

November 11, 2024

Mr. Charlie Smithson  
Secretary of the Senate  
State Capitol Building  
Des Moines IA 50319

Ms. Meghan Nelson  
Chief Clerk of the House  
State Capitol Building  
Des Moines IA 50319

Tim McDermott, Director  
Legislative Services Agency  
State Capitol Building  
Des Moines IA 50319

Dear Members of the Iowa General Assembly:

Pursuant to Iowa Code and Iowa Acts, the enclosed annual report includes information from the University of Iowa, Iowa State University, the University of Northern Iowa, and their respective research foundations as follows:

Iowa Code §262B.3(3)

Patents and Licenses for FY 2024

2013 Iowa Acts, Chapter 141.54 (HF 604)

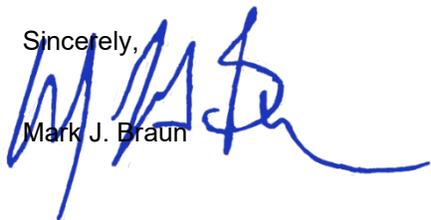
Activities, Projects, and Programs Funded with  
Board of Regents Innovation Fund Approp,  
Technology Commercialization, Entrepreneurship,  
Regional Development, and Market Research Report

Collectively, in FY 2024, the three Regent universities provided \$1.39 billion dollars in total sponsored funding to the state of Iowa, including \$632 million from competitive federal grants and awards. The Regent universities aid businesses and start-up companies across Iowa. The numbers fluctuate on an annual basis, but generally reflect an upward trend over several years.

In FY 2024, there were 3,956 employees in the 272 companies located in the university research parks and incubators, 215 license and option agreements on institutional intellectual property were executed, and 150 patents awarded. For FY 2024, the Iowa General Assembly appropriated nearly \$13.5 million in total funding for economic development, technology transfer and commercialization of research to the three universities.

If you have any questions or need more information, please don't hesitate to contact this office.

Sincerely,

  
Mark J. Braun

\\Box Sync\Board of Regents Shared\BF\Legislative\2024 session\Reports\

Attachments

cc: Michael Peters  
Legislative Liaisons  
Legislative Log

## **ANNUAL ECONOMIC DEVELOPMENT AND TECHNOLOGY TRANSFER REPORT**

**Action Requested:** Receive the report.

**Full Reports Available:** The FY 2024 annual reports from the University of Iowa (UI), Iowa State University (ISU) and the University of Northern Iowa (UNI) are available on the Board of Regents website and will be provided to the General Assembly, Governor's Office, Legislative Services Agency and the Iowa Economic Development Authority as required by law.

**Executive Summary:** Iowa's three public universities collaborate with business and industry and with each other to foster success for economic development and entrepreneurship efforts in Iowa. They significantly impact Iowa daily and demonstrate to the public the value of research through research-based expertise and business assistance directly to Iowa's people, industry and communities in all 99 counties. Conducting academic research also results in intellectual property discoveries and innovations available to business, industry and the marketplace; and it provides Iowa with an educated workforce. Research and scholarship from faculty and staff at the Regent universities often lead to the discovery of innovations that can improve the quality of life for people in the state, the nation, and worldwide.

The Regent universities research and economic activities outlined in their reports meet the Board of Regents Strategic Plan, Priority 2, Objective 2.3: The Regent Enterprise will build strategic collaborations among universities and with outside entities to foster opportunities for innovation and economic development. Each institution shall report annually on significant partnership and/or collaboration activities. This includes both quantitative and qualitative metrics that demonstrate the impact of these activities.

### **FY 2024 Highlights:**

Collectively, in FY 2024, the three universities provided \$1.39 billion dollars in total sponsored funding to the state of Iowa, including \$632 million from competitive federal grants and awards. The Regent universities work diligently to develop breakthroughs that help to improve Iowa's economy through economic development, technology transfer and commercialization of research. The Regent universities faculty and researchers compete with other faculty and researchers from around the world to win this funding for their work. Students are the beneficiaries of this hard work as they get hands-on experience participating in this research.

Externally sponsored projects supplement the instruction, research, scholarship and public services provided by the Regent universities. These funds do not supplant state general fund dollars. This is true for all external funding (federal or non-federal) because it is required by federal regulation that external funds shall supplement and not supplant state dollars.

The Regent universities aid Iowa businesses and start-up companies across Iowa. The numbers fluctuate on an annual basis, but generally reflect an upward trend over several years. In FY 2024, there were 3,956 employees in the 272 companies located in the university research parks and incubators, 215 license and option agreements on institutional intellectual property were executed, and 150 patents were awarded. These numbers only tell part of the story. The value added by aiding licensees and startup companies as they take these typically early-stage research ideas and turn them into revenue is not reflected. In addition, information on revenue from licensed patents is only collected during the patent term, which results in an underreporting of revenue generated from products that contain university technology. Nonetheless, these

statistics reflect excellent performance when compared to similar institutions and reflect the economic value the Regent universities provide to the State of Iowa.

The below charts show the combined statistics for the three universities over the past five fiscal years. See the chart at end of the docket item for the details from each university.

<b>Licenses, Intellectual Property and Patents</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Patent applications filed	250	239	284	289	253
Patents awarded	176	158	150	158	150
Disclosures of intellectual property	237	256	197	215	201
Total license and option agreements executed on institutional intellectual property	85	96	84	136	56
License and option agreements executed on institutional intellectual property <b>in Iowa</b>	34	30	16	27	21
License and option agreements yielding income	260	217	208	201	215
Revenue to <b>Iowa</b> companies as a result of licensed technology	\$10.3 M	\$6.9 M	\$12.1 M	\$11.5 M	\$13.2 M
Royalties and license fee income	\$4.6 M	\$4.8 M	\$6.5 M	\$5.3 M	\$5.3 M

<b>Companies</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Total startup companies formed through licensing activities	7	15	5	7	8
Startup companies formed <b>in Iowa</b> through licensing activities	5	12	3	6	8
Startup companies formed through UNI assistance	99	107	98	75	107
Companies in research parks and incubators	368	277	274	287	272
New companies in research parks and incubators	120	73	95	102	85
Employees in companies in research parks and incubators	3,417	3,266	3,231	3,828	3,956

<b>Income and Funding</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Total sponsored funding	\$1.207 B	\$1,449 B*	\$1.515 B	\$1.277 B	\$1.390 B
Sponsored funding from federal grants	\$648.3 M	\$790.3 M*	\$617 M	\$687.8 M	\$632 M
Total corporate-sponsored funding	\$143.3 M	\$159.8 M	\$199.9 M	\$203.0 M	\$229.3 M
Corporate-sponsored funding <b>in Iowa</b>	\$21.6 M	\$20.59 M	\$27.6 M	\$32.6 M	\$30.9 M

\*FY 2021 sponsored funding includes federal Higher Education Emergency Relief Fund (COVID Relief) funding

**State Appropriations:** Stable state dollars allow the Regent universities to grow Iowa's economy. In many cases sponsored projects, including many federally sourced projects, require cost share (match) funds so that the sponsor and the university have a financial stake in the project. In order to provide cost share, some state dollars are used and in doing so the Regent universities are

able to make every state dollar have twice, and sometimes more, of an impact on the university's instruction, research and public service.

Additionally, federal agencies will only invest in institutions that are financially healthy, compliant with federal regulations that have cutting edge technology and instrumentation, robust public service portfolios, and that have top-tier scholars and researchers. State funding supplies these resources, allowing the Regent universities to attract federal and non-federal funds so that every state dollar invested in the Regent universities has double or more of an impact on Iowa's communities and economy.

For FY 2024, the Iowa General Assembly appropriated nearly \$13.5 million in total funding for economic development, technology transfer and commercialization of research to the three Regent universities, which was an increase of more than \$866,020 from the FY 2023 state appropriation. The two state general fund appropriations for FY 2024, totaling nearly \$4.4 million, are divided as follows:

- Nearly \$4.0 million to ISU and UI for the biosciences innovation program (divided \$2,963,995 to ISU and \$1,000,000 to UI), which is an increase of \$466,020 from FY 2023. The funding continues the four bioscience platforms identified in the TEconomy report where Iowa has the greatest likelihood of achieving a differentiated leadership position to grow and diversify the state's economy: biobased chemicals, precision and digital agriculture, vaccines and immunotherapeutics, and medical devices. The funding will facilitate technology transfer, incubate start-ups and accelerate technology transfer, attract external funding and provide innovation ecosystem services, and develop a skilled workforce.
- \$394,321 to UNI for the expansion of the Metal Casting Center's foundry 4.0 initiatives related to investment castings technology, automation, IoT sensors, and industry support, which is the same as FY 2023. This program was initially funded at \$400,000 in FY 2020.

The remaining \$9.1 million is allocated to the Regent universities from the Skilled Worker and Job Creation Fund (SWJCF):

- \$3 million to the Regents Innovation Fund, which is used in the areas related to technology commercialization, marketing, entrepreneurship, business growth, and infrastructure projects and programs needed to assist in implantation of activities under Iowa Code chapter 262B (Commercialization of Research). The Regent universities invest the funds received from the legislature in opportunities that yield successful startups, innovative business assistance, and critical research leading to commercialization. The universities are required to match the funding on a one-to-one basis from non-state resources. Research grants, private investors or companies interested in a project, and other university funds are often used as match dollars. The legislation divides the funding: 35% to UI, 35% to ISU, and 30% to UNI.
- \$2 million to UI for implementing the entrepreneurship and economic growth initiative. The appropriation is used to expand public/private partnerships and programming through the Pappajohn Entrepreneurial Center.
- \$209,279 to UI for the UI Research Park, Technology Innovation Center and UI Pharmaceuticals (formerly Advanced Drug Development program). UI must direct expenditures for research toward projects that will provide economic stimulus for Iowa and emphasize providing services to Iowa-based companies.
- \$2.42 million to ISU for small business development centers, the ISU Research Park and the Center for Industrial Research and Service. At least \$735,728 must be allocated for

purposes of funding small business development centers. ISU is to direct expenditures for research toward projects that will provide economic stimulus for Iowa and emphasize providing services to Iowa-based companies. The industrial incentive program must focus on Iowa industrial sectors and seek contributions and in-kind donations from businesses, industrial foundations, and trade associations, and that moneys for the Center for Industrial Research and Service industrial incentive program can only be allocated for projects which are matched by private sector moneys for directed contract research or for nondirected research. The match required of small businesses for directed contract research or for nondirected research shall be \$1 for each \$3 of state funds. The match required for other businesses for directed contract research or for nondirected research shall be \$1 for each \$1 of state funds. The match required of industrial foundations or trade associations shall be \$1 for each \$1 of state funds.

- \$1.47 million to UNI for the Metal Casting Center and Foundry 4.0 Centers, Family Business Center, the Center for Business Growth and Innovation, and the Institute for Decision Making. UNI must direct expenditures for research toward projects that will provide economic stimulus for Iowa and emphasize providing services to Iowa-based companies.

### **Annual Report Highlights:**

The University of Iowa secured \$811 million in external funding in FY 2024, including \$683.8 million in funds to support research, scholarship and creative activities at the university. Several sources of federal and private funding trended up during FY 2024, including a significant uptick from the National Science Foundation and the Department of Education. Industry-supported activities, which including clinical trials, rose 17 percent to \$149 million the highest in the institution's history.

Iowa State University secured \$544.6 million in total external funding for FY 2024. ISU researchers attracted a record \$346.2 million to support their projects, the third straight year of record research funding and the second straight of more than \$300 million. The new research total also includes record amounts of both federal (\$236.3 million) and non-federal research funding (\$110 million). Among the organizations to provide major support to ISU research projects include the National Science Foundation and the U.S. Department of Energy.

The University of Northern Iowa provided economic development assistance to all of Iowa's 99 counties for the 25th consecutive year. UNI's economic development outreach programs are housed in the Business and Community Services (BCS) division and work toward supporting UNI strategic goal 2, to "Empower Communities to Shape Their Future." Since 2000, BCS has engaged the entire university community in its outreach efforts, including faculty, staff, students and alumni – all of whom play a critical role in Building a Better Iowa. Client interaction in FY 2024 reached 4,100, a record high for BCS outreach centers and programs.

