

***University-Industry Innovation Network  
Global Good Practice Case Study***

***June 2021***

**The University as a Talent Engine: Fostering  
Entrepreneurial Skills & Talent**

*By focusing on students, a technology transfer office is facilitating cutting-edge research programs, developing and commercializing discoveries and fostering a spirit of innovative and entrepreneurial thinking at the regional universities it serves.*

**University of Wisconsin System and WiSys  
Madison, Wisconsin, USA**





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# GENERAL INFORMATION

<b><u>Title of the case</u></b>	The University as a Talent Engine: Fostering Entrepreneurial Skills & Talent
<b><u>Sales pitch</u></b>	By focusing on students, a technology transfer office is facilitating cutting-edge research programs, developing and commercializing discoveries and fostering a spirit of innovative and entrepreneurial thinking at the regional universities it serves.
<b><u>Organisation(s)</u></b>	University of Wisconsin System & WiSys
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<b><u>Nature of interaction</u></b>	<p><i>Please select one or more of the following (simply place an “x” between the brackets):</i></p> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Collaboration in R&amp;D</li><li><input checked="" type="checkbox"/> Commercialisation of R&amp;D results in science</li><li><input checked="" type="checkbox"/> Entrepreneurship</li><li><input checked="" type="checkbox"/> Technology Transfer</li><li><input checked="" type="checkbox"/> High Impact Practices</li><li><input checked="" type="checkbox"/> Innovation</li></ul>



# CASE STUDY PROFILE

## 1. SUMMARY

The year 2000 marked the launch of WiSys, a newly created **technology transfer unit** with an innovative focus on the more than 100,000+ undergraduate students within the University of Wisconsin System (UW System).

By focusing on students, **WiSys facilitates** cutting-edge research programs, supports development and commercialization of discoveries, and fosters a spirit of innovative and entrepreneurial thinking at the UW System's regional universities.

Although WiSys is only just two decades old, the idea for its genesis stems from a philosophy developed at the University of Wisconsin more than a century ago. **The Wisconsin Idea**—the principle that education should influence people's lives beyond the boundaries of the classroom—is one of the longest and deepest traditions surrounding the UW System.

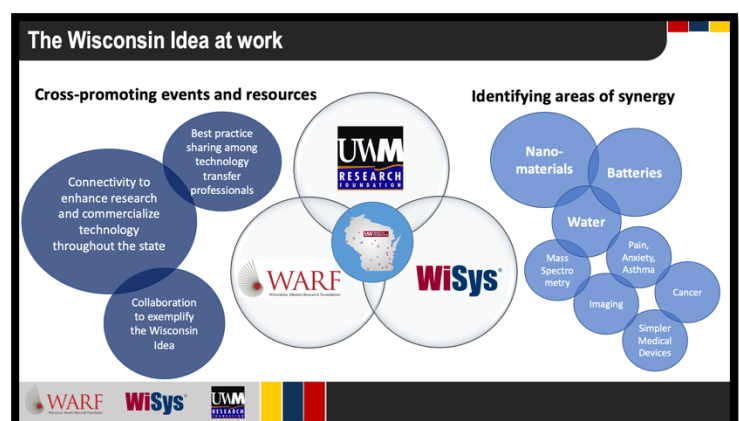
The concept was first articulated by University of Wisconsin President Charles Van Hise in 1904, when he said, "I shall never be content until the beneficent influence of the University reaches every family of the state."

In one of many ways the philosophy of the Wisconsin Idea went on to better the state and the world, the **Wisconsin Alumni Research Foundation (WARF)** was founded in 1925 by innovative alumni as a way to advance the discoveries made at UW-Madison, now the flagship research institution of the UW System.

UW System collaborated with the Wisconsin Alumni Research Foundation (WARF) to launch WiSys. In 2013, WARF spun out WiSys as an **independent foundation** focused on supporting innovation and tech transfer across UW System.

Through the years, UW System and its 13 public universities within the state of Wisconsin have been **consistently recognized as national leaders** in undergraduate research. The system as a whole contributes greatly to the region's priorities, including retention, graduation rates, workforce, and economic development.

Two of the universities (UW-Madison and UW-Milwaukee) are both large and well-known "Research I" institutions—a designation indicating very high research activity—with UW-Madison ranked among the top 10 research institutions in the United States. Eleven additional universities are regional comprehensives that serve primarily undergraduates; although these universities are not



primarily known for research output, it is a growing component of the educational experience for their students, in part due to the support derived from WiSys.

WiSys provides dedicated technology transfer guidance and mentorship; it is modelled on the well-established research protocols and principles pioneered nearly 100 years ago by the Wisconsin Alumni Research Foundation (WARF) for the benefit of UW-Madison.

