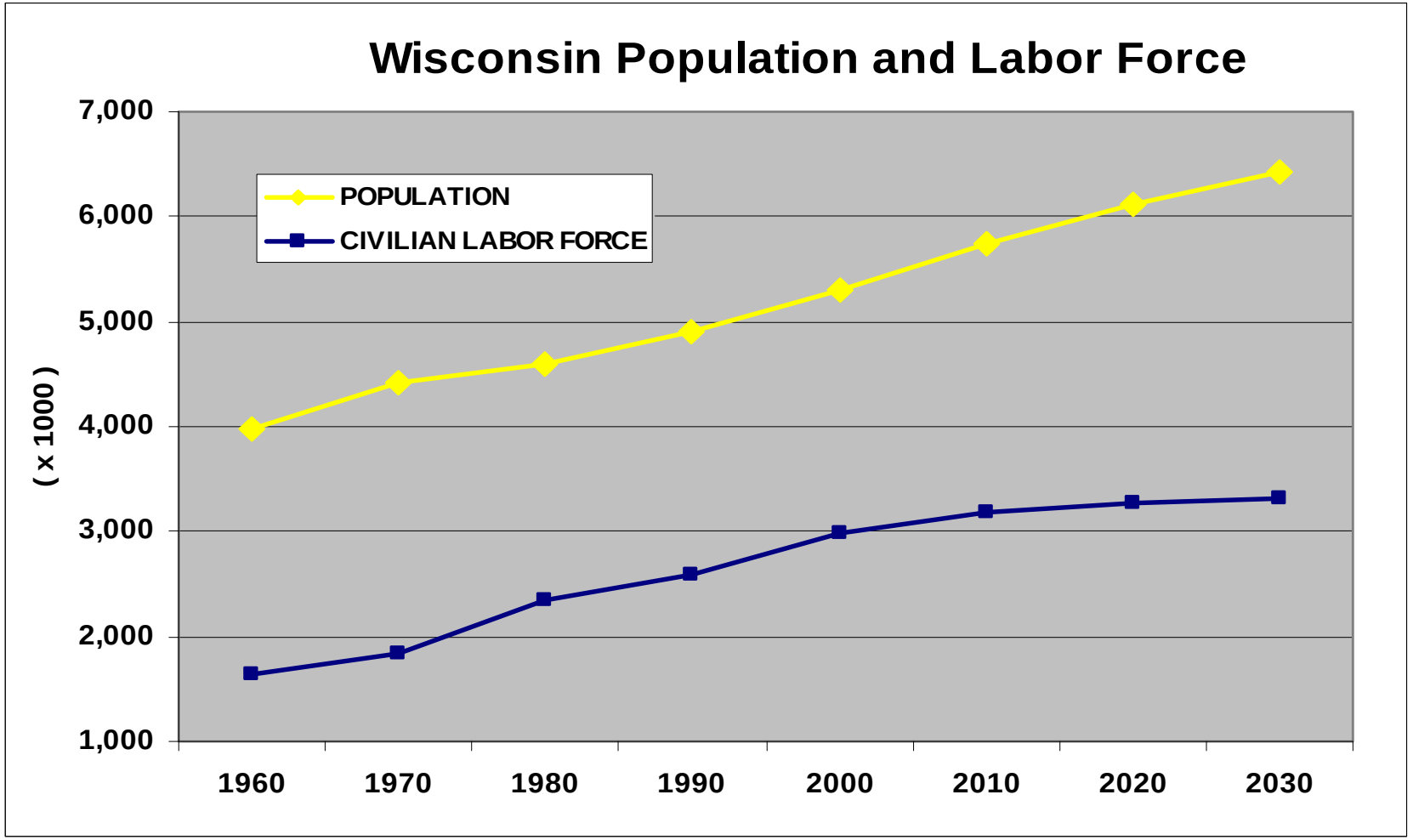


WORKFORCE CHALLENGES

ALL STATES FACE CHALLENGE: TRANSFORM WORKFORCE SYSTEM

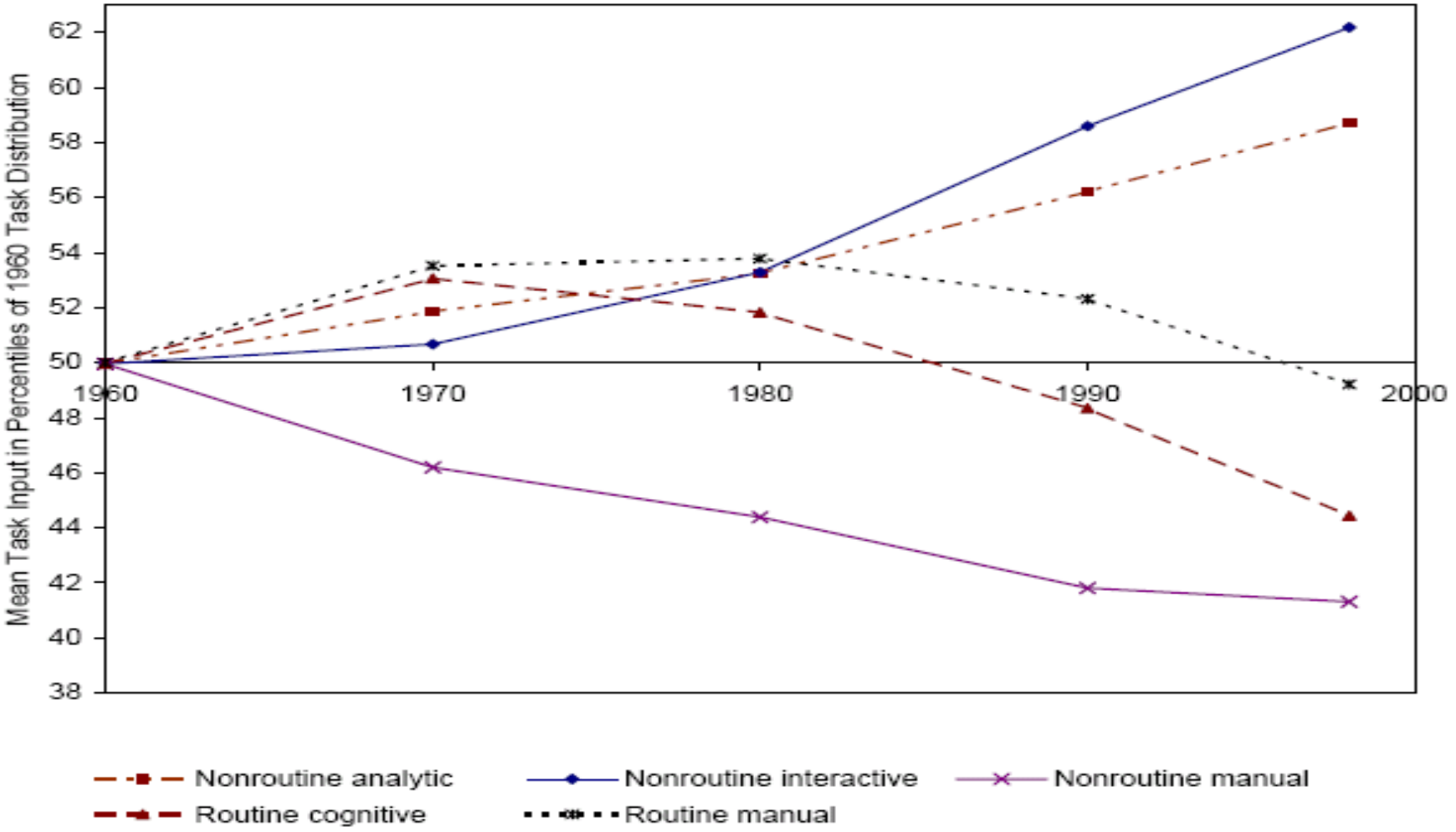
- Shrinking federal resources
- Changing demographics - exploding labor shortages
- Profound technological changes impacting skill needs
- Limited student, parent, school knowledge about labor force
- Poverty, high drop-out rates
- Employers can’t find skilled workers
- Changes happening fast
- Increase worker productivity to grow economy
  - Training
  - Education
  - Skills

WISCONSIN'S WORKFORCE GROWTH BECOMES FLAT



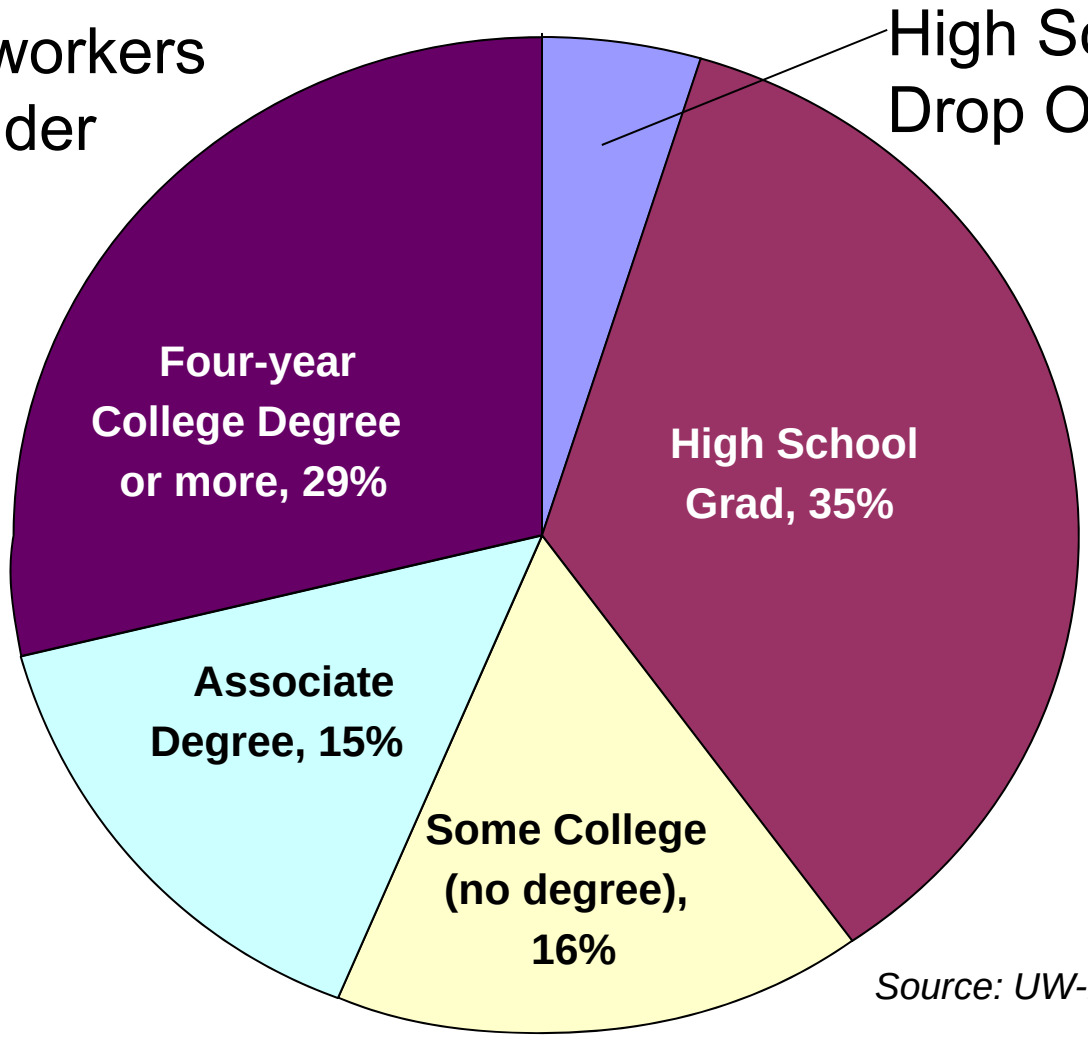
Source: Bureau of Labor Statistics, OEA

Dramatically growing demand for higher worker skills



40% of Workforce: HS Diploma or Less

Wisconsin workers
Age 26 & older



Source: UW-Madison COWS, 2008

Education Level and Median Wages, 2007

	Wisconsin	United States
No high school degree	$9.08	$9.41
High school degree or GED	$12.97	$12.65
Some college, no degree	$13.62	$13.70
Associate degree	$17.51	$17.22
Bachelor's degree	$20.80	$22.05
Master's degree	$25.78	$28.67
Doctorate degree	$32.10	$35.03
Professional degree	$40.51	$39.31