Indicators	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	ISU	SUI	UNI	Regents Total	ISU	SUI	UNI	Regents Total	ISU	SUI	UNI	Regents Total	ISU	SUI	UNI	Regents Total	ISU	SUI	UNI	Regents Total
Number of disclosures of intellectual property	132	95	10	237	144	101	11	256	82	103	12	197	130	72	13	215	101	87	13	201
Number of patent applications filed	102	146	2	250	114	123	2	239	94	188	2	284	112	175	2	289	129	121	3	253
Number of patents awarded	56 US only; 98 total	76	2	176	50 US only; 71 total	86	1	158	69	80	1	150	97	59	2	158	64 US only; 79 total	69	2	150
Number of license and option agreements executed on institutional intellectual property in total	46	37	2	85	47	47	2	96	34	48	2	84	87	47	2	136	25	29	2	56
Number of license and option agreements executed on institutional intellectual property in Iowa	22	10	2	34	22	7	1	30	10	5	1	16	14	12	1	27	13	7	1	21
Number of license and option agreements yielding income	154	95	11	260	118	87	12	217	113	83	12	208	113	76	12	201	111	92	12	215
Revenue to Iowa companies as a result of licensed technology	\$5.4 million	\$1.1 million	\$3.8 million	\$10.3 million	\$1.7 million	\$1.1 million	\$4.1 million	\$6.9 million	\$5.5 million	2.32 million	\$4.3 million	12.1 million	\$3.0 million	\$4.0 million	\$4.5 million	\$11.5 million	\$3.6 million	\$4.4 million	\$5.2 million	\$13.2 million
Number of startup companies formed, in total (through licensing activities)	4	2	1	7	8	6	1	15	1	3	1	5	1	5	1	7	5	2	1	8
Number of startup companies formed, in Iowa (through licensing activities)	4	0	1	5	8	3	1	12	1	1	1	3	1	4	1	6	5	2	1	8
Number of startup companies formed through UNI assistance	--	--	99	99	--	--	107	107	--	--	98	98	--	--	75	75	--	--	107	107
Number of companies in research parks and incubators	135	211	22	368	134	124	19	277	142	112	20	274	159	105	23	287	146	108	18	272
Number of new companies in research parks and incubators	53	53	14	120	35	23	15	73	45	42	8	95	48	42	12	102	24	54	7	85
Number of employees in companies in research parks and incubators	2,041	1,321	55	3,417	1,913	1,266	47	3,266	1,945	1,253	33	3,231	2,491	1,300	37	3,828	2,651	1,283	22	3,956
Royalties and license fee income	\$3.0 million	\$1.57 million	\$45,100	\$4.62 million	\$2.9 million	\$1.81 million	\$63,400	\$4.8 million	\$2.8 million	\$3.65 million	\$35,600	\$6.5 million	\$3.1 million	\$2.16 million	\$49,068	\$5.3 million	\$3.0 million	\$2.3 million	\$68,810	\$5.3 million
Total sponsored funding	\$494.7 million	\$666.2 million	\$46.9 million	\$1,207 million	\$559.1 million*	\$818.04 million*	\$72.4 million*	\$1,449 billion*	\$601.7 million	\$867.2 million	\$46.5 million	\$1,515 billion	\$530.5 million	\$704.1 million	\$42.7 million	\$1,277 billion	\$544.6 million	\$811.0 million	\$35.1 million	\$1,390 billion
Sponsored funding from federal grants	\$272.5 million	\$346.7 million	29.1 million	\$648.3 million	\$303.5 million*	\$431.3 million*	\$55.5 million*	\$790.3 million*	\$251.7 million	\$343.1 million	\$22.2 million	\$617 million	\$301.3 million	\$366.3 million	\$20.2 million	\$687.8 million	\$298.7 million	\$314.3 million	\$19 million	\$632 million
Corporate-sponsored funding in total	\$51.2 million	\$91.1 million	\$1.0 million	\$143.3 million	\$51.5 million	\$107.1 million	\$1.2 million	\$159.8 million	\$62 million	\$136.6 million	\$1.27 million	\$199.9 million	\$67.6 million	\$134.2 million	\$1.22 million	\$203.0 million	\$70.5 million	\$157.7 million	\$1.12 million	\$229.3 million
Corporate-sponsored funding in Iowa	\$11.8 million	\$8.8 million	\$1.0 million	\$21.6 million	\$12.2 million	\$7.49 million	\$900,000	\$20.59 million	\$18.8 million	\$8 million	\$800,000	\$27.6 million	\$22.8 million	\$8.8 million	\$950,000	\$32.6 million	\$19.4 million	\$10.7 million	\$825,000	\$30.9 million

\* FY 2021 total sponsored funding includes CARES Act: Higher Education Emergency Relief Fund (COVID Relief) funding

# IOWA STATE UNIVERSITY

## OF SCIENCE AND TECHNOLOGY

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### FY24 ANNUAL ECONOMIC DEVELOPMENT AND TECHNOLOGY TRANSFER REPORT TO BOARD OF REGENTS, STATE OF IOWA

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**PRESENTED BY:**

David Spalding  
Raisbeck Endowed Dean, Debbie and Jerry Ivy College of Business  
Vice President, Office of Economic Development and Industry Relations  
October 1, 2024

## Iowa State University

### Annual Economic Development and Technology Transfer Report – FY2024

As the land-grant institution in the very first state to adopt the Morrill Act, Iowa State University supports the land-grant ideals of putting science, technology, and human creativity to work. Iowa State's Economic Development and Industry Relations (EDIR) team in partnership with Iowa State Extension is focused on innovation and economic prosperity in all 99 Iowa counties.

Economic development is a top priority at Iowa State, and the university is very proud of the impact it has on both the lives of its students and our state economy. Iowa State's economic development programs, services and initiatives contribute to the overall positive net impact the university creates on Iowa's business community and the return on investment it generates for students, taxpayers, and society. Through President Wendy Wintersteen's Innovation and Entrepreneurship Initiative, we are embedding innovation and entrepreneurship more deeply into our culture and curriculum. By doing so, we are cultivating the next generation of innovators and entrepreneurs while responding to the needs of our communities and state.

Iowans can count on Iowa State to serve as a trusted resource, using our core strengths— innovation, science-based extension and outreach, and education. Our economic development and innovation efforts have also been recognized nationally and globally. EDIR consists of the following key university economic development units that provide integrated and comprehensive business, technical, entrepreneurial support, and educational services to Iowa State's clients and partners:

- Center for Industrial Research and Service (CIRAS)
- Iowa State University Research Park (ISURP)
- Office of Innovation Commercialization (OIC)
- Iowa's Small Business Development Centers (SBDC)
- Pappajohn Center for Entrepreneurship (JPEC)

Iowa State's Economic Development and Industry Relations department is focused on innovation and economic prosperity for all 99 counties in Iowa. It was designed as a one-stop shop for businesses and entrepreneurs who want to work with Iowa State. There are countless ways for businesses, founders, and innovators to engage with Iowa State and the entities in EDIR, and our Iowa State Extension partners are many times the starting point. Our focus in EDIR is on initiating, broadening, and strengthening these interactions into meaningful engagement opportunities across campus for the betterment of the state economy.

We have been recognized both nationally and globally for our work in Economic Development and innovation. Iowa State won the 2023 Innovation and Economic Prosperity Connection Award from the Association of Public and Land-Grant Universities, which is their top award for Economic Development. This is our fifth award from the group in the last seven years, and we were a finalist one other year.

Financially, Iowa State has a major impact on the economy of the state of Iowa. This is backed up by an analysis recently completed of Iowa State University's economic impact on the state of Iowa for the fiscal year ending June 30, 2022.

- Iowa State produced a \$5 billion impact that year.
- Iowa State supports 57,142 jobs – or 1 out of every 36 jobs in Iowa.
- ISU research spending and activities created a net total of \$235.3 million in added income for the state economy.

We are one of the leading research universities in the United States. Last year Iowa State ranked in the top 3% in research funding among all universities that don't have a medical school. Our students benefit from studying at a major research university because the faculty who teach them need to be at the leading edge of their fields and they bring that knowledge back into the classroom. Many of those researchers also get engaged in research projects for industry. Areas where we engage with companies include:

**WORKFORCE:** Iowa State graduated almost 6,800 students this past academic year, and we provide more graduates who stay in Iowa than any other university in the United States. We work closely with industry to meet their hiring needs and achieve successful placement outcomes for our graduates. Our Career Services and corporate engagement teams partner with businesses to meet their needs by developing internship programs, offering speaking opportunities on campus, engaging with student organizations, and positioning them at our career fairs. Many companies utilize our research park as a training hub and beachhead location to help them retain interns and to serve as a continuing pipeline into recruitment.

**RESEARCH:** This is the driving force behind economic development at Iowa State. The resources available through the EDIR office allow businesses to access a wide range of researchers and connect with services to help businesses grow and thrive. Multiple businesses have set up innovation and technical scouting offices at our research park for a closer view into the intellectual property being generated both at the university and by our startup community.

Groups like the Translational Artificial Intelligence Consortium at Iowa State are another example of corporate engagement. In addition to hosting events on next generation technologies, businesses can access faculty expertise across the university by engaging directly with our scientific and research community through sponsored research, hiring graduate students, or a variety of other means.

**UPSKILL, RESKILL, CONTINUING EDUCATION:** Iowa State offers tailored curriculum and programs to upskill, reskill and support leaders with continuing education, such as the Executive MBA program. We also offer a variety of fully online programs for working professionals including masters of Seed Technology and Business; masters of Business Analytics; masters of Engineering Management; and MBA. Iowa State also recently launched fully customized education programs for individual companies to meet their needs. These include both upskill classroom and bootcamp type engagements; content is driven by corporate partners and paired with university faculty.

**FACILITIES AND EQUIPMENT:** Iowa State also has facilities and equipment available for industry partners to access via a fee for service model. Oftentimes, there are pieces of equipment that are costly to

purchase that a company might only need to use periodically, and those can be accessed for public use. This could include anything from scale up facilities, to field access, to milling and grinding equipment, gene sequencers and more. An example is an Off-Highway Vehicle Chassis Dynamometer for testing of complete highway vehicles.

A closer look at our EDIR organizations and partners follow:

**The Center for Industrial Research and Service (CIRAS)** works with business and industry across all 99 counties to enhance their performance through service offerings in five general areas: technology, growth, productivity, leadership, and workforce. CIRAS leverages five federal funding programs with state and private resources, and has staff and partners located across campus and across the state. Since 1963, CIRAS has partnered with Iowa companies and communities to help them prosper and grow. A vast network of university and industry experts brings years of professional experience to CIRAS, making it a leading integrator of solutions in Iowa. Over the past five years, CIRAS and its partners have reported impact from companies totaling more than \$3.1 billion and more than 38,000 jobs created or retained because of the assistance they received.

**CIRAS FY24 HIGHLIGHTS:** Last year, 2,015 businesses from 99 counties in the state received assistance on projects or attended educational workshops from CIRAS staff or partners.

Dobson Pipe Organ Builders, a world-renowned Lake City manufacturer of high-quality pipe organs lost their facility to a fire in 2021. “The minute I reached out to Derek [Thompson, CIRAS Strategic Advisor], I felt such a weight off my shoulders,” said Deanna Hoeg-Ryan, Dobson’s business manager. “He told me, ‘We’ve got this, and we will help you.’” CIRAS has supported the recovery in a variety of ways including strategic planning support, forensic accounting, lean manufacturing implementation, and connections to financial support through the Iowa Economic Development Authority’s Manufacturing 4.0 Technology Investment Grant program and the Iowa Area Development Group’s low interest loan programs. Dobson’s new factory in Lake City is nearing completion.

In partnership with the Iowa SBDC and CIRAS, Senator Joni Ernst hosted the Senator Ernst’s Entrepreneur Expo in Ames on September 22, 2023. This event connected Iowa’s small businesses with procurement and technology decision-makers from Washington, D.C. Attendees gained insights into government contracting and innovation programs. The CIRAS APEX Accelerator team contributed to panel discussions, workshops, and networking. The second annual event was held August 6, 2024.

Agri-Industrial Plastics in Fairfield maximized its Iowa Lean Consortium membership through participation in the Continuous Improvement Cohort pilot group. Chris Meyers, director of Quality & Continuous Improvement, stated, “We gained valuable connections and learned from speakers about the impact of continuous improvement. We look forward to sharing Agri-Plastics’ implemented ideas.”

Dickson Industries, a Des Moines-based producer of custom food packaging and textiles, had the potential to increase its sales. “We were looking at automation of some tasks, not because we wanted to replace workers but because we wanted to supplement what they were doing,” said President David Dickson. CIRAS was able to provide the expertise needed to perform detailed task analysis and help Dickson vet vendors and estimate equipment pricing and the impact on the company’s immediate business and long-term goals. The project included automating the fabric cutting and movement through

the process with numerous sensors to help manage the process. These changes will allow the current operator to manage multiple systems, freeing capacity for growth.

The Metrix Co. of Dubuque partnered with Northeast Iowa Community College and CIRAS for strategic guidance and coaching, resulting in a united management team actively pursuing the company's vision. Metrix anticipates a financial impact of more than \$500,000. CEO Dan Schoen acknowledges, "Thanks to our partnership with CIRAS, our leadership team is now efficient, collaborative, and results oriented."

Varsity Group of Urbandale sought SAM.gov assistance from CIRAS, securing a \$25,000 government contract. Kevin Moreland, marketing specialist, praises CIRAS for simplifying the process and being readily available, stating, "CIRAS comes with our highest recommendation."

Demco, in Boyden, has collaborated with CIRAS and Iowa State University since 2018 on capstone projects. In 2023, they recruited students at the Iowa State Engineering career fair, crediting their success to collaboration with CIRAS. Chris Dailey, manufacturing engineer, emphasized early student engagement, praising CIRAS for enabling valuable experimentation in small businesses.

**The Iowa State University Research Park (ISURP)** provides a resource-rich environment where innovators flourish. ISURP is a bricks and mortar real estate development, but its value to its tenants, Iowa State, and the Iowa economy lies in its concierge-style engagement for tenants with the university and the seamless coordination it offers tenant partners. This includes proximity and easy access to Iowa State for both start-ups and established companies that range from growing entrepreneurial ventures to global corporations. Tenants can seamlessly access Iowa State's vast array of workforce with customized solutions, the research enterprise, equipment and more, and the proximity to the university is a differentiator for retention and conversion of talent and innovation. ISURP offers high quality labs and office space, as well as numerous community events, services and amenities that support the efforts of science- and technology-based organizations.