As WiSys' **scope of influence grew** during the past two decades, the technology transfer organization challenged the perception of what is possible within the UW System's portfolio of regional comprehensive universities. Through the years, WiSys has increasingly helped to **foster and promote discovery and innovation at each UW campus** and in every university city across Wisconsin. By interconnecting the research mindset among and within these regional University of Wisconsin System entities dispersed across a large geographic area, WiSys has **inspired and enabled innovation to flourish more broadly** throughout the entire UW System and across the state for the benefit of all Wisconsin residents. WiSys has made this growth possible through:

- **Collaboration.** By working as a shared service of the 11 universities, WiSys is able to provide high-quality expertise to organize programs and services; to market ideas developed by faculty, staff, students, and alumni; and to inspire and teach students how to innovate and build a culture that perpetuates ongoing innovation.
- **Nimbleness.** Thanks to stable funding and support from a knowledgeable Board of Trustees, WiSys does business as an independent service organization, working in concert, but separate from each member university's overall administrative structure. This allows WiSys to take more chances in piloting new, responsive programs with immediate impact.
- **Active listening.** By seeking feedback and ideas from university leaders as well as directly from university researchers and innovators through regular face-to-face meetings, WiSys deeply understands the unique impediments to innovation on each campus and works with stakeholders to define solutions that can easily be embedded in each university's distinct campus culture.

The resulting positive outcomes of these efforts for faculty, staff, and students are embodied in the WiSys tagline: "Eureka isn't a moment. It's a process.®"

## 2. BACKGROUND

Although WiSys is only two decades old, the idea for WiSys stems from a philosophy developed at the University of Wisconsin more than a century ago. The Wisconsin Idea—the principle that **education should influence people's** lives beyond the boundaries of the classroom—is one of the longest and deepest traditions surrounding the UW System.



Today, the UW System is one of the largest public education systems in the world and recently ranked 36<sup>th</sup> in the 2019 Reuters listing of the World's Most Innovative Universities.

The impetus for the launch of WiSys occurred when the UW System recognized the need for a foundation to support the innovation and technology transfer needs of all UW System campuses outside of UW-Madison. Today, WiSys provides a **shared service** of research, innovation, and entrepreneurship support for the 11 regional comprehensive and primarily undergraduate UW System universities: UW-Eau Claire, UW-Green Bay, UW-La Crosse, UW-Oshkosh, UW-Parkside, UW-Platteville, UW-River Falls, UW-Stevens Point, UW-Stout, UW-Superior, and UW-Whitewater.

WiSys is facilitating cutting-edge research programs, developing and commercializing discoveries, and fostering a spirit of innovative and entrepreneurial thinking at these regional universities.

### 3. OBJECTIVES

Traditional University research and intellectual property development has been focused on supporting innovative faculty, working to commercialize their inventions and discoveries.

For WiSys, and the University of Wisconsin regional universities, inspiring and engaging undergraduate students in research, innovation and entrepreneurship is a **primary focus** resulting not only in commercialization of inventions but also the transfer and development of human potential from the university to industry.

**Students are a primary, not just a secondary, constituent.** This strategic focus is a significant factor for WiSys, and the group of 11 universities it serves, achieving a rank of second in innovation impact productivity among smaller research institutions in a major report issued in 2020 on the innovation impact of U.S. universities.



## IMPLEMENTATION & FUNDING

### 4. STRATEGY & ACTIVITIES UNDERTAKEN

In order to engage students and allow them to power the innovation engine, WiSys uses three effective strategies:

1) **Offering programming that encourages innovation skill-building.** WiSys organizes student competitions on each of the campuses it serves to inspire students to be innovation

leaders. Programs like the WiSys Quick Pitch competition encourage undergraduate researchers to **consider the importance of their work** and learn how to communicate it in lay terms to a broad audience. Other themed events (based on campus focus areas) such as WiSys Innovation in Aging, Innovation in Sustainability, and the WiSys Prototype Hackathon encourage students to tackle real-world problems and create innovative solutions. The competition, and prizes for winners, entice students to participate. And because all WiSys student competitions include mentoring and training, students learn how to innovate and test out new innovation skills.

2) **Tying support for faculty research projects to student involvement.** WiSys offers and administers a number of grant programs for faculty research projects—including funding that sparks the kernel of an idea to funding that launches an invention into the marketplace. During the review and award process, projects that will involve students and pay for student research jobs score higher than those that do not. WiSys grant programs not only develop faculty ideas, but also help to develop the next generation of researchers and innovators.