Source: U.S. Census, ACS PUMS File, 2007

PROJECTED WORKFORCE NEEDS

MOST OPENINGS, HIGHEST PAYING OCCUPATIONS
NEED HIGHER EDUCATION

Occupational Title	Average Annual Openings	2006 Empl	2016 Empl	% Change	Typical Education and Training Path	Average Annual Salary
Registered Nurses	2,180	51,130	64,550	26.2%	Bachelor's degree	$57,376
Customer Service Representatives	2,100	43,840	52,640	20.1%	Moderate-term on-the-job training	$31,243
Drivers, Heavy and Tractor-Trailer	1,520	53,700	59,440	10.7%	Moderate-term on-the-job training	$38,070
Sales Representatives, Wholesale	1,100	37,320	40,150	7.6%	Work experience in related occupation	$60,390
Elementary School Teachers	960	32,790	35,150	7.2%	Bachelor's degree	$45,857
Exec Secretaries and Admin Assists	880	31,660	35,460	12.0%	Work experience in related occupation	$35,322
Engineers	870	27,310	29,760	9.0%	Bachelor's degree	$67,374
Accountants and Auditors	770	23,810	27,290	14.6%	Bachelor's degree	$58,374
Secondary School Teachers	730	24,380	24,290	-0.4%	Bachelor's degree	$47,019
Carpenters	700	30,230	33,130	9.6%	Long-term on-the-job training	$38,760

Source: Bureau of Labor Statistics, OEA

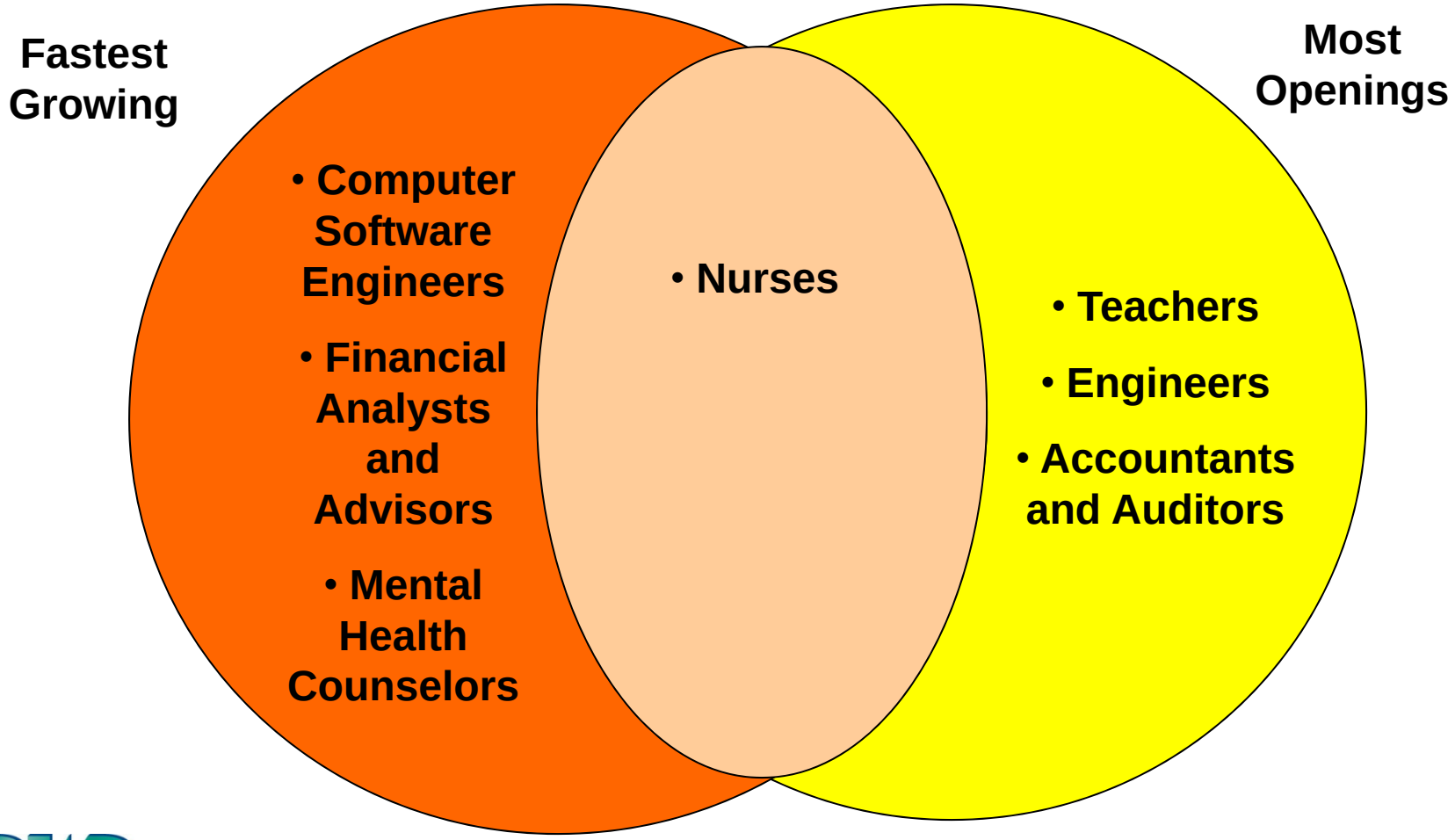
FASTEST GROWING, HIGHEST PAYING OCCUPATIONS
NEED HIGHER EDUCATION

Occupational Title	% Change	2006	2016	# Change	Typical Education and Training Path	Average Annual Salary
Network Systems and Data Analysts	43.5%	5,150	7,390	2,240	Bachelor's degree	$58,042
Computer Software Engineers, Applications	37.8%	8,830	12,170	3,340	Bachelor's degree	$69,811
Physician Assistants	33.3%	1,110	1,480	370	Master's degree	$78,373
Radiation Therapists	32.7%	490	650	160	Associate degree	$67,848
Personal Financial Advisors	32.2%	3,170	4,190	1,020	Bachelor's degree	$74,784
Dental Hygienists	31.2%	4,170	5,470	1,300	Associate degree	$55,069
Respiratory Therapists	26.8%	1,790	2,270	480	Associate degree	$48,842
Computer Software Engineers, Systems	26.8%	2,840	3,600	760	Bachelor's degree	$74,640
Financial Analysts	26.6%	2,140	2,710	570	Bachelor's degree	$64,017
Registered Nurses	26.2%	51,130	64,550	13,420	Bachelor's degree	$57,376
Physical Therapists	25.1%	4,060	5,080	1,020	Master's degree	$64,087
Marriage and Family Therapists	25.0%	720	900	180	Master's degree	$54,128
Medical Equipment Repairers	24.6%	690	860	170	Associate degree	$46,212
Veterinarians	24.0%	1,750	2,170	420	First professional degree	$77,803
Mental Health and Abuse Social Workers	22.9%	2,230	2,740	510	Master's degree	$49,021
Engineers	9.0%	27,310	29,760	870	Bachelor's degree	$67,374