**ISURP FY23 HIGHLIGHTS:** Fiscal year 2023-2024 has been a remarkable period for the ISU Research Park (ISURP), marked by significant achievements and milestones that have further solidified our position as one of the nation's leading innovation campus. This year, it has continued to foster a dynamic environment that supports the growth and success of our tenant companies, researchers, and the broader community through its holistic engagement model.

One of the standout highlights of this fiscal year has been the expansion of its facilities. A new building for PivotBio was completed in December 2023 and the Alliant Ag Innovation Lab will be completed in December 2024. These two buildings add 120,000 square feet to ISURP expanding it by 15%. This expansion has enabled us to accommodate an additional 24 tenant companies bringing the total number of tenants to 146. We've also added talent hub locations for several rural based Iowa manufacturing companies including Mason City based Curries.

Our commitment to fostering innovation and collaboration has been evident through the numerous events and programs hosted at ISURP. This year, it organized nearly 30 events, including workshops, seminars, and networking sessions, attracting more than 1,000 participants. These events have provided valuable opportunities for knowledge exchange, skill development, and partnership building.

In terms of economic impact, ISURP has continued to be a significant contributor to the local and state economy. Its tenant companies have collectively generated hundreds of millions in state revenue and created more than 1,000 high-quality jobs. Additionally, we have seen a substantial increase in research and development activities, with over \$100 million invested in R&D projects.

Looking ahead, we are excited about the prospects for ISURP. It has begun work on its first housing initiative, which will provide 125 critical housing units for tenant employees, and three additional mixed-use structures that will provide additional tenant, living and retail spaces. It has also broken ground on a 30,000 square foot facility for Strand Engineering, which will provide a pipeline to the company for civil and environmental engineering talent from Iowa State. These initiatives will further enhance its ability to support the growth and success of its tenant companies and contribute to the overall economic development of the region.

Additionally, its pipeline remains full. Currently ISURP has three large projects in its development pipeline that would bring more than 300 jobs to its market and more than \$100M in capital investment in hard infrastructure.

In conclusion, the fiscal year 2023-2024 has been a year of growth, innovation, and impact for ISU Research Park. We are proud of our achievements and look forward to continuing our mission of fostering innovation, collaboration, and economic development in the years to come.

**The Office of Innovation Commercialization (OIC)** serves the Iowa State University community and the state of Iowa by commercializing intellectual property resulting from the research activities at ISU. Consisting of the Iowa State University Research Foundation (ISURF) and the Office of Intellectual Property and Technology Transfer (OIPTT), OIC develops and executes appropriate protection and licensing strategies for both pre-partnered innovations (funded by industry-sponsored research agreements) and un-partnered technologies (primarily funded through federally sponsored research programs). Both established and startup companies benefit from licensing intellectual property rights from ISURF by creating new products, decreasing manufacturing costs, improving revenue streams, and increasing market share.

**OIC FY24 HIGHLIGHTS:** Iowa State University researchers submitted 101 intellectual property disclosures (not including datasets) and ISURF filed 129 patent applications. In calendar year 2023, Iowa State was recognized for having 49 issued U.S. utility patents, ranking 42<sup>nd</sup> of the top 100 U.S. universities and 64<sup>th</sup> of the top 100 worldwide universities granted U.S. utility patents by the National Academy of Inventors.

In FY24, Iowa State was awarded 64 U.S. utility patents and an additional 15 patents from foreign countries for an overall total of 79. ISURF executed 25 license and option agreements for ISU technologies in FY24, 13 of which were with Iowa companies. ISURF currently has 111 license and option agreement which are yielding income. Iowa companies reported \$3.6 million of revenues from ISU-licensed technologies in calendar year 2023, and five startup companies were formed during that time period to commercialize ISU technologies. Global sales of licensed technologies exceeded \$133 million. ISURF has been self-supported since 1992 through returns on its licensed technology portfolio; in addition, ISURF has returned over \$7.8 million over the last ten years to Iowa State and the Ames National Laboratory to support further investments in the research enterprise. ISURF distributes royalty revenue in accordance with the royalty sharing policy to technology inventors, and net earnings

exceeding what is needed to support ISURF's operations are utilized to support research initiatives as recommended and approved by the ISURF Board of Directors.

The Office of Intellectual Property and Technology Transfer negotiates and executes sponsored research agreements for ISU with industry partners and commodity groups, as well as non-disclosure agreements and material transfer agreements for Iowa State University. In FY24, OIPTT handled more than 1000 agreements.

Researchers at the Nanovaccine Institute at ISU have developed a revolutionary delivery method for flu immunogens involving nanoparticles that are approximately 300 billionths of a meter in diameter. Temperature stable, relieving the need that many vaccines have for cold chain storage and transportation, this technology has the potential to transform annual flu vaccinations from intramuscular injection to a sniff of a nasal spray. A new startup company has been formed and entered into an option agreement with ISURF to commercialize this technology.

Iowa State University researchers at the BioEconomy Institute have developed a high throughput method to pyrolyze biomass to produce a variety of products including biochar as a soil amendment and slow-release fertilizer as well as pyrolysis oil that can be upgraded to be used as a fuel. Members of that research team have formed a startup company to commercialize modular pyrolysis systems that will be mass manufacturable and easily deployable throughout the U.S. ISURF entered into a license agreement with the startup and is working with them to explore other applications.

**The Small Business Development Center (SBDC)**, administered by Iowa State, consists of 15 regional centers serving all 99 counties in Iowa. SBDC assists individuals interested in starting new companies and provides business services and counsel to existing small companies across Iowa to solve management problems, to improve operations, to seek financing, and to pursue new opportunities. Iowa State also operates two of the regional centers.

**SBDC FY24 HIGHLIGHTS:** Iowa's Small Business Development Center supports thousands of businesses every year across many different industries. In State fiscal year 2024, the Small Business Development Center (SBDC) supported 5,017 companies across Iowa-- a minimum of five distinct clients in every Iowa county.

SBDC helps businesses in a variety of ways, including business planning, customer discovery, cash flow projections, financial analysis, loan proposal/capital request assistance, business growth strategies, marketing strategies, startup assistance, export assistance, and market research. The 5,017 businesses supported by SBDC accounted for \$56,121,294 in new capital totaling 459 capital events and an increase of \$108 million in sales, including the creation of 1,202 jobs and 156 business starts.

SBDC also awards two Entrepreneur of the Year prizes. Melissa Fabian, Owner, Simply Nourished Market & Mercantile is the Deb Dalziel Woman Entrepreneur of the Year Award. Melissa has established an extraordinary local and specialty food market. She ensures that Simply Nourished primarily sources its products from local businesses in an effort to build community morale and support. She is constantly showing her thoughtfulness and admiration for her community. Melissa is the pinnacle of what it means to be a small business owner in Iowa.

The Neal Smith Entrepreneur of the Year Award honors an Iowa entrepreneur and the 2024 award winner is Dustin Rhoades, Owner, Ability Tech, a company focused upon creating adaptive technology solutions for individuals with disabilities. Dustin and his team of creative engineers have been creating custom adaptive technology for individuals with disabilities for the past 5 years. Dustin, Shanna, and kids have been working closely together as a family to make sure that their projects are personalized to meet each client's individual's needs. Dustin is dedicated to pioneering and producing adaptive technology tailored for individuals with disabilities in Sioux City and the surrounding areas. He exemplifies entrepreneurship, prioritizing quality, community investment, and involvement. Dustin serves as a community advocate and mentor, contributing significantly to the well-being of Sioux City while being a beacon of hope for all.

**The Pappajohn Center for Entrepreneurship (JPEC)** serves entrepreneurs on campus and in the community, providing entrepreneurial opportunities, including a statewide tech startup incubator, student accelerator, statewide and local business plan and pitch competitions, and participating in university-wide academic programs in entrepreneurship ranging from a cross-campus minor to a PhD program in entrepreneurship. JPEC has locations in ISURP and on campus in the Student Innovation Center. Flagship programs include the Iowa State Startup Factory incubator, CYstarters student accelerator, and CyBIZ Lab student consulting program.

**JPEC FY24 HIGHLIGHTS:** Iowa State's entrepreneurship programs have received a number of accolades in the past few years, validating its work to inspire entrepreneurship and innovation on and around campus. Iowa State remains one of the top undergraduate entrepreneurship programs in the nation as rated by the Princeton Review (#12 in 2024, #11 in 2023, 2022, and 2021). The U.S. Association for Small Business and Entrepreneurship (USASBE) awarded the program two of its top awards, USASBE Model Program (2021) and USASBE Model University Accelerator (2024). The Accreditation Council of Entrepreneurial and Engaged Universities (ACEEU) awarded Iowa State the prestigious Entrepreneurial University of the Year award (2023) and runner up Entrepreneurial Initiative of the Year (2024). The Pappajohn Center for Entrepreneurship was awarded the Global Consortium of Entrepreneurship Centers (GCEC) Nasdaq Center for Entrepreneurial Excellence Award in 2022, the organization's highest and most respected designation.

In 2023-24, the Iowa State Pappajohn Center and local Small Business Development Centers served 1,738 clients, delivering 6,545 hours of mentoring, which was responsible for 129 new ventures, 234 new jobs, and resulted in nearly \$13.4M in capital raised.

The ISU Pappajohn Center touched more than 4,600 people through its programs, workshops, competitions, and student programs (not including academic courses). More than \$245,000 was awarded to young entrepreneurs, including \$61,000 in national prize awards that helped seed new startups. Programs focus on pitching, business model canvas, food insecurity, innovation, and other topics. The Center also connects entrepreneurs to professional service providers.

With a broad-reaching academic program and close to 100 courses with an entrepreneurship focus or component across all six undergraduate colleges, more than 14,000 students took entrepreneurship courses in the past academic year. The Ivy College of Business reported 165 entrepreneurship majors,

an additional 38 students with a double major including entrepreneurship, and 161 students have pursued the minor in entrepreneurship. Many of these students participate in the Pappajohn Center's co-curricular programming opportunities or are involved in student organizations focused on entrepreneurship.

CyBIZ Lab, our interdisciplinary student consulting agency, served 48 companies and employed 65 students this year. CyBIZ Lab, which recently celebrated its 10<sup>th</sup> anniversary, provides the opportunity for cross-functional teams of undergraduate and graduate students to work on fee-based business and organizational projects. It also gives founders, entrepreneurs, and businesses a chance to solve a business problem, while working alongside student consultants. CyBIZ partners with ISU economic development to provide market validation services that support tech faculty intending to commercialize their discoveries.

Iowa State Startup Factory is a startup incubator helping researchers and inventors develop a roadmap to realize the societal and economic impact of their high-tech innovations. In FY24, Iowa State Startup Factory served 21 companies (32 participants) that attracted \$5.4M in capital. Since its inception in 2016, 137 companies have completed the program, 147 jobs have been created by those companies. The startups have self-reported \$27.6M in dilutive and non-dilutive funding raised in 2023-24, and \$98M total since 2016. Program staff and Entrepreneurs-in-Residence (EIRs) contributed just shy of 1,000 hours of individual mentoring support to companies as part of the Venture Mentoring Service, an MIT-modeled program focused on team-based mentorship for startup founders and entrepreneurs. Iowa State Startup Factory's footprint extends beyond Iowa, with collaborations in Kenyatta University in Kenya.

When Iowa State Startup Factory companies complete the program, they are oftentimes not mature enough to seek external investment. Iowa Go-To-Market (G2M), a partnership between BioConnect Iowa, the Iowa State University Startup Factory, and VentureNet Iowa, provides follow-on support for Iowa entrepreneurs who are developing technology-driven innovative products or services and need additional support to increase their livelihood of commercial success. In 2023-24, G2M served 5 companies (9 participants) that received \$1.19M in new funding. Program staff and the G2M EIRs contributed close to 700 hours of individual mentoring to participating companies.

CYstarters is an 11-week summer accelerator for Iowa State students or recent graduates to focus on their startup or business idea. In August, the summer accelerator completed its annual 11-week immersive training program for 14 student ventures (17 participants). Staff and professional service providers in the community contributed more than 200 hours of individual mentoring to program participants. An additional 33 professionals, alumni, and peer mentors volunteered time supporting the student ventures.

## **RESEARCH**

For the second consecutive year, Iowa State University received more than \$300 million and established a new record for **external sponsored research funding**. The [\\$346.2 million received](#) during the 2024 fiscal year is an increase of \$44.9 million or 14.9% compared to the previous record of \$301.3 million set in FY23.

The new total research funding benchmark was achieved through new record levels of both federal and non-federal research funding: \$236.3 million and just under \$110 million, respectively. The \$236.3 million eclipsed the previous record of \$206.9 million set in FY23 by \$29.4 million or 14.2%, while the non-federal research funding amount of nearly \$110 million surpassed the previous record of \$94.5 million, also set in FY23, by \$15.5 million or 16.4%. **Total external funding** for the university closed at [\\$544.6 million for FY24](#), up \$14.1 million or 2.7% from the \$530.5 million received in FY23.