3) **Employing innovative students with intellectual property internships.** WiSys also hires between 10 and 20 students each year to enhance the vital connection between WiSys and the research community on UW System campuses through the WiSys Ambassador Program. WiSys Ambassadors, who are students interested in research, innovation and/or

entrepreneurship, receive training in intellectual property as well as the technology transfer process.

Additionally, they learn how to access resources offered by WiSys and other campus organizations designed to support technology development and entrepreneurial activity.

WiSys Ambassadors

receive a **stipend for their work** and participate in a variety of meetings and events on campus and encourage faculty, staff and students to think about innovation and connect to WiSys to support faculty members seeking research grants. For students, WiSys provides learning opportunities through local competitions that teach innovation, entrepreneurship, and inventorship. These **events provide practice experience** for students to build experience for their future endeavours both inside and outside the classroom.

Furthermore, WiSys is a **convener and connector**, creating opportunities for collaboration. WiSys, through its state-wide and inter-university reach, helps facilitate interdisciplinary and multi-institutional research collaborations and commercial partnerships with Wisconsin-based industry.

Connections are further established and facilitated at **WiSys networking events**, such as the annual WiSys SPARK Symposium. Symposium attendees are encouraged to meet with faculty and students from other institutions as well as with entrepreneurs outside of academia.

**WISYS STUDENT AMBASSADORS**

- 10-20 hired for paid positions each year
- Enhance the vital connection between WiSys and the research community on UW System campuses
- Currently recruiting a new class of students for 21-22





## 5. MONITORING AND EVALUATION

WiSys maintains **active feedback relationships** with state-wide leaders, regional officials, and the specific constituencies that WiSys serves, namely system faculty, staff, students, and alumni.

WiSys leadership **regularly reports** to the leadership of the UW System. In addition to presenting to the UW System Board of Regents, the system's oversight panel, the WiSys president makes a specific presentation to the UW System president to discuss impact, both qualitative and quantitative.

Additionally, WiSys **meets regularly** with regional officials, including university chancellors, department chairs, and campus champions to listen and seek advice on specific programs that may be improved or created. This is further amplified by WiSys' advisory committee, containing representative stakeholders.

Going a step further, **WiSys seeks active feedback** from faculty, staff, students, and alumni at the local level to understand their challenges and opportunities in building a culture of innovation. Many of WiSys' programs and events have been built from the ground up through active listening at the local level.

Many events **have been inspired** by university areas of interest. For instance, UW-Green Bay's focus on healthcare and the aging population led WiSys to work with local leaders to create a student innovation event called Innovation in Aging.



Through this event, WiSys gave students an opportunity to **gain practical learning experience** in the subject matter as well as to connect with area business and organizations working in the same field. Through events like Innovation in Aging, WiSys can bring together faculty, students, and the community to start or continue dialogues around the development of community-based and market-led intellectual property in thematic areas such as aging.

## 6. SUSTAINABILITY MEASURES

WiSys' many programs and services have proved sustainable, firstly, because WiSys ensures that the programs and services have tangible and timely impact. As a nimble organization, WiSys can act quickly, where sometimes university systems or culture are more deliberate.

WiSys programs and services also **thrive because they are "opt-in."** WiSys does not force universities to use any programs or services. Therefore, when WiSys universities opt in they opt to commit to them more explicitly.

Once university leaders commit, **WiSys cultivates local support.** When faculty exhibit interest in a program, WiSys grows the relationship by supporting these faculty campus



champions. Sometimes this means that **WiSys will “buy out” the time of a faculty member** in order to free them up to work with WiSys on building the culture of innovation on their campus.

When WiSys **empowers these campus champions** and gives them ownership over the success and failure of WiSys programs and services, they are more likely to continue. Furthermore, this helps WiSys embed the programs and services into campus culture.

WiSys events also **benefit from local corporate sponsorships**. Successful WiSys events often attract interest from community businesses and organizations who want to be a part of and support WiSys’ efforts on the local university campus and in the community where these businesses and organizations operate.

## 7. COSTS

The major costs include personnel, legal costs for patenting inventions, and travel. WiSys hires **highly qualified professional staff** that can serve multiple universities, because the universities that WiSys serves would not be able to hire these highly qualified professional staff members on their own. WiSys bears the burden of **retaining and attracting** top-notch staff. Additionally, because these staff members often serve multiple universities over a large geographic area, regular travel is required.

WiSys covers the legal expenses needed to go through a lengthy and detailed patenting process to ensure intellectual property protection of ideas. WiSys offers a series of grant programs to **help in the development lifecycle of early-stage technologies**. Low-cost but high-impact activities include holding WiSys events and supporting student ambassadors.