Source: Bureau of Labor Statistics, OEA

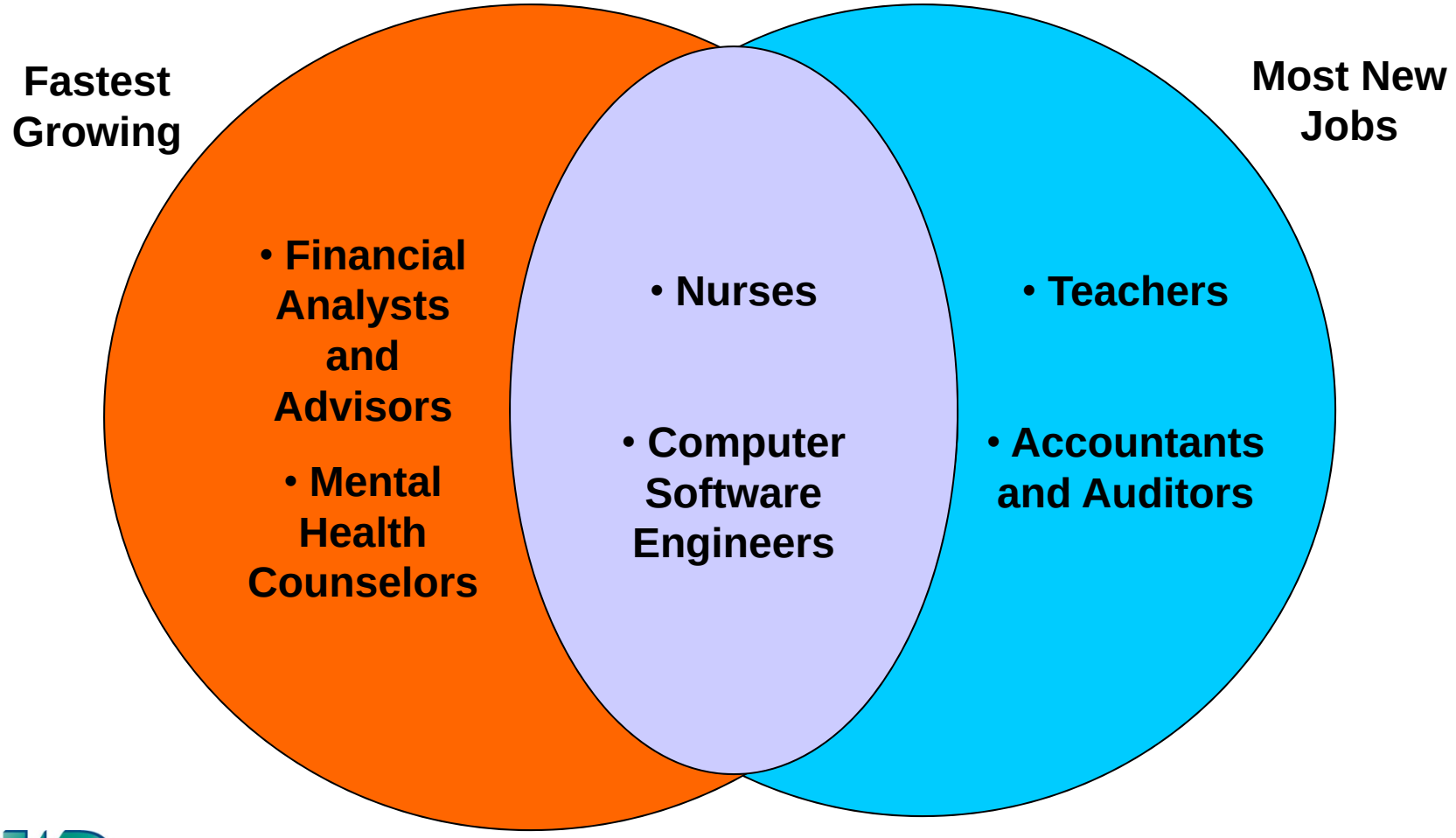
OCCUPATIONS MAKING TWO LISTS

FAST GROWING AND MOST OPENINGS



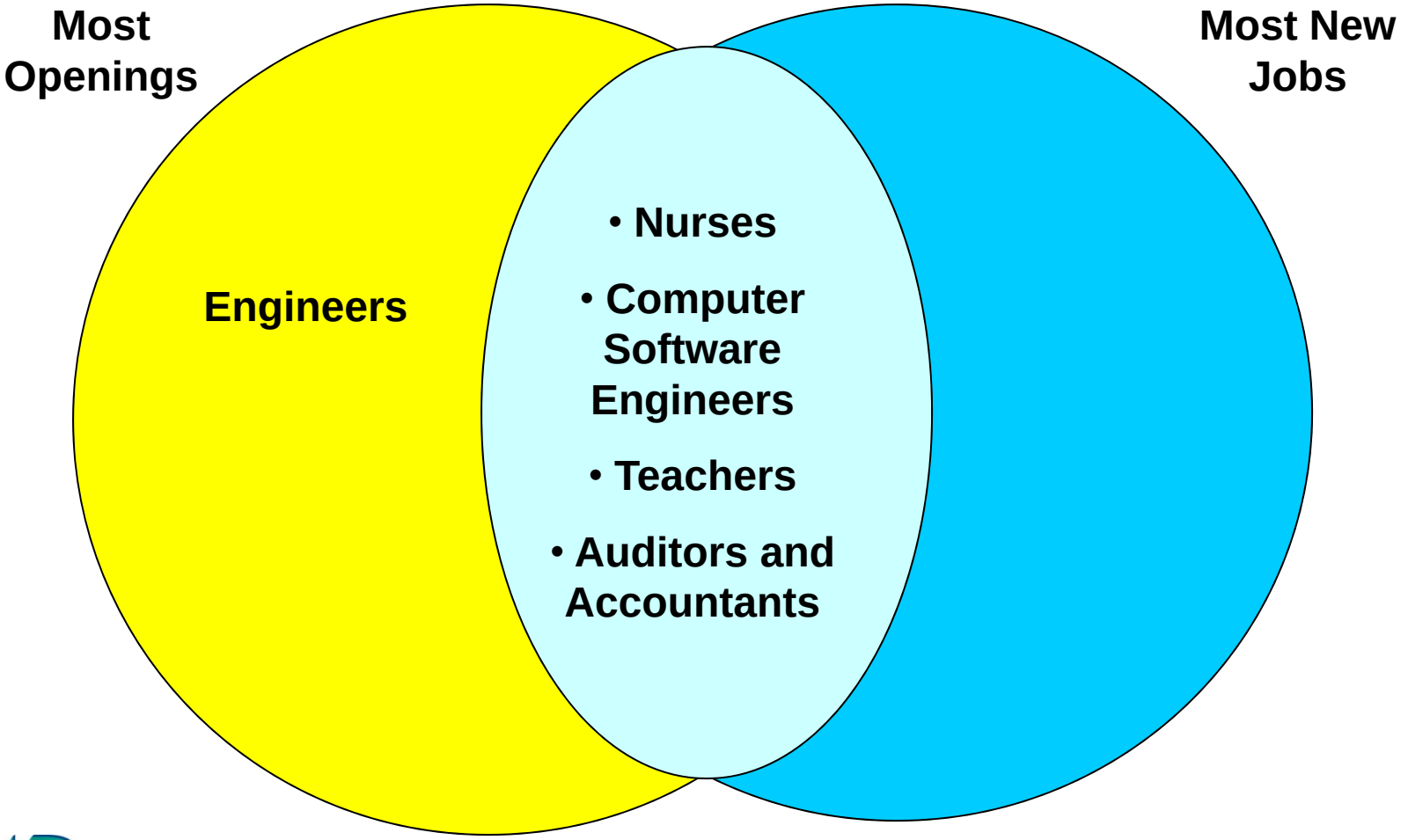
OCCUPATIONS MAKING TWO LISTS

FAST GROWING AND MOST NEW JOBS



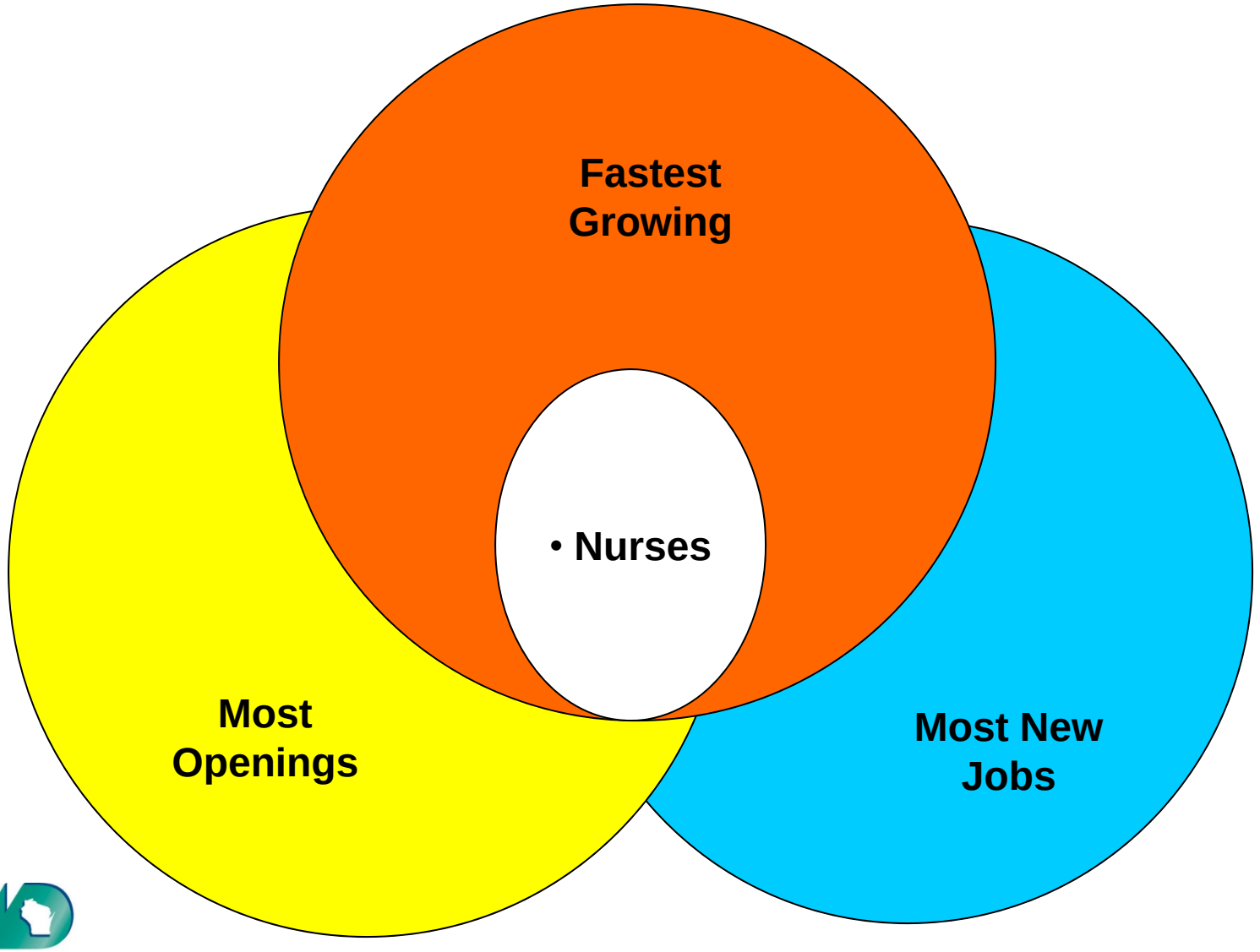
OCCUPATIONS MAKING TWO LISTS

MOST OPENINGS AND MOST NEW JOBS



OCCUPATIONS MAKING ALL LISTS

HIGH GROWTH, MOST OPENINGS, MOST NEW JOBS



GOVERNOR DOYLE'S WORKFORCE AGENDA

GROW WISCONSIN

1. Invest in people
   - Qualified workers for quality jobs
   - Address skill shortages
   - Raise wages
   - Deploy training funds strategically
2. Invest in business
3. Create competitive business climate
4. Reform regulation, make government responsive