Here are just four notable new projects that received initial funding in FY24:

- Partha Sarkar, a professor of aerospace engineering, will lead a national team that's designing and planning [a center that will study windstorms](#) and their effects on buildings and infrastructure. The goal is to engineer improvements that reduce structural damage. The [National Science Foundation](#) is supporting the effort with a four-year, \$14 million grant.
- Ajay Nair, professor and chair of horticulture, is leading a multidisciplinary study of [agrivoltaics](#) that's using solar farms to harvest energy and crops. Researchers are raising bees and growing vegetables, fruits, and pollinator habitat within the 10-acre [Alliant Energy Solar Farm at Iowa State University](#). The [U.S. Department of Energy](#) is supporting the project with a four-year, \$1.8 million grant.
- Lisa Schulte Moore – a professor of natural resource ecology and management, a co-director of Iowa State's Bioeconomy Institute and a 2021 MacArthur Fellow – is the Iowa State leader of a project encouraging more farmers to plant cover crops and perennial prairie grass. A potential incentive is demonstrating how harvested winter-hardy crops and grass can be processed into [renewable natural gas](#). [Roeslein Alternative Energy](#), an industry partner based in St. Louis, is supporting Iowa State's studies with an award of nearly \$10.6 million.
- Manimaran Govindarasu, an Anson Marston Distinguished Professor in Engineering and the Murray J. and Ruth M. Harpole Professor in Electrical and Computer Engineering, is leading the work to create a new [cybersecurity center](#) based at Iowa State that will protect wind and solar farms and local microgrids from cyberattacks. The U.S. Department of Energy is supporting the project with a two-year, \$2.5 million grant.

**BIOSCIENCES-BASED INITIATIVES** Iowa State continues to expand the impact of the university's Biosciences-focused Innovation Ecosystems with Iowa Legislature support, and in partnership with [BioConnect Iowa](#). The legislature allocated \$2.96M for FY24 to support Iowa State's research and development efforts across three Biosciences platforms: Biobased Products; Digital and Precision Agriculture; and Vaccines, Diagnostics, and Immunotherapeutics.

The state's investment has resulted in platform dollars being invested in a variety of ways to create additional opportunities in each targeted area including leveraging funds to win federal research and development awards, providing seed funds to university startups for scale up opportunities, and the purchase of shared equipment to support research and entrepreneurial scale up. Some outcomes

include:

- ISU received more than \$30 million in grant awards in the Biobased Products area in 2023, including:
  - A five-year \$20M NSF EPSCOR award that includes funding for biomaterials research initiatives;
  - A \$2.0 million NSF award for the conversion of natural gas and biomass to hydrogen and performance carbons; and
  - A \$1.8M DOE award for the development of microbial organisms and fermentation processes for the production of bioproducts.
- SoilSerdem and EnGeniousAg, two Iowa-based innovation-driven companies advised by the Digital and Precision Agriculture platform, were each awarded \$1-million NSF Phase II SBIR grants. In addition, ISU researchers leveraged a breakthrough from a previous platform seed-funded project to obtain a \$300,000 award from USDA-AFRI.
- The Vaccines, Diagnostics and Immunotherapeutics platform facilitated more than \$950,000 in external funding from a spectrum of companies ranging from smaller startups (Genevax, MAZEN) to global multi-nationals (Boehringer, MERCK, CEVA). In May 2024, the platform also supported **NANOVAX 2024** . . . *Manufacturing, Distribution, Deployment, and Regulation*, a global meeting on advanced technology with a focus on regulation and manufacturing.

**IOWA STATE EXTENSION AND OUTREACH** spurs economic development across the state through its Agriculture and Natural Resources, Community and Economic Development, Human Sciences, and 4-H Youth Development programs.

With agricultural commodity prices and profits declining, farmers are looking to boost productivity by optimizing the technology they rely on. For the past three years, **Planter University** has taught more than 600 farmers and ag industry professionals how to improve planter efficiency and increase profits during the growing season. With a sample of participants reporting value of greater than \$5 per acre gained from the workshop, the estimated economic impact of Planter University tops \$2.6 million. Funding from the Skilled Worker Job Creation Fund, which was part of the 2023 statehouse funding, has enabled Planter University to expand. Pilot programs for drone workshops have been launched in 2024 and Combine University is scheduled to launch in 2025.

The **Rural Housing Readiness Assessment program**, led by ISU Extension and Outreach, is making a significant difference in addressing critical housing challenges facing Iowa's rural communities. Since its launch in 2020, the program has empowered 60 communities to create actionable plans for improving their housing stock and leveraged \$360,000 in initial grant investment from the Iowa Economic Development Authority. Communities are reporting impressive results, including new housing construction, neighborhood revitalization, and increased access to affordable housing. For example, for Newton, Grinnell, Nevada, Keokuk, Creston, Rock Valley, and Emmetsburg, a combined, conservative estimate of housing value added is \$86 million, with planned housing development in these communities totaling an additional \$85 million.

A Louisa County 4-H club conducted an energy audit that ultimately led to a solar panel installation for their school, which is projected to provide nearly \$1.5 million in life-time energy savings for their school district. Their effort involved collaborating with industry leaders and high school tech mentors and

pitching their proposal to the school board. This **youth-led innovation** inspired the City of Wapello to install solar panels on 10 facilities, generating another \$1.6 million in projected energy savings over the next 30 years.

ISU Extension and Outreach continues to provide **vital workforce training across Iowa**. More than 9,500 educational contacts occurred via private pesticide applicator trainings in which participants improved their ability to safely use pesticides across Iowa’s farm fields. In Iowa’s food service industry, more than 1,600 food service managers and employees participated in ServSafe® classes, gaining the knowledge they need to protect the public from foodborne illness. In FY24, 139,140 childcare teachers and home providers participated in professional development, increasing their understanding of child development, early learning, managing children’s behavior, nutrition, and health and safety practices. Extension’s Municipal Professionals Institute and Academy improve the efficiency of municipal governments: in Federal FY23, 405 municipal professionals received training in new laws, programs, and technology.

Through the **Volunteer Income Tax Assistance program**, Human Sciences extension specialists trained and supported 128 community volunteers who completed IRS certification and then provided free tax preparation to qualified individuals with low or moderate income. With county extension administrative support at 30 locations across the state, the volunteers assisted 2,929 Iowans, saving them a total of \$593,120 on tax preparation fees. The volunteers also helped 463 of these Iowans access their Earned Income Tax Credits, resulting in an estimated benefit of more than \$1.4 million to Iowa communities.

<b>Summary of ISU Economic Development and Innovation Data</b>	
a. Number of disclosures of intellectual property (excluding data sets)	101
b. Number of patent applications filed	129
c. Number of patents awarded: U.S. issued patents	64
Foreign patents	15
Total issued patents	79
d. Number of license and option agreements executed on institutional technologies: in total	25
in Iowa	13
e. Number of license and option agreements yielding income	111
f. Revenue to Iowa companies as a result of licensed technology (CY23)	\$3.6M

g. Number of startup companies formed (through licensing activities)	
in total	5
in Iowa	5
h. Number of companies in research park and incubators	146
pre-incubator companies private	29
university related	22
i. Number of new companies in research park and incubators	24
pre-incubator companies private	48
university related	0
j. Number of employees in companies in research park and incubators	2651
k. Royalties and license fee income	\$3.0 million
l. Total sponsored funding received	\$544.6 million
How much of this is for research	\$346.2 million
m. Corporate sponsored funding received for research and economic development: in total	\$70.5 million
in Iowa	\$19.4 million
n. Iowa appropriations for economic development, in total	\$3.473 million
SBDC	\$0.936M
CIRAS Technology Assistance Program	\$1.365M
ISU Research Park	\$0.122M
Regents Innovation Fund	\$1.050M
o. Research expenditures (federal, state and local; business; nonprofit; institution funds; all other sources, FY24):	\$319.9 million

p. Licenses and options executed per \$10 million research expenditures (2022 AUTM Survey)	0.8
q. Sales of licensed products by Iowa-based companies (CY23)	\$3.6 million

Regents Innovation Funding (RIF) supports both entrepreneurial infrastructure as well as faculty founders. Nearly half of the Economic Development & Industry Relations RIF funding supports the Innovation Acceleration Fund (IAF), a highly competitive program that awards grants up to \$50,000 to ISU faculty working on marketable research discoveries across campus. A summary of this year's grant projects is provided below.

#### Summary of FY24 RIF Commercialization Program Projects

<b>Principal Investigator</b>	<b>FY23 RIF Commercialization Program Projects (\$447,720 of \$1,050,000 RIF Allocation)</b>	<b>Award Amount</b>
<b>Dr. Nicole Hashemi (Mechanical Engineering)</b>	Demonstrate scale-up and effective performance of novel BBB (blood-brain-barrier) technology, as well as validate the technical and economic performance with the goal of advancing treatments for neurological disorders such as Parkinson's Disease.	\$50,000
<b>Dr. Eric Cochran (Chemical and Biological Engineering)</b>	Development of a new formulation of a soybean oil-based polymer system originally used as an asphalt modifier. Successfully eliminated the use of the plasticizer component, replacing it with non-VOC curable solvents.	\$50,000
<b>Dr. Greg Curtzweiler (Food Science and Human Nutrition)</b>	Determine the cost and environmental impact of manufacturing encapsulated prebiotic for chicken gut inflammation mitigation. Upon scaling up production, we observe a substantial increase in both capital investment and revenue. While operating costs rise, they do so at a slower pace compared to revenue, indicating potential economies of scale.	\$50,000
<b>Dr. Tannon Daugaard and Dr. Ryan Smith (Bioeconomy Institute)</b>	Project focused on identifying potential feedstocks and suppliers of the feedstocks for conversion in autothermal pyrolysis, as well as making MVPs from the process. Project allowed for "real world" feedstocks through autothermal pyrolysis and focused on commercial strategies not typically evaluated through an academic lens. We found it makes the commercial sense to focus on one or two of the MVPs, e.g. phenolic oil and biochar.	\$48,773
<b>Dr. Shang Jiang (Materials Science Engineering)</b>	Synthesis and formulation of nanoinks for advanced manufacturing of electronics. Achieved two primary objectives. First, scaled up reaction to 1-liter reactor. Second, developed a bending test to assess the flexibility of printed patterns using nanoinks. Created a new nanowire synthesis, for which we filed a patent disclosure.	\$50,000

<p><b>Rui Li (Apparel, Events &amp; Hospitality Management)</b></p>	<p>Conducted a series of smoke generation and fabric exposure experiments to investigate mechanisms by which fine and ultrafine smoke particles interact with porous textile structures. Findings revealed particles form through physical bonding of chemical constituents, such as polycyclic aromatic hydrocarbons, into stacked clusters via dispersive or van der Waals forces. We propose applying a charged surface treatment through chemical plating to prevent particle deposition and clustering. Findings will support SBIR proposal to further explore countermeasures for PPE contamination and effective decontamination.</p>	<p>\$50,000</p>
<p><b>Dr. Jared Anderson (Chemistry)</b></p>	<p>Develop supports based on magnetic ionic liquids that can be employed to accelerate the extraction/capture of DNA and concentration of E.coli bacterial cells. A total of 17 different ion-tagged oligonucleotide (ITO) probes were synthesized and their loading measured two different magnetic ionic liquids (MIL). Commercialization of this technology is being expanded towards the analysis of bacteria and viruses from foods, where this technology can achieve high capture of low copy number nucleic acids from highly complex samples.</p>	<p>\$50,000</p>
<p><b>Dr. Aaron Sadow (Chemistry)</b></p>	<p>Develop commercialization pathway for synthesis of diesel from plastic waster. Identified initial customers for piloting and testing MFP – sustainable diesel. Initiated fundraising round and secured interest from customers for additional end uses of product, including kerosene and processing fluid.</p>	<p>\$50,000</p>
<p><b>Dr. Siddique Abbobucker (Agronomy)</b></p>	<p>Doubled haploid (DH) technology can accelerate plant breeding by reducing the time needed to produce pure breeding lines in two generation vs. greater than six generations in conventional breeding. Discovered a mutation in a single gene called parallel spindle (ps1) restoring HMF in Arabidopsis and maize. Project goal is to incorporate ps1 mutation into relevant maize germplasm, while maintaining most of the genetics of the relevant maize germplasm for potential licensing to breeding companies.</p>	<p>\$48947</p>

## The University of Iowa

### FY24 Annual Economic Development Report

Ranked as a top-200 “best global universities” and #46 “best public university” accompanied by 35 consecutive years with one of the nation’s “best academic hospitals” including three disciplines ranked in the nation’s top 50, the University of Iowa stresses bringing “learning and discovery into the service of the people of the state of Iowa, the nation and the world” as a central mission. Translation of research and knowledge generated by University of Iowa faculty, staff and students is a central means through which this mission is accomplished. Those actions subsequently produce a positive impact on the economy of Iowa. The University’s 2022-2027 strategic plan calls to “Accelerate entrepreneurship and support broader economic development through innovative engagement and partnerships with industry and community organizations.” This strategy is implemented by:

- Creating increased opportunities for entrepreneurial education, new venture creation, technology transfer, with a specific focus in medtech innovation, and
- Connecting faculty, staff, and students to organizations and subject matter experts to solve unmet needs in social, health, technical, and business.

A robust strategy incenting economic development, on a campus like the University of Iowa, is key to transforming ideas into impact benefiting Iowans and beyond.

Consequently, this report provides a description of the UI’s key initiatives in the economic development space— the work of the Chief Innovation Officer, who oversees Protostudios, UI Research Park, Translational Research Incubator, UI Ventures, and MADE; UI Research Foundation; John Pappajohn Entrepreneurial Center (JPEC); UI Pharmaceuticals, and other activities.