## 8. FUNDING

WiSys is primarily funded by **all the member institutions** with an annual fee based on their research expenditures. It also receives regular funding and has a strong long-term financial commitment from the UW System to provide high-quality shared services.



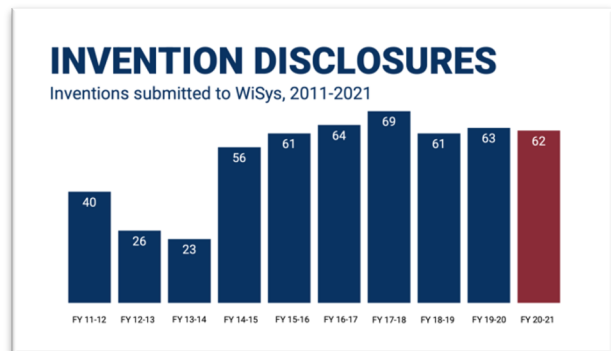
# OUTCOMES & IMPACT

## 9. OUTCOMES

These strategies have had a positive impact, including:

- **Hundreds of student researchers, innovators, entrepreneurs and leaders** receive intellectual property and innovation skills training by participating in WiSys innovation events each year.

- **Many participants in our events develop and grow beyond** just campus competitions. For example, in 2019, Cassie Van Hoof, a biological-sciences major and a pre-veterinary student at UW-Parkside, developed a novel spray to combat aggression and anxiety in pets. Her research began as part of a WiSys event and eventually developed into a start-up business called Efoxen.
- **One-third of inventions** submitted to WiSys for intellectual property protection and commercialization come from students.
- **Faculty who make a point of including students** in their research projects are further motivated to do great things themselves. For example, UW-Parkside's Dr. Francis "Frannie" Mann's work developing bioactive natural products has shown exceptional promise. Mann has earned considerable grant funding for her work, partly because she includes students in everything she does. Mann has submitted several inventions to WiSys in the past few years, leading to four patent applications, including an international filing.
- **Almost 100 students have been employed by WiSys** during the past five years through the WiSys Ambassador Program, giving these students an excellent learning opportunity to add to their resume and build their skills for graduate school or the workforce.



## 10. IMPACTS

Whether finding the funding to take an idea further, assuming the responsibilities of intellectual property protection, or helping to commercialize products and services, WiSys **helps innovators see their ideas succeed.**

Students are taught how to think of themselves as **innovators** and problem solvers by taking their coursework and applying it to solve real-world problems.

This adds up to the 11 universities that WiSys serves seeing themselves as more than just "teaching schools." They see themselves as **budding hubs** of innovation.



## 11. INVOLVED STAKEHOLDERS AND BENEFICIARIES

WiSys has many **direct and indirect stakeholders** who benefit from WiSys services. The primarily beneficiaries are the 11 universities that WiSys serves. However, the entirety of the UW System also benefits because each individual university is stronger with WiSys programs and services.

Additionally, WiSys provides an indirect **benefit to the communities and regional industries** where the WiSys universities are located. By working to inspire more innovative activity, WiSys is increasing the quality and quantity of innovative talent in Wisconsin. WiSys further connects this budding talent and their innovative ideas with industry partners inside and outside Wisconsin.

## 12. AWARDS / RECOGNITION

In 2020, the **innovation impact** of the 11 University of Wisconsin System regional institutions that WiSys serves was ranked as **one of the most productive in the nation** by the George W. Bush Institute. In the institute's report on the innovation impact of U.S. universities released in June of that year, UW-WiSys was second in the report's Innovation Impact Productivity Rankings for smaller research universities.

In addition to the accomplishment of ranking behind only Brigham Young University in the smaller research universities category, WiSys universities received a **notable Innovation Impact Productivity Score** in relation to its peers. WiSys universities received a score of 20.30, well above the category median of 5.13.

The ranking and score **shine a bright light on the exceptional talent** at our UW System regional comprehensive campuses. This positive outcome represents the work of numerous faculty and student researchers, supportive university staff and administrators, and university and system leaders throughout the state. Through collaboration and cooperation, WiSys is helping to make its partner communities, the state and nation a more innovative place.

The report, "The Innovation Impact of U.S. Universities," is available at [bushcenter.org](http://bushcenter.org).



# LESSONS LEARNED

## 13. PRIMARY CHALLENGES

WiSys encounters three big challenges in working with its 11 university partners:

1. **Brand awareness.** As an independent, non-profit organization, WiSys must constantly work to ensure campus administrators, faculty, and students are **aware** of available WiSys programs and services as well as **to educate** them about why and how the organization can help.