GROW WISCONSIN

Career Pathways

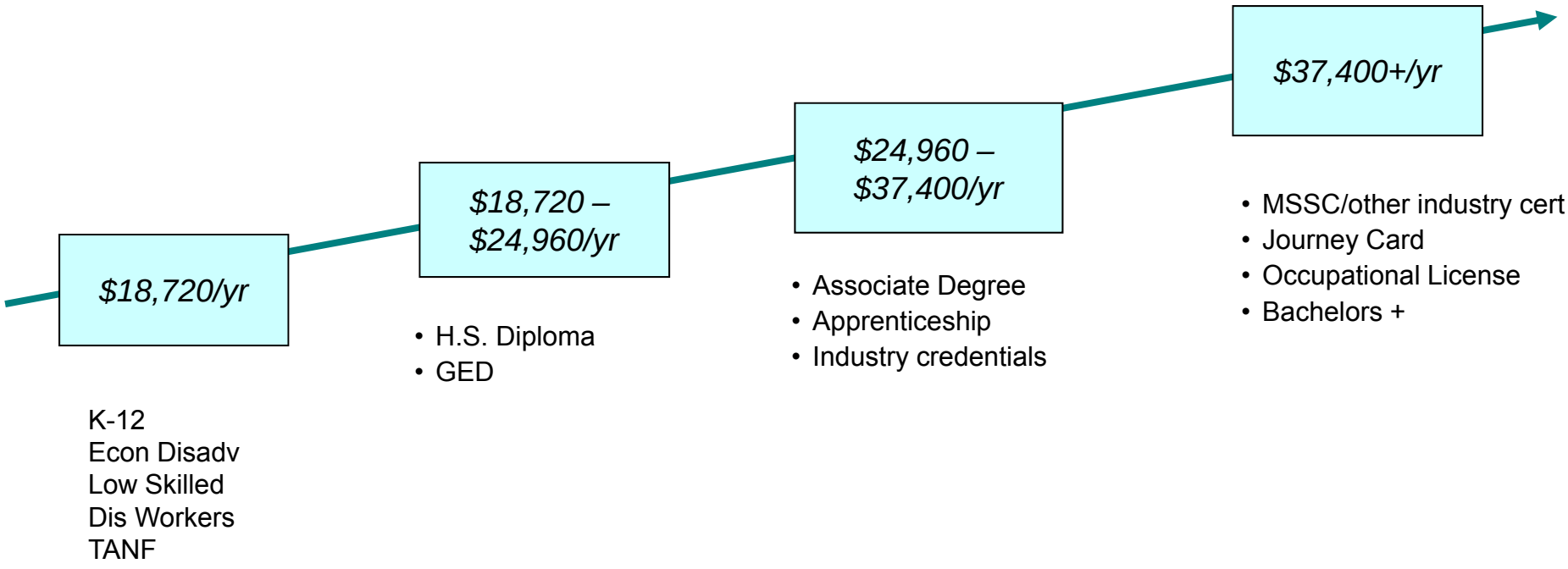
Joyce Foundation

- $1M Shifting Gears grant
- $600,500 Shifting Gears 2 grant

Lifelong Learning

- Bridge / pathways model

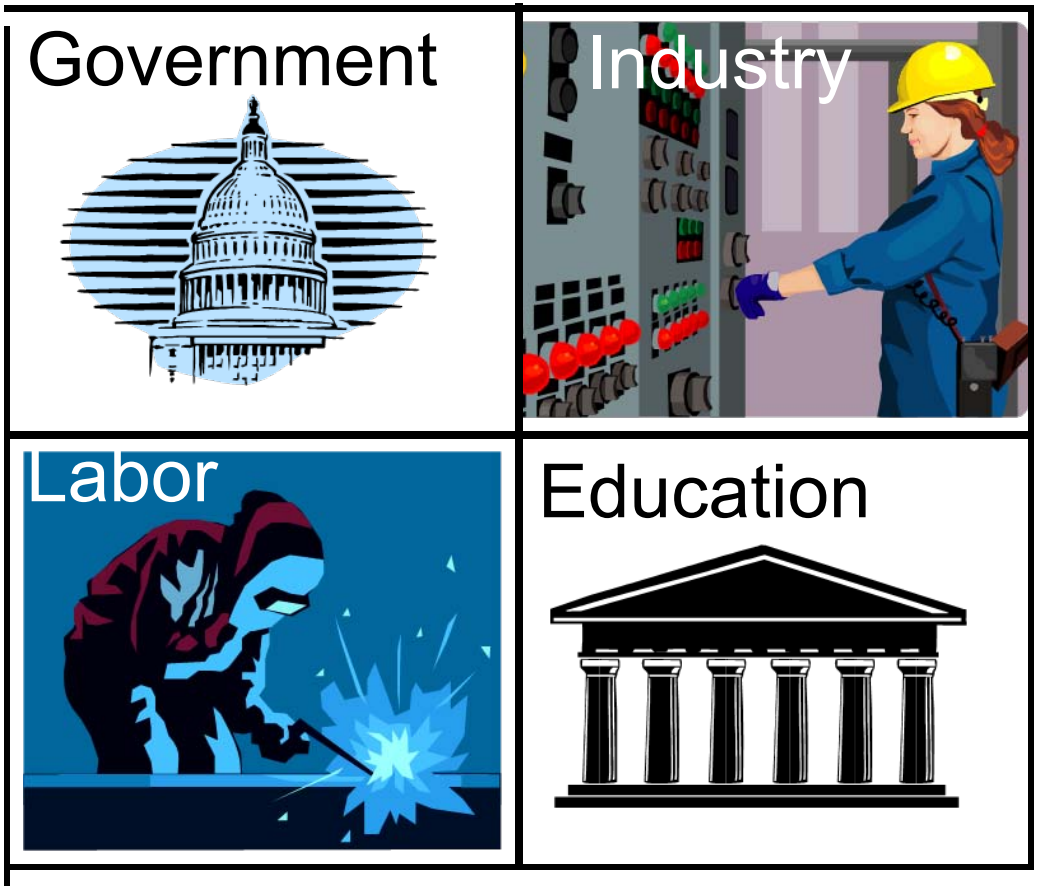
Governor's Workforce Agenda



New Worker Training Package

- **Sector Strategies, $3M**
- **Opportunity Grants, $1.5M**
- **Skills Jump Start, $300,000**
- **Emerging Industries Skills Partnership, $700,000**
  - **biotechnology, biofuels, advanced manufacturing**
- **Manufacturing Skill Standards Certification, $85,000**
- **Skills Assessment & Work Readiness, $175,000**
- **Career 101 Pilots, $140,000**

Sector Strategies Initiative



Sector Strategies Initiative

Key partners

- Education leaders

  UW System UW Extension WAICU

  DPI WTCS

- Govt, workforce, econ development, philanthropy, business & industry leaders

New approach to worker training

- Form regional, industry-led partnerships
- Identify training needs
- Align training resources to employer needs
- Ensure seamless system
- Grow economy

Sector Strategies Initiative

$3M grant program, targeting

- Health care / life sciences
- Information technology
- Renewable energy
- Next generation agriculture
- Advanced manufacturing
- Building & construction

Select Committee on Health Care Workforce Development

21ST CENTURY WORKFORCE WISCONSIN

- **33 members representing DWD, DHS, DR&L, OSER, DPI, WTCS, workforce development boards, labor, WNA, WMS, WAICU, rural health, long-term care, hospitals, nursing homes & UW System:**
  - **Kris Andrews,** Asst VP, UWS
  - **Laura Dresser,** Assoc Dir, COWS, UW-Madison
  - **Sally Lundeen,** Dean, UW-Milwaukee Nursing School
  - **Katharyn May,** Dean, UW-Madison Nursing School
  - **Nancy Sugden,** Dir, WI Area Health Education Centers; Asst Dean, UW Med School
  - **Dr. Mary Zwygart-Stauffacher,** Interim Dean, College of Nursing & Health Sciences, UW-Eau Claire

Select Committee
Sub-Committees & Strategies

- **Workplace issues**
  - recruitment
  - retention
    - no lift
  - apprenticeship career path for long-term care workers
- **Education capacity & clinical sites**
  - Summit
    - expand sites
    - regional matching
  - DOL $1.3M nursing educator grant
  - WTCS/UW RN career ladder
- **Wisconsin Health Care Workforce Data Collaborative**
  - DWD Wisconsin Health Care Workforce Reports
  - strengthened data collection – regional & statewide
    - determine employer needs through regional health alliances (demand side)
    - survey workers (supply side)
  - MCOW $300,000 grant
  - state budget nursing survey
  - UW System support (handout)

AMERICAN RECOVERY & REINVESTMENT ACT

American Recovery & Reinvestment Act

Opportunities for Growth

$7.6B for Wisconsin recovery

- Create/save 70,000 jobs

Workforce programs & services

- ✓ Put people to work
- ✓ Rebuild Wisconsin
- ✓ Get the economy moving

Recovery Act

Wisconsin workforce investments

- **Dislocated worker & adult services**
  - $16M dislocated worker
  - $5M adult
- **Youth**
  - $13.8M, 14-24 yrs old, summer employment & services
- **Re-employment services**
  - $7M+ connecting UI claimants to employment & training
- **Vocational rehabilitation**
  - $10M to serve people with disabilities
- **Unemployment services**

Recovery Act

Helping emerging, demand & high-growth sectors

- **Energy & green jobs**
- **Health care**
- **Biotechnology / bio industry**
- **Advanced manufacturing**
- **Information technology**

Recovery Act

Competitive Grants

- **High growth & emerging industries ($750M, U.S.)**
  - Renewable energy & energy efficiency ($500M, U.S.)
  - Health care sector ($250M, U.S.)

Role of UW System

Building the Skilled Workforce for Wisconsin's Future

21ST CENTURY WORKFORCE WISCONSIN

UW System key to success

- Address workforce development data in planning needs
- Address workforce development capacity needs
- Align education with regional workforce & economic development needs
- Provide well-educated workforce for tomorrow
- Provide opportunities for research, spin-offs, new careers
- Ensure seamless system for lifelong learning

Thank you

Meeting Immediate Needs: Health Care

- 45 undergraduate programs
- 52 graduate programs
- 9 new programs approved in last 3 years, such as
  - Applied Health Sciences
  - Doctor of Nursing Practice

- 3 extended locations for existing nursing programs
- Online degree completion program in nursing
- 16 articulation agreements with WTCS

Engineering

- 30 undergraduate programs
- 20 graduate programs
- 4 new programs approved in last 3 years, such as
  - Computer Engineering
  - Plastics Engineering
- 2 new locations for the UW-Platteville engineering degrees
- 5 articulation agreements with WTCS

Technology

- 20 undergraduate programs
- 7 graduate programs
- 12 new programs approved in last 3 years, such as:
  - Game Design & Development
  - Information & Communication Technologies
- 19 articulation agreements with WTCS

Teacher Education

- 59 undergraduate programs
- 52 graduate programs
- 4 new programs approved in the last 3 years, such as
  - Technology & Science Education
  - Educational Psychology
- 21 articulation agreements with WTCS
- New funding in last biennium to recruit prospective teachers in high demand fields

Degree Completion Programs

- 2 programs building directly on WTCS associate's degrees:
  - UW-Green Bay, UW-Oshkosh
- 15 flexible bachelors' programs aimed at returning adult students
- Adult Student Initiative

Policy Question

In this time of budgetary constraints, how do we balance core academic programs with the challenge of meeting emerging needs?