#### I. Organizing to Support Economic Development

The Chief Innovation Officer, who reports to the Vice President for External Relations with a dotted-line report to the University President, oversees and coordinates the economic development activities for faculty, staff and graduate students at the University of Iowa. The Chief Innovation Officer oversees: Protostudios, UI Research Park, Translational Research Incubator, UI Ventures, and MADE.

In FY24, several broad themes served as the central organizing principles of the Office of Innovation, including:

***Establishing the Medical Innovation Hub.*** With the support of an \$8 million grant from the Governor’s office, the Office of Innovation will open the Medical Innovation Hub located adjacent to the UI’s Hospitals & Clinics and healthcare campus. The Hub will become the

gathering place for healthcare innovators and industry. There they can access unique equipment, resources and expertise while also commingling with other innovative faculty, staff and graduate students. A key success factor in similar spaces elsewhere is proximity to the “day jobs” of those clinicians, researchers, and graduate students eager to take advantage of this offering. Creating an innovation Hub within the healthcare complex is a major cultural breakthrough that will reduce the bottleneck of faculty seeking start-up company wet lab space while propelling nascent entrepreneurs forward. Construction on the Medical Innovation Hub is targeted to be completed in FY26 with a scheduled Grand Opening in winter/spring 2026.

***Seeding Interest in Translational Activities with Next Generation.*** The Iowa Innovation Leadership Fellows program continues with its third cohort in FY24. The FY24 cohort consists of 11 competitively selected graduate students, post-doctoral researchers, and trainees from medicine, engineering, and public health to teach the significance of translational research outcomes, how to go about solving unmet needs and gaining exposure and connections to industry experts. They learn about the programs available to support entrepreneurial activities and commercialization efforts on campus. They interact with UI faculty, alumni, and entrepreneurs with experience in commercializing academic research. The Fellows offer the Office of Innovation unique insights to help shape communications with academic departments, identify opportunities to engage with those departments, and encourage their colleagues to consider translational activities when appropriate.

***Extending the UI Innovation Support Structure Across Iowa.*** The Nurse Innovators program, which is designed to encourage nurses to bring forward solutions to unmet needs, continued into its second year which saw the number of direct engagement of nurses expand to over 1,000 surfacing 29 projects. The program began to receive regional and national attention as it graduated its first 2 nurses and expanded into a Critical Access Hospital in Davis County. Through the program, the Office of Innovation guides and assists nurses with concept development, providing them an outlet and agency to solve challenges they face in their clinical practice. This project intends to work with nurses throughout the State of Iowa and across a variety of nursing professions, exposing underserved healthcare communities and workers to the support that the Office of Innovation can extend to innovators outside the university. Besides empowering nurses with tools and resources to solve unmet needs in clinical practice, the program aims to impact job satisfaction, retention and nurse recruitment as well as an economic impact when these inventions reach the healthcare marketplace.

***Mobilizing an External Network.*** The Office of Innovation is exposing UI start-ups and entrepreneurially minded faculty, staff and students to skills and connections drawn from a network of contacts in the healthcare innovation and venture capital space. The network of individuals able to assess start-ups potential, offer strategic and experiential assistance, and connect them to essential talent not resident to Iowa.

***Deploying a Concierge Service to Support UI Faculty Innovations.*** Under the direction of UI Ventures, the Office of Innovation established a comprehensive suite of services to assist UI faculty looking to engage the commercialization process. This service has and will continue to

connect entrepreneurial faculty and companies with strategic support from medtech venture capital and industry knowledge, FDA guidance, intellectual property or clinical study guidance and reimbursement strategies.

***Application of Innovation Funding Programs.*** Encouraging proof of concept and translational projects is a key building block in the Economic Development pipeline. UI Ventures continued to deploy innovation funding to promising medical innovations in FY24. The program reviewed 24 applications for funding and awarded full or partial awards to 17 projects.

***Incorporating Nationally Recognized Medical Innovation Programming.*** In FY24, the Office of Innovation sent a faculty and a staff member to participate in the Stanford Biodesign Global Faculty Training Program (GFIT). The GFIT program provides training for establishing a nationally acclaimed Biodesign program for medical innovation at institutions around the world. The UI was the first US university to in this training. Looking forward, the Office of Innovation will utilize this coaching to develop and implement an Iowa Biodesign program, tailored to capitalize on the unique strengths of UIHC and the University of Iowa and complementing other programs in practice.

***Creation of Hawkeye Ventures Seed Fund.*** In 2021, the Iowa General Assembly passed legislation that allows Regents universities to make investments in private enterprises, Iowa Code 262.14(3)(f). In response to this legislation and to further its mission, the University of Iowa Tippie College of Business has created the Hawkeye Ventures Seed Fund within the John Pappajohn Entrepreneurial Program (JPEC) to provide early-stage funding for University of Iowa affiliated startups. This important economic development effort will better align the UI with peer and Big Ten institutions. Funds will primarily be sourced from UI Center for Advancement donations and initial fundraising began in the spring. Initial investments are anticipated in FY26.

## II. University of Iowa Economic Development Infrastructure



**University of Iowa  
Research Foundation**

Researchers at the University of Iowa continue to develop innovative solutions to address the world's most pressing issues, while entrusting their inventions to the UI Research Foundation (UIRF) for patenting and licensing into the commercial market. UI researchers have seen great success over the last year both in the lab and through commercial efforts. Companies licensing UI-invented technologies are making strides in developing products in areas traditionally associated with academic technology transfer at UI—human health care and engineering—but also in the fields of education and even some in the agricultural and animal health arenas.

While UIRF's immediate focus is on protecting UI intellectual property and transferring it to companies for commercialization, this step is a critical one for the university's overall economic development goals. By way of example: UI researcher Michael Schultz and his colleagues submitted their first invention to UIRF in 2009, describing their innovation for using radiopharmaceuticals to treat cancer. Eleven (and counting) invention disclosures and one license agreement between UIRF and Dr. Schultz' start-up later, the company Perspective Therapeutics has 140 (and counting) employees, is actively hiring UI graduates, is proposing to build a production facility locally, is developing a discovery center in the research park, is sponsoring clinical trials at the hospital, and is planning collaborative research at the college of medicine. This is just one example of how UIRF's activities align with the university's economic development goals.

Revenue from the licensing agreements UIRF negotiates with our company partners is shared with our inventors and supports department, collegiate, and cross-campus research efforts. And as illustrated above, many licensing relationships also lead to sponsored research at the university. And in fact, the connection between research grants and inventions goes both ways—federal agencies, non-profit-foundations, and corporations usually include intellectual property provisions in their grants, and UIRF takes the lead in helping our researchers satisfy these requirements.



Protostudios (<https://protostudios.uiowa.edu/>) is a state-of-the-art, rapid-prototyping facility located in the MERGE co-working space in downtown Iowa City, Van Allen Hall and at UIHC. It works with UI researchers, researchers from other Iowa universities and healthcare institutions

and community members to develop fully functional prototypes of product ideas, allowing innovators to test, redesign, and determine manufacturing paths and demonstrate usability to investors. Protostudios primary focus is on biomedical and electronics prototyping with access to 3D printers (plastics, metals, ceramics) milling, laser/wet jet cutter, printed circuit board fabrication, and consulting from on-staff industrial designers and engineers. Anatomical modeling of human organs prior to complex surgeries is developing into a key value add of Protostudios.

The creation of Protostudios was funded through a \$1.5 million Strategic Infrastructure Fund grant from the Iowa Economic Development Authority, and the authority approved a \$500,000 grant to outfit additional space for new equipment that expands the organization's capabilities.



### Research Park

The UI Research Park (<https://researchpark.uiowa.edu/>) leases building sites and space to growing technology companies that require sustained research relationships with the university. The Park is home to a business incubator program that has nurtured over 100 UI start-ups and other new ventures since its founding. Incubator tenant companies can draw on both the research and business resources of the university, including access to UI libraries, hazardous waste management services, support for SBIR/STTR grants (Small Business Innovation Research/Small Business Technology Transfer federal grants), educational seminars, networking opportunities, and shipping/package handling.

The BioVentures Center (BVC) in the park contains wet laboratory modules that can be shared for life science companies and office/dry laboratory modules for engineering and technology-based companies. The BioVentures Center wet lab space is currently full and has a waiting list.

The Park is also home to three of the university's specialized core facilities. These facilities provide technical support services critical to the growth of start-up companies as well as existing industry partners:

- Center for Biocatalysis and Bioprocessing operates a microbial fermentation facility and specializes in both upstream and downstream bioprocessing with expertise in process scale up for food products, biofuels, biopharmaceuticals, and other biotechnology products.
- University of Iowa Driving Safety Research Institute conducts research and development on driving safety for the government, military, and industry partners.
- State Hygienic Laboratory is the state's environmental and public health laboratory, serving all ninety-nine Iowa counties as well as out-of-state clients by testing and tracking infectious diseases and illnesses.

# IOWA

## UI Ventures

UI Ventures (<https://uiventures.uiowa.edu/>) assists university faculty and staff in transforming their research into successful business endeavors so that their technologies can reach the population it was intended to help. As part of the Office of Innovation, UI Ventures supports cultural transformation on campus and provides access to capital and world-class talent to build successful companies around innovations originating from research at the university. As faculty develop technology, they are often left with an unknown question of “What’s next?” as their research evolves beyond basic principles and requires additional expertise and funding beyond what is available at the University. UI Ventures supports this transition through deployment of GAP funds to address specific business validation questions and utilizes a robust network of experts who have successfully started, scaled, and exited companies in the same areas as our faculty entrepreneurs. If faculty choose to start a new company, UI Ventures facilitates connections with industry-specific executives and funding resources to launch and grow their companies as well as serving as a liaison between the company and university services. UI Ventures routinely brings venture capitalists and successful entrepreneurs from around the country to campus so that faculty may directly engage with those who have direct experience. In addition, UI Ventures manages the TRI incubator, Nurse Innovators program, and operates the MADE program to encourage faculty and staff innovation and entrepreneurship throughout campus.



The Translational Research Incubator (TRI) (<https://uiventures.uiowa.edu/translational-research-incubator>) serves a critical role in launching medtech companies by providing 1) a physical location for the company in close proximity to clinical founders; and 2) shared lab equipment so companies can focus their limited resources on technology-specific development to maximize their funding. Much of the support for TRI goes to purchasing and maintaining equipment that can be shared among the company tenants with an in-kind contribution of at-cost facility space.

The TRI space, located in the Medical Laboratories building, can house up to four early-stage research-based biomedical or life science companies focused on commercializing technology developed at the University of Iowa. The space is ideal for small start-ups that need to conduct early-stage proof-of-concept experiments, often with SBIR/STTR funding, to attract the investment needed to expand operations at the UI Research Park and other locations. The TRI

has proven successful in helping companies secure over \$12 million in both federal (SBIR/STTR) and private grants. These companies have gone on to raise over \$57 million in equity funding.

## MADE

Iowa MADE (<https://iowamade.org/>) is a first of its kind program, in the nation, whose mission is to encourage and facilitate the UI community to bring innovative, need-based products to market with the goal of enhancing economic development at the university as an extension of research and scholarship.

MADE is a manufacturing and e-commerce initiative launched in FY18 with 3 objectives: 1) bring simple, low volume technology to market utilizing local Iowa manufacturing whenever possible; 2) contribute to a cultural transformation around innovation on campus; and 3) provide students with an opportunity to learn first-hand the tools necessary to bring a product to market. The program crosses several departments with products from Ophthalmology, Anesthesiology, Dentistry, Cardiothoracic Surgery, and General Surgery. Products are available for sale through the [iowamade.org](https://iowamade.org/) website and revenue is used to reimburse development costs to encourage continued support of innovation and development. All technologies remain available for licensing to an external company through UIRF.

An undergraduate student operations team maintains the FDA compliant quality system, manufacturing, product management, marketing, and sales. These students have the unique opportunity to gain in depth real-world experience and leadership skills on campus to complement their classroom education.

## IOWA

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**John Pappajohn  
Entrepreneurial Center**

The John Pappajohn Entrepreneurial Center (Iowa JPEC) (<https://www.iowajpec.org/>) offers nationally recognized comprehensive entrepreneurial education and training programs that are available to all Iowans. At the undergraduate level, Iowa JPEC and the Department of Management and Entrepreneurship offer a BBA in Entrepreneurship to Tippie College of Business students. Iowa JPEC and the College of Liberal Arts and Sciences offer a BA in Enterprise Leadership (on-campus and online). In addition, Iowa JPEC offers the Technological Entrepreneurship Certificate for engineering students and the Certificate in Entrepreneurial Management for all undergraduate students. The Tippie College of Business offers a Graduate

Innovation Certificate. Advanced entrepreneurship courses are also offered to MBA and other graduate management students.

Iowa JPEC and its university partners also play important roles in the development of Iowa-based technology and high-growth start-up companies. On-campus programs include business incubation programs for undergraduate students, business incubation and acceleration programs for faculty, staff, and graduate students, and the NSF I-Corps Training program as an affiliate of the Great Lakes I-Corps Hub. Statewide entrepreneurial support programs include Venture School entrepreneurial training program, MIT-based Venture Mentoring Service for entrepreneurs, Business Consulting, and Enterprise Internships. The Hawkeye Ventures Seed fund was created in FY24.