2. **State-wide reach.** Since Wisconsin's 11 regional comprehensive campuses span a wide geographic area, WiSys must stretch a small staff to ensure that personal and on-the-ground relationships are effective.
3. **Time for innovation.** WiSys works primarily with smaller, undergraduate-focused universities. On these campus locations, faculty have high teaching loads and work in a culture focused on the classroom. In order to be successful, WiSys must be cognizant of faculty's time and their ability to participate in research and innovation opportunities.

#### 14. SUCCESS FACTORS

**Students are busy and often do not have a deep understanding** of how WiSys can serve them. Educating them about the organization's offerings on their campus can be a challenge. Gaining the attention of students who are busy with their primary concern: education, and their secondary concerns: such as sports and other extracurriculars, takes continual diligence. The student audience for WiSys services also completely refreshes every four years. WiSys works to overcoming this challenge by:

**Deepening relationships with their educators.** While it might seem counterintuitive, the best way to reach students is by deepening relationships with faculty. Faculty have significant influence on the programs, events and services that students use. When WiSys builds deep and lasting relationships with faculty, these faculty vouch for and recommend WiSys to their students.

**Using the internship program (WiSys Ambassadors) as a focus group.** Each year, WiSys has 10 to 20 student interns in its Ambassador program. While employing students has a number of benefits to the students and their careers, it often helps WiSys in many ways, too. Regular interactions and conversations with students help WiSys to better calibrate its offerings for students. Their feedback makes the WiSys student programs and services more attractive because students have direct input on them.

**Focusing on experience.** When WiSys first started rolling out its student events, organizers focused on using prize money as an incentive for participation. While this certainly can drive some interest, organizers have found that money isn't as big of a motivator for students as initially thought. Through surveys and by listening to WiSys interns, a larger motivating factor in participation is the potential impact of having an enriched educational experience. Students more often than not cite their desire to become better at public speaking or working on their innovation skills as a reason for participation.

#### 15. TRANSFERABILITY

This case study can be applied to **all institutions** with a dedication and commitment to finding new ways of developing or educating talent.



# FURTHER INFORMATION

## 16. PUBLICATIONS / ARTICLES

The World's Most Innovative Universities 2019.

<https://www.reuters.com/innovative-universities-2019>

Milken Institute: Concept to Commercialization: The Best Universities for Technology Transfer. <https://milkeninstitute.org/sites/default/files/reports-pdf/Concept2Commercialization-MR19-WEB.pdf>

Hive Central student start up supported by WiSys. (Sept 9, 2019)

<https://www.youtube.com/watch?v=qhemQDAzGn4>

Innovative people you should know: Caleb Dykema. (Nov. 13, 2019)

<https://www.wisys.org/news-media/innovative-people-you-should-know-caleb-dykema>

Innovative people you should know: Anneka Johnson. (Aug. 7, 2019)

<https://www.wisys.org/news-media/innovative-people-you-should-know-anneka-johnson>

Psychology major wins WiSys Quick Pitch @UW-Whitewater by explaining racial bias research. (Nov. 18, 2019) <https://www.wisys.org/news-media/psychology-major-wins-wisys-quick-pitch-uw-whitewater-by-explaining-racial-bias-research>

Two UW teams compete in largest worldwide lean start-up competition. (May 16, 2018)

<https://www.wisys.org/news-media/two-uw-teams-compete-in-largest-worldwide-lean-startup-competition>

UW-Parkside student develops solution to help cats. (March 26, 2019)

<https://www.wisys.org/news-media/efoxen-purrfect-pal-case-study>

UW System Regent Scholar grants. (Spring 2021) <https://www.wisconsin.edu/grants-awards/undergraduate-research-3/>

WiSys names UW-Parkside's Cassie Van Hoof 2019 Innovator of the Year (June 13, 2019).

<https://www.wisys.org/news-media/wisys-names-uw-parksides-cassie-van-hoof-2019-innovator-of-the-year>

WiSys news. <https://www.wisys.org/news-media/recent-news>

## 17. LINKS

University of Wisconsin System. <https://www.wisconsin.edu>

Wisconsin Alumni Research Foundation (WARF). <https://www.warf.org>

Wisconsin Idea. <https://www.wisc.edu/wisconsin-idea/>

WiSys: Eureka isn't a moment, it's a process.® <http://wisys.org>

## 18. KEYWORDS

Technology Transfer  
Undergraduate Research  
High-Impact Practices  
Intellectual Property  
Talent and Workforce Development  
Public-Private Partnerships  
Industry Partnerships  
Triple Helix  
Collaboration

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