ECONOMIC DEVELOPMENT & ENTREPRENEURSHIP

Kim Kindschi

Division of Entrepreneurship and Economic Development, UW-Extension

UW System Structure

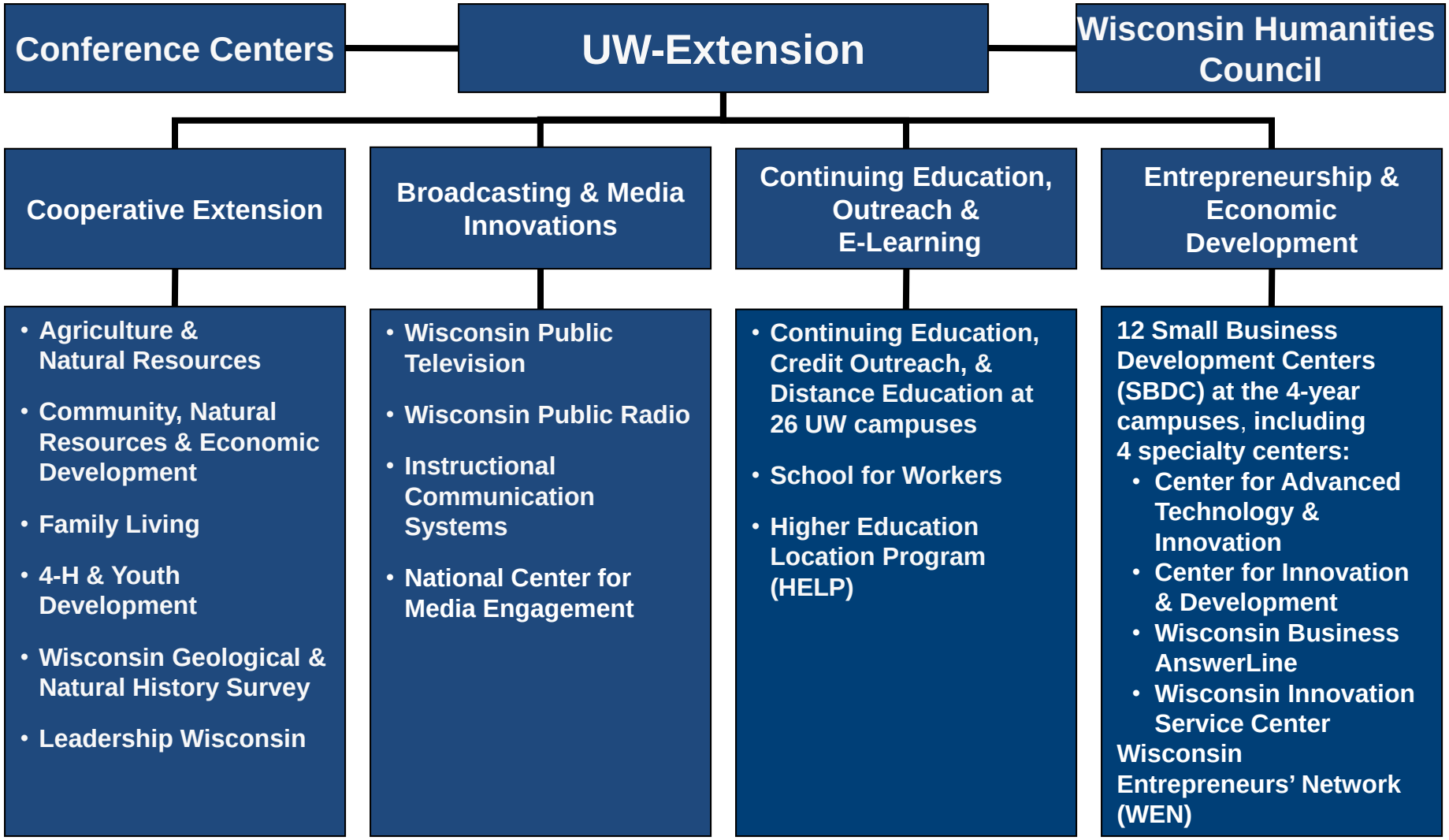
University of Wisconsin Board of Regents

University of Wisconsin System

- **2 Doctoral Universities (UW-Madison, UW-Milwaukee)**
- **11 Comprehensive Universities**
- **13 Freshman/ Sophomore Colleges**
- **UW-Extension**

University of Wisconsin–Extension

UW-Extension Structure

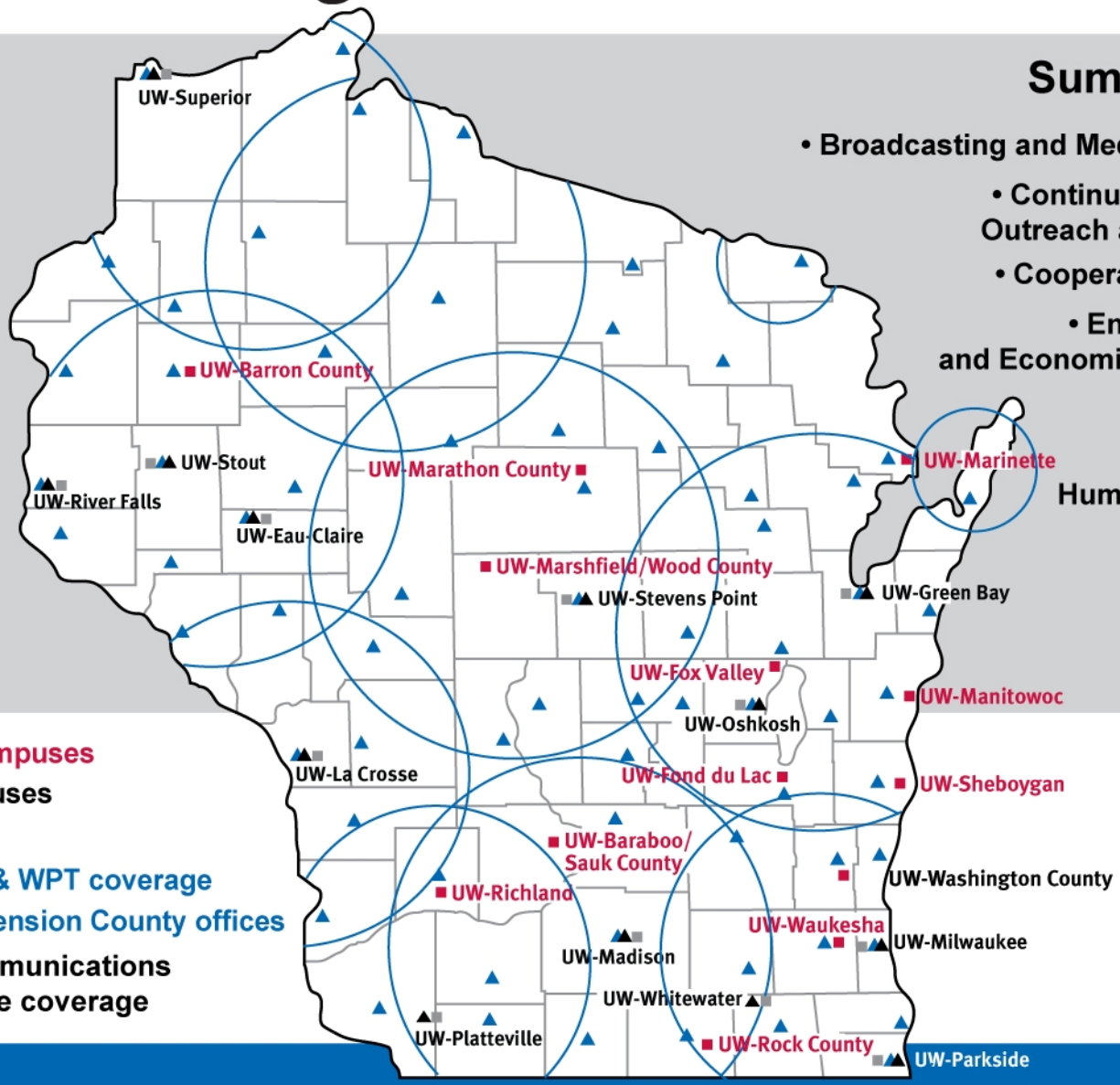


UNIVERSITY OF WISCONSIN Colleges

UW Extension

Summary Map

- Broadcasting and Media Innovations
- Continuing Education, Outreach and E-Learning
- Cooperative Extension
- Entrepreneurship and Economic Development
- UW Colleges
- Wisconsin Humanities Council



Board of Visitors

- ■ UW Colleges campuses
- ▲ Four-year campuses
- ■ SBDC locations
- ○ Statewide WPR & WPT coverage
- ▲ Cooperative Extension County offices

Instructional Communications Systems statewide coverage

Division of Entrepreneurship and Economic Development (DEED)

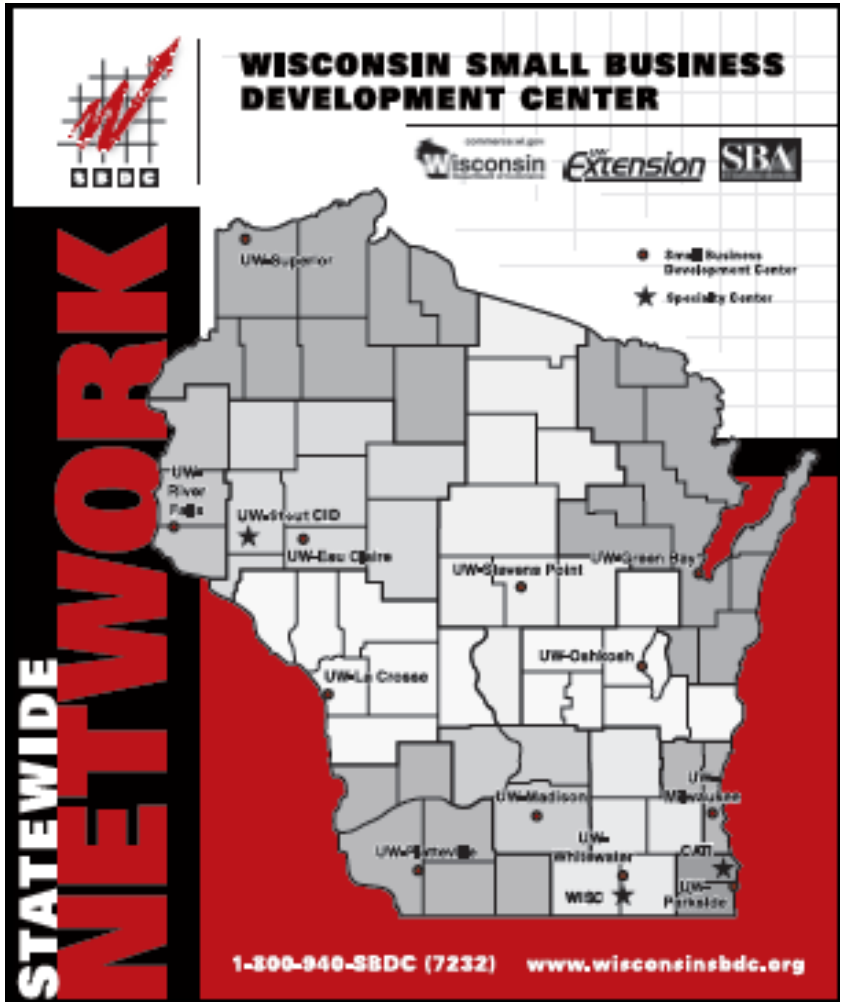
Two critical areas of focus:

Small Business Development Centers (SBDCs)
Wisconsin Entrepreneurs' Network (WEN)

Services include:

- Business counseling
- Product engineering and design
- Feasibility, new product and invention assessments
- Market expansion studies
- Grant and loan assistance
- Management training
- Programming
- Entrepreneurial Training Program (ETP)

Small Business Development Centers (SBDC)



More than **1,300 entrepreneurs have participated in business planning courses since 2003**.