## **IOWA**

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### **Center for Advancement**

The University of Iowa Center for Advancement's (UICA) (<https://www.foriowa.org/>) Corporate and Foundation Relations (CFR) drives economic development by connecting University of Iowa's strengths with industry's critical needs and solving business problems. Included but not limited to talent pipeline creation, access to faculty, cutting edge research and acting as a catalyst for organizations in achieving philanthropic goals.

CFR's partnerships with the state's economic development organizations and the University of Iowa's office of Vice President for Research are levers that ensures the innovative research taking place at the University of Iowa is included in proposals for business attraction, retention and competitive advantage.

In addition to connecting companies with the university, the Center for Advancement is a key player in tapping UI's extensive alumni base to support entrepreneurship and technology commercialization through monetary resources and, equally important, advice and expertise.

## **IOWA**

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### **UI Pharmaceuticals**

UI Pharmaceuticals (<https://uip.pharmacy.uiowa.edu/>) is a fee for service entity on the University of Iowa Campus that provides contract drug manufacturing (CDMO) services to academic, biotech, and pharmaceuticals clients. These services range from early-stage formulation development, analytical method support, clinical trial material manufacturing, to

commercial product manufacture and support. It is organizationally structured as a division of the UI College of Pharmacy and employs approximately 95 pharmaceutical professionals. UI Pharmaceuticals has been operating for over 45 years and supports the manufacturing and testing of both clinical and commercial products. The seven departments that comprise the program are as follows:

- Sterile Manufacturing
- Non-Sterile Manufacturing
- Quality Assurance
- Analytical Services
- Preformulation and Formulation Development
- Business Development
- Engineering and Facilities

# IOWA

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## Center for Biocatalysis and Bioprocessing

The Center for Biocatalysis and Bioprocessing (CBB) (<https://cbb.research.uiowa.edu/>) is an academic center at the UI focused on advancing biotechnology through the creation and dissemination of discoveries in the biocatalytic sciences.

As an internationally recognized contract development and manufacturing operation (CDMO), the CBB facility specialized in the optimization and scale-up of complex bioprocesses to produce pilot-scale, high valued bio-based chemicals. Most notably, the CBB's facility fills a worldwide niche to produce recombinant proteins of commercial and research value.

A fraction of these proteins is produced under strict standards defined by the FDA, referred to as *current good manufacturing practices* (cGMP). The CBB's cGMP suite operates under the 2008 FDA guidance for Phase I clinical studies, which means the products produced under this standard can be used to determine the safety and efficacy of putative therapeutics. The CBB's cGMP operation is ideally suited for startup companies with limited budgets who need information for the Chemistry, Manufacturing, and Control (CMC) section of their Investigative New Drug (IND) applications required by the FDA before Phase I clinical trial testing can begin. The CBB operates the only facility in the State of Iowa that manufactures vaccines and therapeutic proteins for Phase I clinical trials in people.

Clients range from international corporations to virtual startups. In addition, the facility's professional staff supports clients who are preparing SBIR/STTR grant applications and staff consults for companies preparing IND applications for the FDA.

The CBB bioprocessing facility is initiating a new effort designed to accelerate the translational path required to realize commercially viable products from laboratory discoveries. In the biotechnology sector, failure to demonstrate manufacturability is a major barrier to commercialization. The CBB's expertise in both the development and scale-up of robust biomanufacturing processes is ideally suited to help startup companies to bridge this gap. Successful demonstration of manufacturability reduces the risk of the technology and increases its commercial value, thereby enhancing investment opportunities.

### III. University of Iowa's Economic Development Activities in FY24

- **UI Research Park**
  - The UI Research Park is home to 33 companies, employing over 3,700 total employees, 1,031 of those located on the park. Total payroll associated with Park companies is more than \$3 million.
  - Companies residing on the Research Park, and in particular those residing in the BioVentures Center, have access to a variety of services, including: Shared laboratory equipment room; Executive board room and conference rooms; Multi-purpose room seating 70; Breakroom/vending area, atrium and lounge areas; Shipping/receiving area; High-speed wired & wireless internet; Emergency backup generator; Shared equipment room that includes: Autoclave, Laboratory glassware washer/dryer, RO/DI water system, Ice machine, -80° freezer; and the vast resources at the UI's Carver College of Medicine via their core facilities.
- **UI Ventures**
  - UI Ventures currently supports 37 companies including 8 that formed in FY24.
  - Faculty and staff founded companies raised over \$91 million in equity funding in FY24.
  - In FY24, four UI faculty/staff companies were awarded \$1.5 million in SBIR/STTR grants.
  - In FY23, 17 Innovation Fund awards were made to faculty and staff to aid the translation of their research towards commercial potential.
  - The Nurse Innovators program engaged >1,000 nurses with 29 projects in development including one at a Critical Access Hospital in Davis County.
  - Supported the second cohort of Innovation Leadership Fellows comprised of graduate and postgraduate students, medical students, and scientists.
  - UI Ventures continues to build a stronger economic development pipeline through programs that support business executive interactions, coaching and connections with investors, business strategy support, and other startup resources.
- **Iowa MADE**
  - MADE had 4 products on the market in FY24 and students continued to develop an additional 4 products originating from the Colleges of Medicine and Dentistry, and the UIHC Dept of Nursing.
  - MADE alumni continue to receive competitive job offers directly related to their work at MADE and are 100% employed upon graduation.
  - MADE utilizes suppliers in Iowa to support the state economy and presently 100% of part suppliers are Iowa companies.
- **Protostudios**
  - Protostudios worked with 44 clients across 72 unique design and production projects in FY24.

- Employed 8 UI students providing them with hands-on experience in client interaction, project management, design, and a variety of technical skills.
- **Iowa JPEC**
  - Key metrics
 

○ Start-up Companies Served (New Business Starts)	578
○ Program, Seminar & Workshop Participants	6,772
○ Estimated Job Creation	178
○ Hours dedicated to Clients	14,706
○ Total Clients (Individuals receiving assistance)	661
○ Total Youth Impacted (K-12)	26,343
○ Seed Money Awarded	\$431,550
○ Total Participants Across All Programs	10,473

(Including Academic, Outreach, and Youth)
  - Academic Program – Iowa JPEC delivers campus-wide and online undergraduate education and technology innovation coursework in the MBA and other graduate management programs. Majors (BA and BBA) and Certificate programs exist for all undergraduate students at UI including specialized programs for students in engineering. During FY24, 3,391 students enrolled in 119 classes, 416 students received a degree and 77 students earned an entrepreneurship certificate.
  - Bedell Lab Student Incubator – The student Startup Incubator housed at the 10,000 sq. ft. Bedell Entrepreneurship Learning Laboratory has 17 private offices for the most advanced start-ups, numerous co-working spaces for the others, and several conference rooms. This campus-wide program is open to students from every college and major. The students receive intense mentoring and support as they launch or expand their businesses. The program, one of the first of its kind in the nation, has impacted 1,686 students since opening in 2004. During FY24, the Startup Incubator supported 46 student start-ups made up of 76 students.
  - Startup Incubator Summer Track – Throughout the twelve-week program, accelerator teams made up of undergraduates and students meet daily to launch their start-up by using Lean LaunchPad methodologies. Through brunch-and-learns, work sessions with experienced mentors, weekly pitches, and lectures, the program aims to drive the start-up process for students, while increasing their start-ups’ chance for success. In FY24, 16 teams and 22 students participated.
  - Business plan and pitch competitions – Iowa JPEC hosts and sponsors a variety of ideation, elevator pitch, business model, and business plan competitions for UI students, faculty, and staff. During FY24, \$431,550 was awarded to start-ups.
  - Jacobson Institute for Youth Entrepreneurship – The Jacobson Institute is a comprehensive program that enriches K-12 students’ lives through classroom and practical educational experiences. Programming and impact include:

- BizInnovator Program – Curriculum and teacher training focused on entrepreneurship and business. In FY24, 368 teachers from 368 schools in 40 states used the curriculum nationwide and impacted 15,604 students.
- Alumni-Student Mentoring Program – This program was established to connect entrepreneurship students with esteemed alumni to enhance students’ professional and personal development for future success. In FY24, 247 students were paired alumni mentors.
- Okoboji Entrepreneurial Institute – Iowa JPEC established the annual, week-long Okoboji Entrepreneurial Institute (OEI) in a partnership among state of Iowa universities and colleges, as well as Iowa Lakes Corridor Development in 2006. To date, this summer program continues to provide students with an immersion into entrepreneurship and business strategy and develop an outstanding network of peers and business professionals. In FY24, 9 students participated for a total of 208 since inception.
- Student Organizations – Several campus-wide clubs and organizations focused on entrepreneurship are sponsored by Iowa JPEC.
- Venture School Entrepreneurial Training Program – Iowa JPEC offers an immersive “Lean LaunchPad”, business model canvas, seven-week boot camp training program named Venture School to accelerate start-ups. Venture School is offered in multiple locations across Iowa. The program emphasizes real-world entrepreneurship through experiential learning, a flipped classroom, and immediate feedback. During FY24, workshops were offered in Mason City, Iowa City/Cedar Rapids, Des Moines, Dubuque, Quad Cities, Sioux City, and virtually. There were 60 startups made up of 67 entrepreneurs.
- UI Small Business Development Center – The UI hosts an SBDC that serves a five-county area (Cedar, Johnson, Iowa, Poweshiek, and Washington counties). During FY24, the UI SBDC served 325 start-ups and small businesses. This contributed to the creation of 112 jobs and \$13,728,922 in equity being raised.
- Institute for International Business (IIB) – The IIB is dedicated to advancing knowledge and international skills in business and educational communities through research, education, and consulting. During FY24, 3 International consulting projects were completed by University of Iowa students and faculty.
- Business Consulting Program – Iowa JPEC offers business consulting services to entrepreneurial and start-up companies around the state. During FY24, 87 projects were completed for 60 clients in 15 counties: Benton, Blackhawk, Cook, Dallas, Dubuque, Floyd, Iowa, Johnson, Linn, Muscatine, Polk, Scott, Wapello, Washington, Woodbury.
- Iowa Enterprise Internships Program – Iowa JPEC provides funding support enabling Iowa start-ups to hire UI student interns as they work to grow their

businesses. In FY24, 21 students were placed in 12 start-ups in these Iowa counties: Dallas, Dubuque, Johnson, Linn, and Plymouth.

- Pappajohn Entrepreneurial Ventures Competition – In partnership with the Pappajohn entrepreneurship centers at ISU, UNI, Drake, and NIACC as well as the Iowa Economic Development Authority, Iowa JPEC sponsors this annual competition to support start-ups around the state. Each year, over \$100,000 in seed funding is awarded in total to three companies.
- NSF I-Corps Training Program – The University of Iowa was awarded a multi-year National Science Foundation (NSF) I-Corps Site grant in FY15 to support UI faculty, staff, and student entrepreneurs. This program is a joint effort between the Office of the Vice President for Research and Economic Development, the UI Office of Innovation, UI Ventures, and Iowa JPEC. The goal of this program is to accelerate 90 faculty and staff start-ups. During FY24, 46 start-ups made up of 74 faculty and staff participated.
- Regional Partnerships / Eco-system Development – Iowa JPEC partners and engages with numerous local, regional, and statewide organizations to support entrepreneurs and contribute to the vital entrepreneurial ecosystem. These organizations include chambers of commerce, economic development organizations, business accelerators (Global Insurance Accelerator, Goldman Sachs 10,000 Small Businesses, Iowa Startup Accelerator, and TechStars, state agencies, other universities (Drake, ISU, and UNI), and community colleges (DMACC, EICC, Kirkwood, NIACC, WIT).
- National Engagement – Iowa JPEC engages with several national and international organizations focused on small business, entrepreneurship, economic development and technology commercialization. This includes not only membership but also committee participation and invitations to present best practices.
- **UI Center for Advancement**
  - Aligns corporate partner recruiting efforts/talent pipeline creation within State of Iowa. Including internships, early talent and experienced hires (Boomerangs)
  - Engage with economic development entities across the state- purchasing tables demonstrating the University of Iowa/Center for Advancement shows up for state, regional, local priorities.
  - Provide access to UI faculty and staff, research, labs, institutes promoting partnerships for critical business needs and problem-solving encouraging invitation to RFP's and proposals
  - Generates engagement and funding to advance the University of Iowa in support of efforts that build a stronger community and access a state flagship university via scholarships, peer mentors, mental health services and wrap around programs
- **UI Pharmaceuticals**
  - In FY23 UI Pharmaceuticals worked with ~100 different clients to manufacture and testing ~90 individual lots of material, resulting in ~\$17

million in total revenues UI Pharmaceuticals currently supports client programs across the United States as well as in Europe, Asia, Africa, and South America.