- Over 500 have either started or expanded a business.

Eight (8) **Peer-to-peer learning groups** for high growth companies exist across the state.

Wisconsin Business Answer-Line provides free business consulting to more than 2,500 current and future business owners annually.

- Awarded the **SBDC Service Excellence Award**.

UW Extension
University of Wisconsin–Extension

Wisconsin Entrepreneurs' Network (WEN)

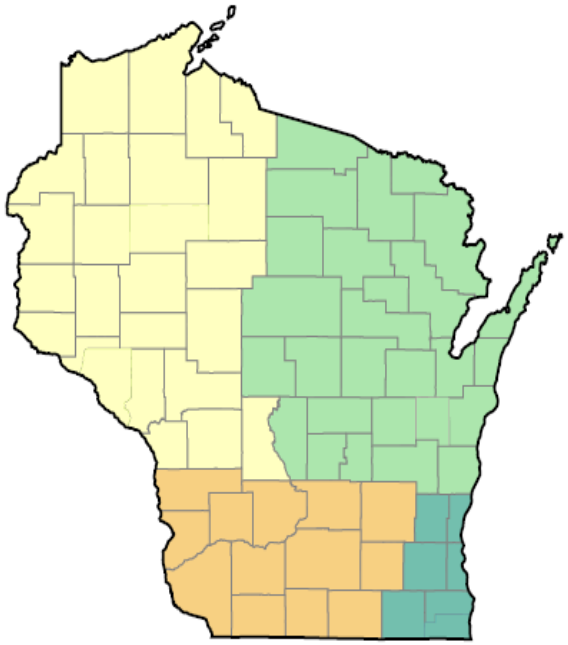
More than **$7 million** for research and development was awarded to WEN clients (2007-08).

239 grant applications approved since 2005.

Numerous clients have been placed in the top ten of the **Governor's Business Plan contest** including Graphene Solutions (2008 winner) and Eso-Technologies (2009 winner).

Over **40 communities with Inventors & Entrepreneurs (I & E) clubs** around the state can point to new businesses, new jobs, new products and business development.

WISCONSIN ENTREPRENEURS' NETWORK



UW Extension
University of Wisconsin–Extension

Division of Entrepreneurship and Economic Development (DEED)

Last Impact Study (2007) indicated:

Over 1500 estimated new jobs were created

Over 2200 estimated jobs were saved/retained

In conclusion

We are increasing access and building expertise to improve the economic well-being and quality of life for a vibrant Wisconsin.

UW Extension
University of Wisconsin–Extension

Policy Questions

- How can the UW System support a coordinated and comprehensive workforce development structure for Wisconsin?

- What is our role within the landscape of workforce development organizations and interests across the state?

DEVELOPING THE WORKFORCE OF THE FUTURE

Carl Gulbrandsen

Wisconsin Alumni Research Foundation

Developing Wisconsin's Workforce of the Future

Economic Development through UW-Led Research and Technology Transfer

Carl Gulbrandsen
Managing Director, WARF
July 9, 2009

Positive Impact of Research of the UW System

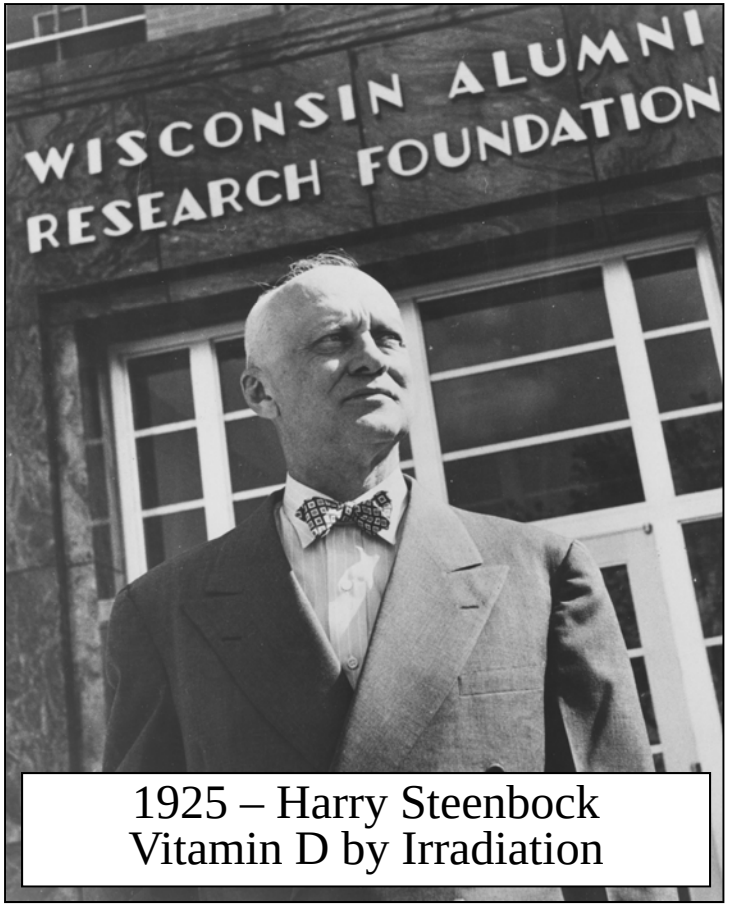
- **Economy** — Growth of knowledge-based economy through start-up companies and growth of mature business
- **Jobs** — High-paying jobs in UW labs and companies
- **Student benefit** — Competitive advantage to students for jobs and higher education
- **Reputation** — Life-enhancing discoveries, retention of highly-skilled faculty
- **Higher quality** — Recruitment of motivated national and international students and faculty
- **Public relations** — Better political and public support for the UW System

UW research benefits the entire state

University Technology Transfer is Crucial for Knowledge-based Business Growth

- WARF, WiSys and UW Milwaukee Research Foundation together manage the intellectual properties of 6,500 faculty and 170,000 students.
- WARF processes 300-400 scientific discoveries per year from the UW-Madison campus, which is the main driver of the state's technology.
- WiSys, founded by WARF in 2000 in collaboration with UW-System to manage the intellectual property of the comprehensive campuses, is a growing influence on the economic growth of the state.

Wisconsin Alumni Research Foundation (WARF) Overview



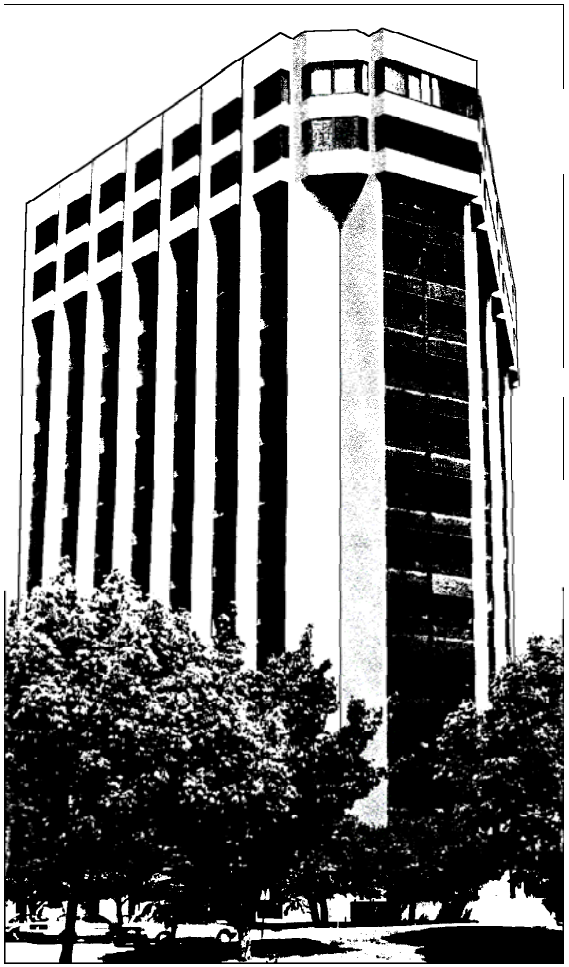
1925 – Harry Steenbock
Vitamin D by Irradiation

- Established in 1925 by Professor HarrySteenbock
- 1st organization of its kind
- A tax exempt, not-for-profit corporation
- Independent Board comprised of highly successful UW alums

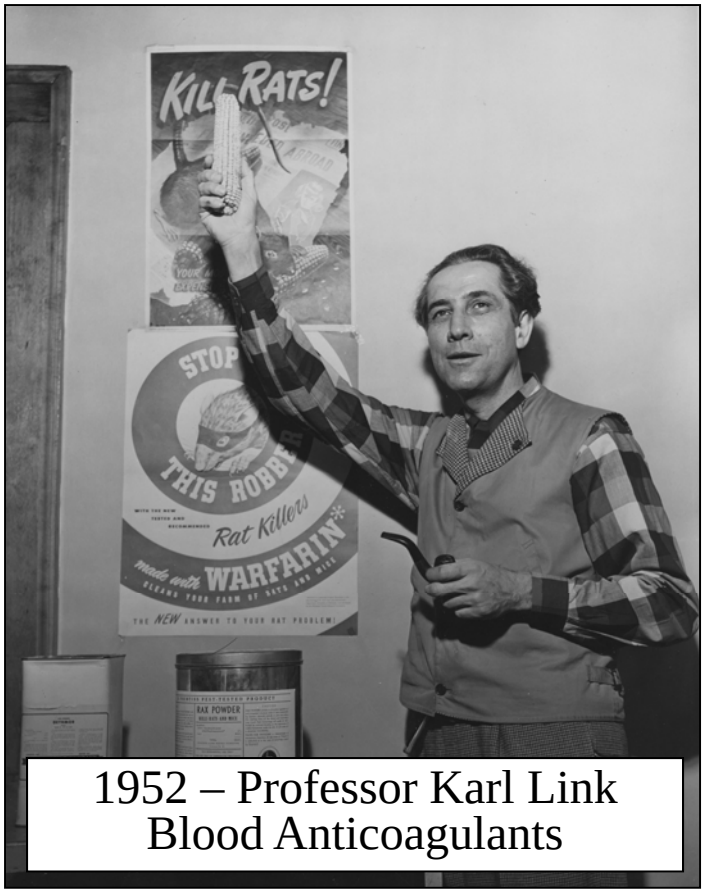
"Consistently among top ten universities in intellectual property production"

Wisconsin Alumni Research Foundation (WARF) Overview

- Exclusive Patent Licensing organization for the University of Wisconsin – Madison
- Maximizing research grants to the UW-Madison
- Contributed $990 million to research at the UW



WARF Today



1952 – Professor Karl Link
Blood Anticoagulants

WARF's Mission is to support scientific research at the UW-Madison primarily by:

- Moving inventions arising from UW-Madison research to the marketplace, for the benefit of the UW-Madison, the inventor and society;
- Investing licensing proceeds to fund further research at UW-Madison;

"Consistently among the top license income earners – Ranked 3rd in 2004 with $47.5 million"

2003 National Medal of Technology

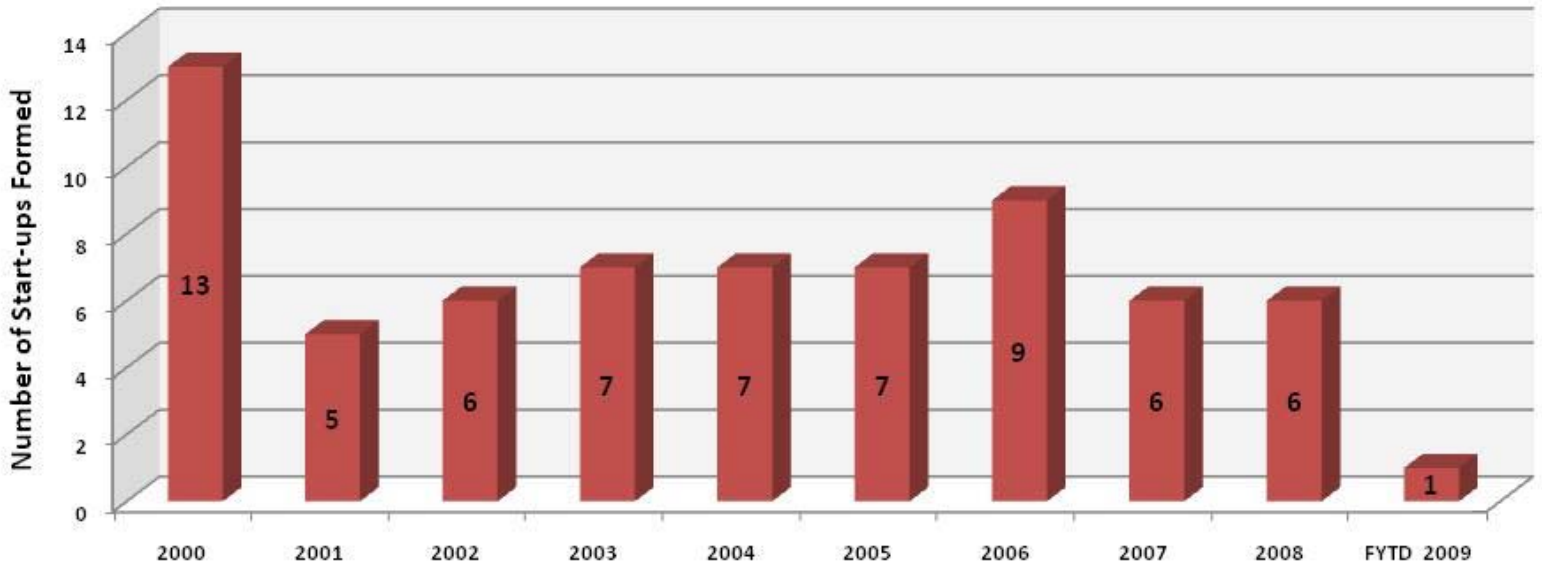
- Support of UW-Madison research
- Its pioneering role in the patenting and licensing of university ideas for the public good
- Its partnerships with many of the nation's leading companies
- Its work to ensure passage of the 1980 Bayh-Dole Act

WARF Home Runs

• 1925	Vitamin D by Irradiation	Steenbock
• 1952	Blood Anticoagulants	Link
• 1953	Pharmaceutical Coating Process	Wurster
• 1971	Vitamin D Derivatives	DeLuca
• 1980	Digital Subtraction Angioplasty	Mistretta
• 1985	MRI Imaging Techniques	Moran
• 1989	Organ Transplant Solution	Belzer/Southard
• 1993	EXO-Poly Seq./Gene Therapy	Wolff
• 1995	Tomotherapy	Macke
• 1997	Human Embryonic Stem Cells	Thomson
• 2000	Maskless DNA Chips	Cerrina/Blattner/Sussman
• 2001	MRI TRICKS	Mistretta
• 2003	Diffusion Barrier	Wiley
• 2005	Reverse genetic vaccines	Kawaoka
• 2006	??????	UW Faculty

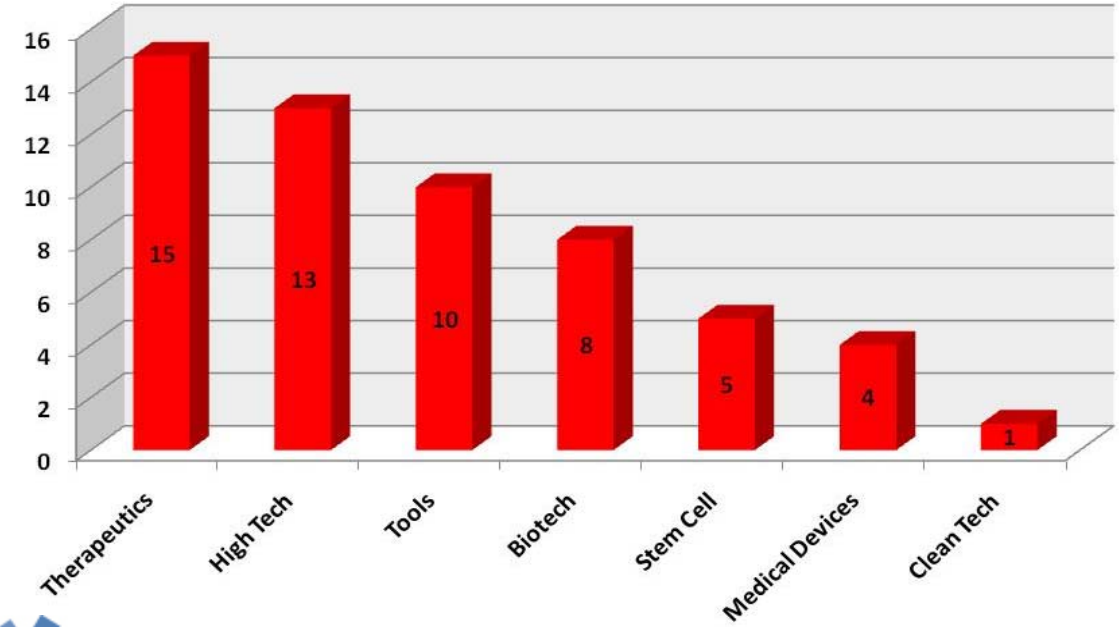
WARF Start-up Formation

- 4 -12 start-ups formed annually over the last 9 fiscal years
- Average of 7 start-ups per year



Current WARF Start-up Portfolio

56 Active Start-up Licensees



TomoTherapy INCORPORATED

NimbleGen™ SYSTEMS, INC.

ALFALIGHT™

THIRD WAVE TECHNOLOGIES

StrataTECH®

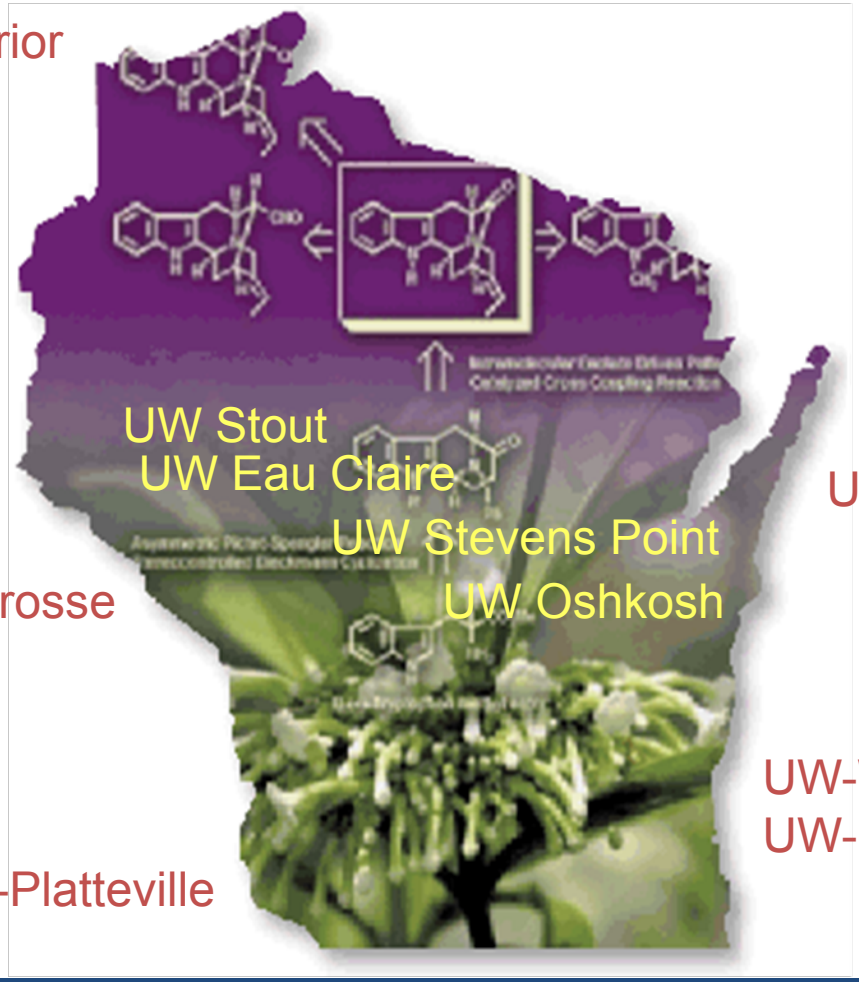
WiSys TECHNOLOGY FOUNDATION, INC.