- UI Pharmaceuticals made considerable progress in bringing its state-of-the-art sterile manufacturing facility online, targeting revenue generating batches in the third quarter of 2024.
- **Center for Biocatalysis and Bioprocessing**
  - The Center generated \$3.2 million in annual revenue working with biopharma, commodity proteins and food products projects.
- **UI Research Foundation**

	<b>FY20</b>	<b>FY21</b>	<b>FY22</b>	<b>FY23</b>	<b>FY24</b>
Disclosures	95	101	103	72	87
Licenses + options	37	47	48	47	29
Patent applications	146	123	188	175	121
Issued patents	76	86	80	58	69

**Regents Innovation Funds Spent to Promote Economic Development in Iowa**

- Protostudios: \$125,681 for personnel and general expenses
- UI Research Park: \$87,665 for BioVentures Center personnel, operating/general expenses
- UI Ventures and MADE: \$781,358 for personnel, consultants, student interns, award and general expenses

The University of Iowa recognizes the important role it plays in the state’s economic development ecosystem. The university is committed to improving the quality of life in Iowa through a sustainable cycle of research and creative activity leading to job and wealth creation in the State. Realization of these goals make Iowa a healthier, more prosperous, and attractive place to live. The university will continue to ensure that Federal, State and philanthropic monies invested in research is leveraged to develop new economic opportunities for Iowans.



## University of Northern Iowa Annual Economic Development Report – FY2024

### **Section 1. UNI’s Economic Development Activities to Enhance Economic Growth in Iowa – Highlights and Summary**

The University of Northern Iowa (UNI) provided economic development assistance to all of Iowa’s 99 counties for the 25th consecutive year. UNI’s economic development outreach programs are housed in the Business and Community Services (BCS) division and work toward supporting UNI strategic goal 2, to “Empower Communities to Shape Their Future.” Since 2000, BCS has engaged the entire university community in its outreach efforts, including faculty, staff, students, and alumni – all of whom play a critical role in Building a Better Iowa. Unique client interaction in FY2024 exceeded 4,100, a record high for BCS outreach centers and programs.

Specific areas of service offered by UNI BCS include: entrepreneurship, community and economic development, market research, environmental research and sustainability, metal casting, and manufacturing 4.0.

#### **Some exceptional recognition and milestones in the past year include:**

- UNI’s Tallgrass Prairie Center was part of the cover story in the January issue of *National Geographic* and celebrated its 25<sup>th</sup> Anniversary.
- Advance Iowa and the Iowa Center for Employee Ownership received recognition and support from the Ford Foundation and Rutgers University to formally establish a rural-focused ESOP initiative.
- The UNI Foundry 4.0 Center and the Center for Business Growth and Innovation completed a major project with the Defense Logistics Agency to enhance supply chain resiliency for sustainment parts for the military.
- Jennifer Trent, program manager for the Iowa Waste Reduction Center, was elected President of the United States Composting Council.
- The Institute for Decision Making (IDM) was asked to assume the leadership role for the Iowa Rural Development Council for the next year during the executive director’s absence
- Drew Conrad, IDM director, was appointed by the U.S. Secretary of Labor to the 14-member federal Workforce Information Advisory Council to serve with other labor market experts across the country.
- The Center for Energy and Environmental Education was selected as the feature presentation at the America Service Commission National Conference for 2024.

## Summary of BCS’ key economic development program outcomes for FY2024:

### Overall Outcomes

- Provided service to clients in all 99 Iowa counties with a total of 4,126 unique businesses, communities, nonprofit organizations, and governmental entities, and served an additional 44,852 unique visitors to IASourceLink.com.
- Reached more than 251,000 Iowans through BCS programs and projects.
- Engaged 113 faculty members and 227 students in the direct delivery of BCS client services, and another 3,122 students were reached by BCS programs.
- Leveraged each \$1 invested by the state with \$5 in private grants, contracts, fees or federal funding.

### Summarized Impacts on the Iowa Economy

- Completed a \$2 million investment in the Metal Casting Center’s foundry in the newly renovated Applied Engineering Building on the UNI campus to create the most modern foundry on a university campus in the country.
- The Institute for Decision Making (IDM) expanded its partnership with the statewide Industry 4.0 Partner Consortium organized by Iowa’s community colleges and Iowa State’s Center for Industrial Research and Services (CIRAS) to offer Manufacturing 4.0 training to economic developers.
- More than 325,000 acres of public roadsides have been assisted by the Tallgrass Prairie Center with ecological integrated management services.
- Two additional cohorts of the Black Business Entrepreneur Accelerator (BBEA) were assisted by the UNI JPEC. Overall, assistance has been provided to 77 BBEA graduates.
- The UNI Family Business Center expanded its programming to reach 193 family businesses in 66 counties across Iowa.
- Green Iowa AmeriCorps provided energy efficiency services to 10,000 homes in Iowa and completed 6,000 projects through assistance from 2,700 volunteers and with 400 community organizations.

### Entrepreneurship, Business Development and Incubation

- Supported 1,909 Iowa businesses with market information by the Business Concierge team, which is part of IASourceLink.com, a joint program of the UNI JPEC and the Iowa Economic Development Authority (IEDA).
- Expanded the UNI Family Business Center with programs such as the breakfast series, family business workshops, peer group meetings, the annual Iowa Family Business Conference, and conducted the first family business management course at UNI.
- Assisted 91 Iowa companies and conducted 23 seminars or presentations related to succession planning and employee ownership in all regions of Iowa through Advance Iowa.
- Incubated 13 student businesses in the UNI JPEC R.J. McElroy Student Business Incubator and 20 additional students were assisted as affiliate tenants.
- Served 325 new clients through UNI’s Small Business Development Center (SBDC).

### **Local Economic Development**

- Provided strategic planning and comprehensive research assistance to 126 community partners, 10 additional regional groups, and 45 service providers and utilities companies across Iowa through IDM.
- Assisted with the creation of the Iowa Rural Vitality Coalition in collaboration with Empower Rural Iowa, the Iowa Rural Development Council, ISU Extension, The University of Iowa and Wellmark.
- Conducted a statewide survey of tourism organizations and presented the results to assist the IEDA and its tourism industry partners.
- Helped lead the statewide Industry 4.0 Partner Consortium to help economic developers to better assist local manufacturers.
- Trained an additional 90 economic developers through the Heartland Economic Development Course.

### **Waste Reduction, Environmental Assistance, and Sustainability**

- The Local Food Program (CEEE) worked with 180 organizations in 18 counties providing technical assistance and education on local projects and goals.
- Worked with the Resilient Iowa Communities project with city and county partners on 8 greenhouse gas and carbon sequestration initiatives.
- Distributed native seed for 43 county roadsides and more than 3,000 acres as part of the Tallgrass Prairie Center's (TPC) roadside vegetation project and published an interactive map to showcase native roadsides.
- Expanded the Irvine Prairie in rural Benton County from 77 to 292 acres.
- Certified 38 craft breweries across the state through the Iowa Green Brewery project, a nationally recognized program of the Iowa Waste Reduction Center (IWRC).
- Provided customized environmental technical assistance and on-site reviews through the IWRC to 114 Iowa small businesses and conducted 9 energy efficiency visits with small businesses.
- Expanded solar radiation modeling for the entire state of Iowa by the GeoTREE Center for the Iowa Energy Center.

### **Advanced Manufacturing and Market Research**

- Trained 234 military painters at 5 satellite training sites through the STAR4D program.
- Served 40 Iowa foundries and supply chain companies with automation and Internet of Things (IoT) sensor technologies through the Foundry 4.0 Center.
- Completed a supply chain resiliency program with the Defense Logistics Agency to enhance the Department of Defense supply chain for sustainment parts.
- Hosted more than 900 visitors to demonstrate new Manufacturing 4.0 innovations and the digital twin at the Foundry 4.0 Center.
- Conducted research among Iowa businesses for the IEDA to better inform economic assistance and programming related to recent economic conditions.
- Provided market research and competitive intelligence to 12 Iowa companies and organizations by Strategic Marketing Services (SMS).

**Section 2. Technology Transfer and Intellectual Property**

<b>FY2024</b>	
	<b>UNI</b>
Number of disclosures of intellectual property	13
Number of patent applications filed	3
Number of patents awarded	2
Number of license and option agreements executed on institutional intellectual property	1
Number of license and option agreements yielding income	12
Revenue to Iowa companies as a result of licensed technologies	\$5,200,000
Number of start-up companies formed, in total and in Iowa	107/107
Number of companies in research parks and incubators	18
Number of new companies in research parks and incubators	7
Number of employees in companies in research parks and incubators	22
Royalties/license fee income	\$68,810
Total sponsored funding	\$35,088,062
Corporate-sponsored funding for research and economic development and revenue generation	\$1,117,300
Annual appropriations for economic development	\$1,460,740
Regents Innovation Fund	\$900,000

**Section 3. Overview of UNI’s Economic Development Programs**

UNI outreach services and community and economic development activities are outlined in a table format on the following four pages. The format provides a brief overview of each program, its purpose, types of clients served, outcomes from the past year, and some aggregate outcomes. Together, the programs served 4,126 unique businesses and organizations in the past year and another 44,852 individuals through the IASourceLink.com entrepreneurial development system and the Business Concierge.

**Section 3. Overview of UNI’s Economic Development Programs (continued)**

Services	FY24 Results	Cumulative Results
<b>Advance Iowa (AI)</b>		
Rural/urban consulting program focused on small- and medium-sized existing businesses to provide succession planning, strategic planning, training, and peer round tables <b>Serves:</b> Small and medium enterprises	<ul style="list-style-type: none"> <li>✓ 91 companies assisted</li> <li>✓ 23 seminars on succession planning, employee ownership, financial literacy and value building</li> <li>✓ 7 peer group meetings</li> <li>✓ Hosted and supported 46 networking, educational and business assistance workshops/events</li> </ul>	<ul style="list-style-type: none"> <li>✓ Project work with 170 SMEs, impacting 5,692 employees across the state in all regions and industries.</li> </ul>
<b>Family Business Center (FBC)</b>		
Programs and services for Iowa family-owned businesses including business succession, next-generation leadership development, peer learning and events <b>Serves:</b> Small and medium family-owned enterprises	<ul style="list-style-type: none"> <li>✓ 193 companies assisted</li> <li>✓ 5 part seminar series for family-owned companies</li> <li>✓ Annual conference with 108 attendees</li> <li>✓ 4 learning sessions</li> <li>✓ Hosted annual family workshop with 54 attendees</li> <li>✓ Service to clients in 66 counties</li> </ul>	<ul style="list-style-type: none"> <li>✓ Worked with more than 200 small- and mid-sized family-owned companies across the state in all regions and industries.</li> </ul>
<b>Center for Energy and Environmental Education (CEEE)</b>		
Technical assistance, educational programs and leadership in residential energy efficiency services, local food systems, improving community food security and environmental health, and sustainability efforts for K-12 schools <b>Serves:</b> Iowa residents, nonprofit organizations, local governments, school districts, and counties	<ul style="list-style-type: none"> <li>✓ The UNI Local Food Program worked with 180 organizations in 18 counties providing technical assistance and education</li> <li>✓ The Resilient Iowa Communities in collaboration with city and county partnerships assisted with 8 greenhouse gas inventory projects, and successfully implemented energy and carbon sequestration projects</li> <li>✓ 50 individuals received training in energy benchmarking software skills</li> </ul>	<ul style="list-style-type: none"> <li>✓ Green Iowa AmeriCorps provided energy efficiency services to 10,000 homes and educated 100,000 people and more than 6,000 service projects alongside 400 community organizations and 27,000+ volunteers.</li> <li>✓ More than 1,000 members have given 850,000 hours to Iowa communities. At the national rate of in-kind value of a volunteer hour, the program has leveraged over \$28.5 million in support for Iowa.</li> </ul>

<b>Geoinformatics Training, Research, Education and Extension Center (GeoTREE)</b>		
<p>Geospatial technologies, education, research and outreach activities for federal, state, local and tribal agencies</p> <p><b>Serves:</b> Federal, state, local and tribal governmental agencies</p>	<ul style="list-style-type: none"> <li>✓ Concluded multi-year project with Iowa DNR</li> <li>✓ Carried out urban heat monitoring and modeling in 10 Iowa Cities as part of Iowa Energy Center</li> <li>✓ Provided solar radiation modeling for the entire state of Iowa as part of Iowa Energy Center</li> <li>✓ Developed modeling and mapping for the Regional Center Study with the Iowa Department of Education</li> </ul>	<ul style="list-style-type: none"> <li>✓ Project work with public agencies, academic groups/departments and private companies.</li> <li>✓ Developed and delivered many geospatial data and custom applications.</li> </ul>
<b>Institute for Decision Making (IDM)</b>		
<p>Hands-on community and economic development guidance and research</p> <p><b>Serves:</b> Economic development organizations, chambers commerce, city councils, communities, utility companies and others</p>	<ul style="list-style-type: none"> <li>✓ Assistance and research provided to 126 community organizations, 10 regional development groups, and 45 service providers and utility companies</li> <li>✓ Assisted with the establishment of the Iowa Rural Vitality Coalition with Empower Rural Iowa, the Iowa Rural Development Council, Iowa State University, the University of Iowa and Wellmark, and helping to facilitate 2 pilot community planning processes</li> <li>✓ Developed and conducted a Business Retention &amp; Expansion Academy for Iowa</li> <li>✓ Provided technical assistance to the Governor’s Empower Rural Iowa initiative</li> <li>✓ Partnered in a statewide Industry 4.0 Partner Consortium</li> </ul>	<ul style="list-style-type: none"> <li>✓ Served more than 850 communities, counties and groups in all of Iowa’s counties.</li> <li>✓ Trained more than 1,350 economic development professionals.</li> </ul>

<b>Iowa Waste Reduction Center (IWRC)</b>		
<p>Free, confidential, non-regulatory environmental and energy efficiency assistance for small businesses, public entities, food waste reduction, and education. <b>Serves:</b> Small businesses in Iowa, food waste generators, and military and industrial painters</p>	<ul style="list-style-type: none"> <li>✓ Detailed one-on-one environmental assistance was provided to 114 Iowa small businesses, including 9 energy efficiency projects</li> <li>✓ Military painter training was conducted by IWRC staff and at 5 satellite sites, training a total of 234 painters</li> </ul>	<ul style="list-style-type: none"> <li>✓ Provided detailed assistance or on-site reviews to 6,810 Iowa small businesses.</li> <li>✓ Provided 5,284 certifications to military painters and DoD contractors.</li> </ul>
<b>John Pappajohn Entrepreneurial Center (JPEC) and Small Business Development Center (SBDC)</b>		
<p>Entrepreneurship education, business consulting and training, research, and capital investment programs serving entrepreneurs. <b>Serves:</b> Student entrepreneurs, faculty and staff, small- and medium-sized businesses, entrepreneurs, and entrepreneurial service providers</p>	<ul style="list-style-type: none"> <li>✓ JPEC served 5,357 individuals</li> <li>✓ 13 student businesses incubated</li> <li>✓ 2 cohorts of BBEA served 17 business owners</li> <li>✓ 8 webinars hosted 4,324 participants</li> <li>✓ ISL website accessed by 44,852 unique visitors</li> <li>✓ SBDC served 325 clients</li> </ul>	<ul style="list-style-type: none"> <li>✓ The JPEC Student Business Incubator has housed 240 business owners.</li> <li>✓ Since FY13, 4,147 Wilson College of Business students have learned about and crafted an elevator pitch through JPEC instructors.</li> <li>✓ Since FY12, over 490,000 unique users have been served on the ISL platform.</li> <li>✓ Contributed to the start of 107 businesses.</li> </ul>
<b>Metal Castings Center (MCC) and Additive Manufacturing Center (AMC)</b>		
<p>Metal casting technologies, applied research, testing, training and manufacturing 4.0 technologies <b>Serves:</b> Iowa casting users, foundries and foundry suppliers</p>	<ul style="list-style-type: none"> <li>✓ Active contracts with 40 Iowa foundries</li> <li>✓ Conducted DOD-sponsored research into automation and robotics, IoT and digital twins production processes</li> <li>✓ Provided technical training in Manufacturing 4.0 technologies</li> <li>✓ Invested approximately \$2 million into modernization efforts of the Metal Casting Center’s foundry on campus</li> </ul>	<ul style="list-style-type: none"> <li>✓ Over 2,350 industry-funded projects have been completed to date and more than 100 clients assisted with additive manufacturing, Industry 4.0 and/or cast metals technologies.</li> <li>✓ Completed a 3-year casting supply chain resiliency project for the Defense Logistics Agency.</li> </ul>

<b>Strategic Marketing Services (SMS)</b>		
<p>Market research and analysis</p> <p><b>Serves:</b> Businesses, entrepreneurs and nonprofit organizations</p>	<ul style="list-style-type: none"> <li>✓ Completed 5 market research projects with 12 organizations</li> <li>✓ Assisted many local Iowa community organizations including municipalities, economic developers, public high schools, utility organizations and businesses</li> <li>✓ Provided consulting services to 6 Iowa organizations in the areas of energy, finance, manufacturing and economic developers</li> </ul>	<ul style="list-style-type: none"> <li>✓ Since 1990, market research and analysis services have been provided to 343 Iowa companies.</li> </ul>
<b>Tallgrass Prairie Center (TPC)</b>		
<p>Coordination of county roadside managers, farmers and agricultural conservation professionals; native seed industry; educational materials on the tallgrass prairie ecosystem; restoration to support recommendations</p> <p><b>Serves:</b> Iowa county governments, ag technical service providers/buyers, UNI and local educators, community, county conservation boards, and academic researchers</p>	<ul style="list-style-type: none"> <li>✓ Distributed native seed for 43 county roadsides</li> <li>✓ Supplied native seed stock to commercial growers</li> <li>✓ Provided technical support to landowners, farmers, and professionals in all 99 counties</li> <li>✓ Distributed prairie roots banners and displays to 44 schools and science museums</li> <li>✓ Provided advanced scientific training and hands on experience to UNI undergraduate and graduate students</li> <li>✓ Expanded Irvine Prairie in rural Benton County from 77 to 292 acres with funding for installation and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>✓ More than 50,000 acres of Iowa counties rights-of-way have been planted to native vegetation.</li> <li>✓ 47 Iowa counties use ecologically integrated management on 325,000 acres of public roadsides.</li> <li>✓ Public and private land managers have access to 90 species of Iowa-source seed including grasses, sedges, wildflowers, and scrubs.</li> <li>✓ Over 125 UNI students engaged in hands-on experience and scientific training.</li> </ul>

#### **Section 4: Regents Innovation Funding Report**

The UNI FY2024 Regents Innovation Funding (RIF) projects and outcomes partially supported by this fund are included in this annual economic development report.

#### **Section 5: Collaborative Projects**

Each year, UNI works closely with the other Regent institutions and state and federal agencies on collaborative projects. The following projects represent a sampling of these joint initiatives.

##### **Advance Iowa / Center for Business Growth and Innovation – Partnerships Key to Success**

- The partnership with the Iowa Governor’s Office and Empower Rural Iowa continued to promote economic vitality in rural communities by providing community presentations and individual business consultations on succession planning, business continuity, valuations, and employee ownership strategies. A special initiative began to assist independent grocery stores to ensure their sustainability as pockets of food deserts are developing in the state.
- The Iowa Center for Employee Ownership (IA-CEO) strengthened its foundation by expanding its Advisory Council to 23 members representing both public and private sectors across the state. Employee ownership is garnering attention through 20 community presentations, 3 radio shows, and interviews for 3 print publications.
- The Center for Business Growth and Innovation continued its partnership with the National Center for Defense Machining and Manufacturing on the Defense Logistics Agency/Department of Defense Foundry 4.0 project, creating, coordinating and administering Industry 4.0 outreach opportunities regionally and nationally for this contract.

##### **Center for Energy and Environmental Education (CEEE) collaborated on projects with ISU and UI**

- CEEE provided services to Iowa municipalities to conduct a greenhouse gas inventory and best practice assessments across Iowa, including Fairfield, Mt. Vernon, Decorah, and Urbandale.
- CEEE worked closely with ISU Extension Local Food and Enterprise Development through a planning grant from the Kellogg Foundation, to develop a plan to strengthen Iowa’s food system.

##### **The GeoTREE Center worked collaboratively with state agencies and multiple organizations**

- The GeoTREE Center worked with state agencies such as the Iowa Department of Natural Resources, Iowa Department of Education, Iowa Department of Agriculture and Land Stewardship, Iowa Department of Economic Development – Iowa Energy Center, local agencies such as Waterloo Water Works, non-profits such as the Community Foundation of Northeast Iowa, and provided services to numerous private companies.

##### **UNI Family Business Center (FBC) partnered for expansion of family business services**

- The UNI Family Business Center and the UNI Advance Iowa program along with Prairie Capital Advisors and Brown Winick collaborated on an ESOP program. This was a great way to mix the expertise of Advance Iowa with our member’s interests and experiences. Family businesses often need a source of liquidity during a succession plan or because of an untimely death in the family.

- The UNI Family Business Center has taken a proactive partnering approach with the Iowa Small Business Development Center system to create awareness for the unique complexities of family-owned companies. Educational program delivered to all Iowa SBDC regional directors this past year to share insights and describe some of the challenges that family firms face.

#### **Institute for Decision Making (IDM) collaborated with economic development partners**

- The Institute for Decision Making (IDM) launched the Iowa Rural Vitality Coalition to assist rural communities with improving the health and vitality of their residents and their communities. This work is in partnership with the Governor's Empower Rural Iowa Initiative, the Iowa Rural Development Council, Iowa Economic Development Authority, Iowa Department of Health and Human Services, the Wellmark Foundation, Iowa State University Extension and Outreach, and the University of Iowa College of Public Health. With the coalition, IDM helped design a community planning process that uses the Comprehensive Rural Wealth Framework in assessing a community's assets and in developing a strategic plan. Two pilot communities have been selected and the planning processes have been launched with IDM assisting with the facilitation of both planning efforts.
- IDM took the lead in developing and conducting a Business Retention & Expansion (BRE) Academy for economic development in Iowa. The Academy was developed in partnership with the Professional Developers of Iowa (PDI), the Iowa Economic Development Authority, Iowa's community colleges and utility companies. The Academy served as PDI's spring training event held in Des Moines. To design the Academy's format, content and materials, IDM staff established a working group that included representatives from local economic development organizations, the Center for Industrial Research and Service (CIRAS) at Iowa State University, the utility companies, community colleges, Iowa Economic Development Authority, Iowa Workforce Development, fellow UNI Business & Community Services programs and other service providers. Over 100 economic development professionals participated in the Academy.

#### **Iowa Waste Reduction Center (IWRC) collaborated with state and national partners**

- The IWRC partnered with the EPA Region 7, the Iowa Recycling Association, Iowa DNR and the National Pollution Prevention Roundtable to host education webinars on a variety of environmentally-related topics.
- The Iowa Waste Reduction Center helped Iowa DNR to host a one-day painter training workshop for the DNR Air quality staff and inspectors. The two sessions were attended by a total of 20 Iowa DNR Staff and provided them with basic understanding of the painting and coating process.
- The IWRC staff continues to work with the Iowa DNR and other stakeholders to help rewrite a current restrictive composting administrative rule to help facilitate growth of the composting industry in the state.

#### **John Pappajohn Entrepreneurial Center (JPEC) collaborations benefit students and community**

- JPEC staff developed and delivered programming for 2 cohorts of the Black Business Entrepreneur Accelerator (BBEA), a program of 24/7 BLAC serving an additional 17 black-owned businesses in the Cedar Valley region. In collaboration with UNI Dining, 5 BBEA Catering business were invited to participate in a venue takeover at the UNI Dining Center on campus. The entrepreneurs took advantage of the opportunity to showcase their menu to the UNI campus.

- JPEC collaborated with the statewide JPEC network to offer pitch competitions to students and Iowa Ventures. 15 students pitched their business and students from Drake, NIACC, and UNI were awarded prizes to grow their business. In the Iowa Venture competition, 46 Iowa companies applied and 13 pitched for \$100,000 in prizes. UNI Alum Russel Karim, with Dhakai, was awarded the top prize.

***IASourcelink - Iowa Economic Development Authority***

- Direct business assistance was provided to 1,909 Iowa business owners via the IASourcelink.com referral service and an additional 44,852 Iowans sought information from the online resources. The IASourceLink program continues as a strong partnership between UNI and the Iowa Economic Development Authority. This program provides assistance on business-related issues and links Iowa’s businesses with support resources from around the state.

**Metal Casting Center (MCC) and Foundry 4.0 Center collaborated with educational institutions and technical organizations**

- The Foundry 4.0 Center collaborated with Hawkeye Community College to provide workshops on the basics of robotics for the metal casting industry and suppliers to the U.S. Department of Defense.
- The MCC collaborated with the Rock Island Arsenal and the Steel Founders Society of America (SFSA) on a project to investigate the effects of pressurized solidification on microstructure development and physical properties of steel.
- The Foundry 4.0 Center collaborated with the SFSA to develop entry level Internet of Things (IoT) systems for the foundry industry. This work also required the development of presentation materials to disseminate to industry. Technology transfer was done during the workshop to help 25 members of the SFSA learn how to make their own IoT system.

**Strategic Marketing Services (SMS) partners with Iowa organizations**

- SMS worked in collaboration with IDM to assist the Cedar Valley Regional Partnership in assessing the starting and maximum wages for occupations in a variety of industries, assessing additional wage-related benefits such as pay increases and wage differentials, and understanding paid time off policies and benefits, workplace incentives, workforce trends, and community quality of life amenities. The goal of collecting this intelligence was to help the Cedar Valley Regional Partnership in attracting new talent.
- SMS worked in collaboration with IDM and assisted Travel Iowa and Iowa Travel Industry Partners (ITIP) in assessing travel organization’s budget/funding, staffing, and salary and benefits information. The report was utilized by ITIP as their annual staffing and budget report to their membership. A total of 28 businesses and organizations completed the survey, which included destination marketing organizations, convention and visitors bureaus, chambers of commerce, and local city or county economic development organizations.

**Tallgrass Prairie (TPC) Partners with Iowa universities and associations**

- The TPC provided technical assistance on prairie reconstruction in collaboration with ISU Extension, Iowa State University STRIPS team, the Iowa Monarch Conservation Consortium, as well as private companies, agricultural landowners, and federal conservation agencies. Activities included field day presentations across Iowa, widespread distribution of case studies

on prairie strips at the North American Prairie Conference, and the Practical Farmers of Iowa annual conference. Research results on the Conservation Reserve Program’s role in monarch butterfly recovery were shared and the factors affecting native seed price and availability across the upper Midwest and Great Plains regions.

- The TPC worked closely with the Iowa Department of Transportation and dozens of Iowa county governments to supply enough seed to plant more than 1,100 acres of county Iowa roadsides with native plants, and to co-host an annual conference of roadside managers. The TPC collaborated with native seed stakeholders including native seed companies, the Iowa DOT, the Iowa Crop Improvement Association, and the USDA Plant Introduction Center to supply source-identified seed for roadside planting and other prairie restorations across the state.