WiSys Mission

- Support research at the UW System through patenting and licensing
- Returning the proceeds to fund further developments

Subsidiary of WARF

WiSys 4 year campuses



UW-Superior

UW-River Falls

UW Stout

UW Eau Claire

UW Stevens Point

UW-Green Bay

UW-La Crosse

UW Oshkosh

UW-Whitewater

UW-Parkside

UW-Platteville

~400 faculty members with technical expertise, capable of developing IP

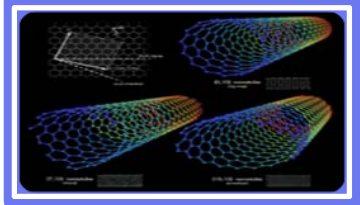
Encouraging Entrepreneurship: Start-Up Companies Based on WiSys Technologies

NovaScan LLC , Milwaukee

Non-invasive cancer screens
Positive early human trials results

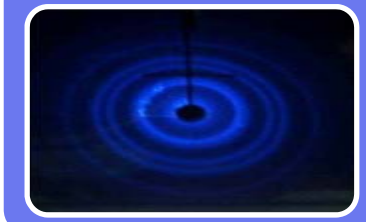
Mycophyte Discovery LLC, La Crosse

Therapeutic compounds from native plants



Graphene Solutions LLC, Platteville

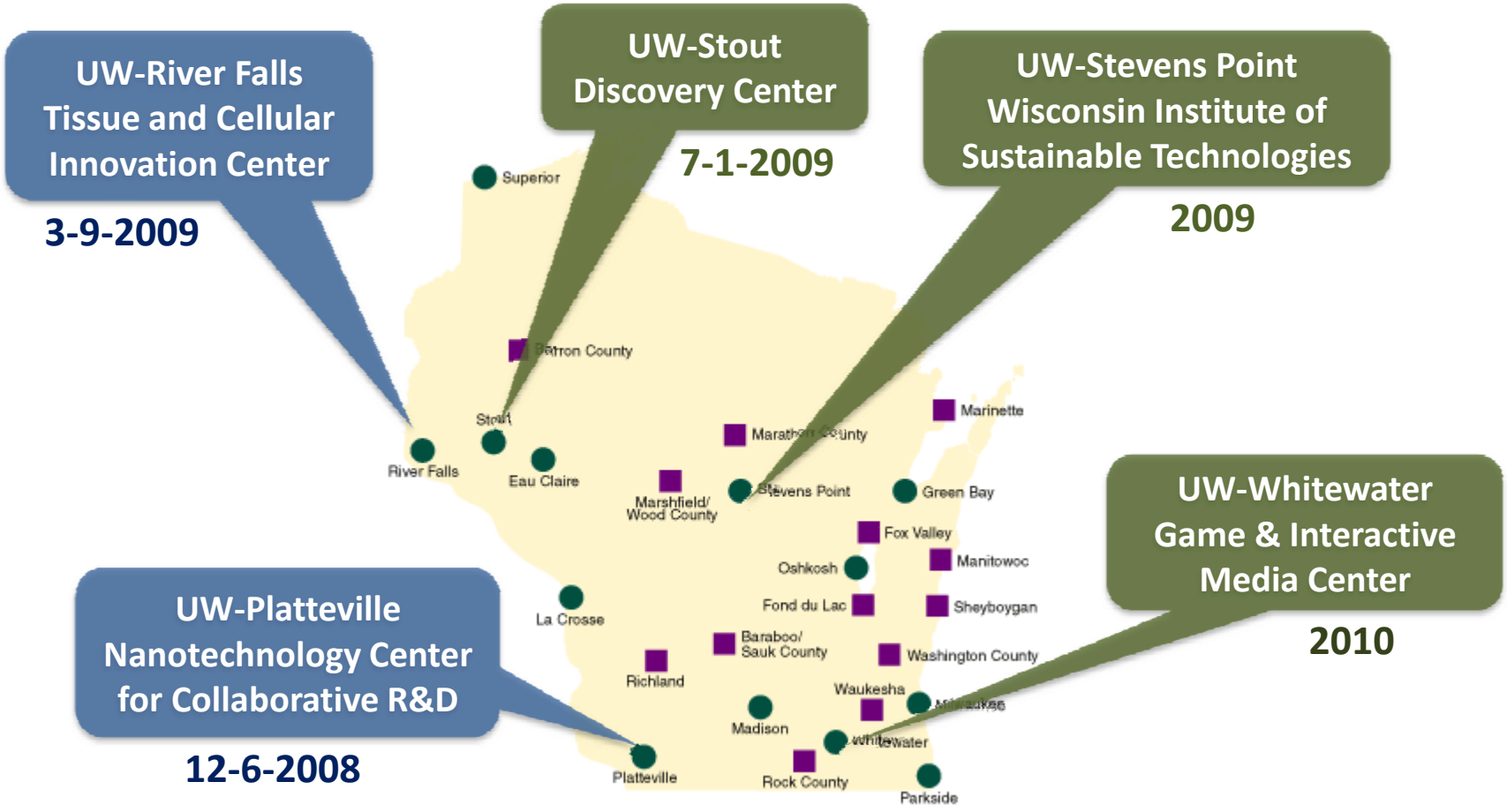
Breakthrough technology in nanomaterials, poised to become a leader in emerging nanotechnology



Oshkosh Nanotechnology LLC, Oshkosh

Nanophosphors for solid state lighting
In final round of 2009 WI Governors Business Plan

Emerging Technology Research Centers: Comprehensives are Moving Ahead with Focused Research



Centers Opened; Centers Planned for 2009-10

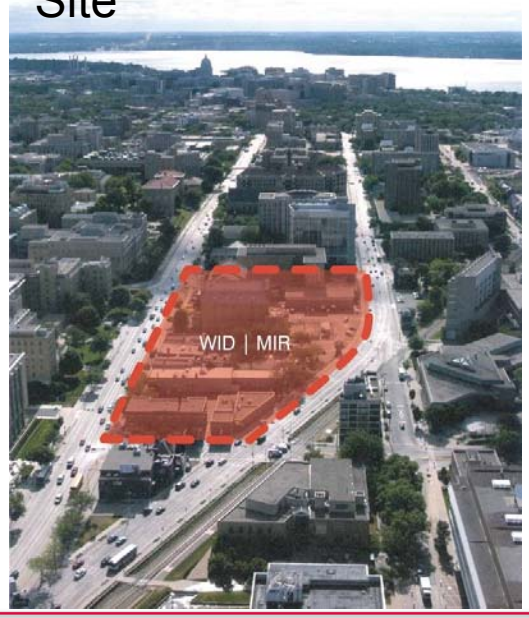
Wisconsin Institutes for Discovery

WISCONSIN INSTITUTES FOR
DISCOVERY
MORGRIDGE INSTITUTE FOR RESEARCH
WISCONSIN INSTITUTE FOR DISCOVERY

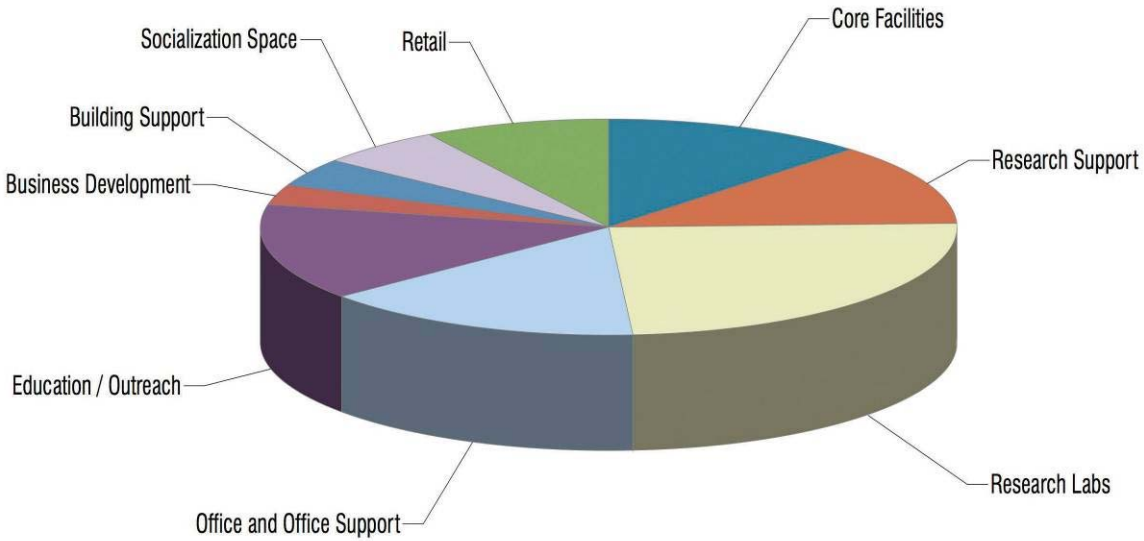
Project Basis

Promise of the Project

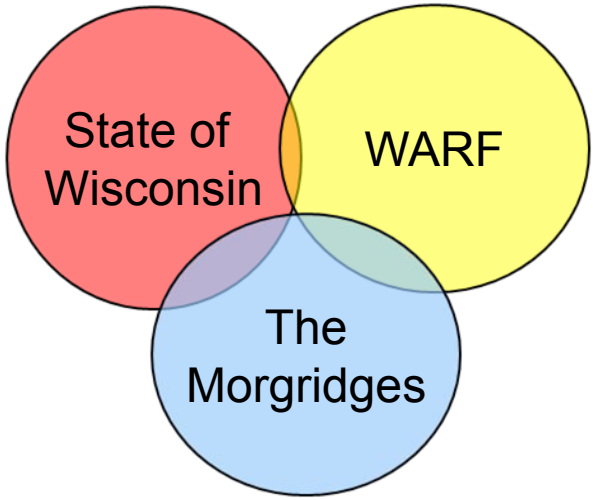
Site



Program



Funding Partnership



Life Enhancing Science:
Wisconsin Institute for Discovery and the Morgridge Institute

A 150 million dollar public-private partnership to keep Wisconsin as a leader in life enhancing technology development.

- Inter-disciplinary research
- National and international alliances
- Science education programs for K-12 students and teachers
- Distance-learning services to UW System campuses

Research to Jobs Taskforce

Further ideas on job and economic growth will come from the work of “Research to Jobs” taskforce appointed by Dr. Kevin Reilly

Research to Jobs Taskforce

Expert committee represents broad sectors of education and business. The taskforce's focus includes:

- 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

Salient Points of Taskforce Work

- Extensive discussions with business, educational and community leaders
- Review of nationally acclaimed model systems for job creation and business growth
  - Review process will continue until final report is completed
- Identification of hurdles and potential solutions
- Special attention to cost effectiveness of recommendations
- Recommendations with state-wide implications

Full report to Regents planned for September 2009

Conclusions

- UW-led research will be critical for job creation and the economic growth of the state.
- Research at the university results in high-paying jobs, both at the university and at private companies.
- Wisconsin Institute for Discovery, the Morgridge Institute for Research, the UW-Madison campus, and the Emerging Technology Centers of the comprehensives are all organizations that successfully promote the UW System's mission on education and economic growth.

Policy Questions

- How might we develop the resources necessary to support the research to jobs pipeline?
- How does workforce development relate to the unique mission of the UW System?
- How do we expand the statewide approach to workforce development to be more inclusive of the UW System's contributions?