

**University of Northern Iowa
Annual Economic Development and Technology Transfer Report – FY2022**

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 23rd 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 reached 3,756, a record 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:

- The UNI John Pappajohn Center (JPEC) was the recipient of the President's Civic Engagement Leadership Award by the Iowa & Minnesota Compact Engaged Campus Awards for work with the Black Business Entrepreneurship Accelerator.
- The Institute for Decision Making (IDM) and the Iowa Waste Reduction Center (IWRC) are celebrating 35 years of serving communities, businesses, state agencies and nonprofit organizations across Iowa. Collectively, the two centers have served 840 Iowa communities and organizations, and 6,750 small businesses.
- The UNI Foundry 4.0 Center and the Center for Business Growth and Innovation (CBGI) were awarded a \$10 million competitive grants from the Defense Logistics Agency in partnership with Youngstown State University to enhance the Department of Defense casting supply chain with Manufacturing 4.0 assistance and innovations.
- Experiment 529, a workshop series facilitated by the UNI JPEC, was recognized with the Veridian Community Engagement Award. UNI student entrepreneurs tutor Black business owners on a variety of essential business tools. More than 100 UNI students supported 35 Black business owners to date.
- Two UNI student entrepreneurs were in the top 25 national finalists advancing at eFest, a global student business pitch competition hosted at the University of St Thomas.

Summary of BCS' key economic development program outcomes for FY2022:

Overall Outcomes

- Provided service in all 99 counties to 3,756 unique businesses, communities, nonprofit organizations, and governmental entities and served an additional 63,447 unique visitors to IASourceLink.
- Reached more than 305,000 Iowans through BCS programs and projects.
- Engaged 128 faculty members and 216 students in the direct delivery of BCS client services, and another 2,816 students were reached by BCS programs.
- Leveraged each \$1 invested by the state with \$5 in private grants, fees or federal funding.

Summarized Impacts on the Iowa Economy

- Two additional cohorts of the Black Business Entrepreneur Accelerator (BBEA) were assisted by the UNI JPEC. Overall, assistance has been provided to 37 BBEA graduates.
- The Institute for Decision Making (IDM) partnered 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 Industry 4.0 training.
- IDM and Strategic Marketing Services (SMS) conducted the fourth COVID impact survey and assisted with the completion of a human resources survey with business organizations across the state to learn about their primary workforce issues, then outlined strategies to address these challenges.
- The UNI Family Business Program received formal status as the Family Business Center (FBC), the only family business center in Iowa.
- More than 500,000 acres of Iowa roadsides have been planted with native vegetation through the assistance of the Tallgrass Prairie Center (TPC).
- Green Iowa AmeriCorps has now provided energy-efficient services to 7,000 homes in Iowa and has engaged 350 community organizations in this service work.

Entrepreneurship, Business Development and Incubation

- Launched a new entrepreneur mentoring program in partnership with other John Pappajohn Centers in Iowa and the Massachusetts Institute of Technology (MIT).
- Completed 21 business valuation projects for Iowa companies through Advance Iowa.
- Assisted 143 family businesses in 51 counties through UNI Family Business Center with programs such as the breakfast series, peer group meetings and the first-ever Iowa Family Business Conference.
- Supported 1,677 Iowa businesses—a record high—with market information by the Business Concierge team, which is part of IASourceLink, a joint program of the UNI JPEC and the Iowa Economic Development Authority (IEDA).
- Assisted 102 second-stage Iowa companies in 23 counties through Advance Iowa.
- Incubated 16 student businesses in the JPEC's R.J. McElroy Student Business Incubator, with 23 additional students who were affiliate tenants.
- Attracted 8 new companies to the UNI incubators.
- Offered 3 cohorts of the Early Founder Program with 25 student entrepreneurs.
- Hosted 19 peer group meetings and 46 business succession workshops/education sessions.
- Served 307 new clients through UNI's Small Business Development Center (SBDC).

Local Economic Development

- Assisted IEDA with the creation and analysis of the 4th COVID-19 business impact survey.
- Completed a survey of human resource professionals regarding current and projected workforce challenges and potential solutions.
- Provided strategic planning and comprehensive technical assistance to 84 community partners, 11 additional regional groups and 36 service providers across Iowa through IDM.
- Partnered with Iowa utility companies to develop an analysis of statewide existing industry survey data collected by local economic developers.
- Trained an additional 125 economic developers through the Heartland Economic Development Course.

Waste Reduction, Environmental Assistance, and Sustainability

- Convened Iowa stakeholders to develop a statewide plan to strengthen Iowa's food system.
- Installed 62 vegetable gardens for underserved families through Green Iowa AmeriCorps.
- Completed more than 1,000 residential energy efficiency projects for Iowans through Green Iowa AmeriCorps.
- Distributed native seed for 43 county roadsides and more than 1,000 acres as part of the Tallgrass Prairie Center's (TPC) roadside vegetation project and published an interactive map to showcase native roadsides.
- Provided customized environmental technical assistance and on-site reviews through the IWRC to 230 Iowa small businesses.
- Certified 32 craft breweries across the state through the Iowa Green Brewery project, a nationally recognized program of the Iowa Waste Reduction Center (IWRC).
- Expanded CEEE's Local Foods Program impact to \$30 million worth of locally grown food products purchased by institutional buyers from hundreds of Iowa farmers.
- Edited mapping of 50 watersheds for the National Hydrography Dataset for the Iowa Department of Natural Resources with students in the GeoTREE Center.
- Provided project funding and outreach services for recycling and reuse to 5 companies and organizations through the Recycling Reuse Technology Transfer Center (RRTTC).

Advanced Manufacturing and Market Research

- Added 3 new military painter satellite training sites and certified an additional 135 painters through the STAR4D military painter program.
- Provided market research and competitive intelligence to 19 Iowa companies and organizations by Strategic Marketing Services (SMS).
- Conducted research among Iowa businesses for the IEDA to better inform economic assistance and programming related to recent economic conditions by SMS.
- Served 48 Iowa foundries and supply chain companies with custom 3D sand-cast core and mold printing services through the Foundry 4.0 Center.
- Launched a major supply chain resiliency program with the Defense Logistics Agency to enhance the Department of Defense supply chain.
- Hosted nearly 900 visitors to demonstrate additive manufacturing and Manufacturing 4.0 innovations at the Foundry 4.0 Center.
- Received recognition as a national center of excellence by The Smart Manufacturing Institute for the Foundry 4.0 Center's work with advanced sensors.

Section 2. Technology Transfer and Intellectual Property

FY2022	
	UNI
Number of disclosures of intellectual property	12
Number of patent applications filed	2
Number of patents awarded	1
Number of license and option agreements executed on institutional intellectual property	2
Number of license and option agreements yielding income	12
Revenue to Iowa companies as a result of licensed technologies	\$4,300,000
Number of start-up companies formed, in total and in Iowa	98
Number of companies in research parks and incubators	20
Number of <u>new</u> companies in research parks and incubators	8
Number of employees in companies in research parks and incubators	33
Royalties/license fee income	\$35,600
Total sponsored funding	\$46,499,000
Corporate-sponsored funding for research and economic development and revenue generation (excludes corporate philanthropy - all in Iowa)	\$1,267,000
i. Annual appropriations for economic development	\$1,460,740
ii. Regents Innovation Fund	\$900,000

Section 3. Overview of UNI’s Economic Development Programs

UNI outreach services for the 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, populations served, outcomes from the past year, and some aggregate outcomes. Together, the programs served 3,756 unique businesses and organizations in the past year and another 63,447 individuals through the IASourceLink.com entrepreneurial development system and the Business Concierge.

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

Services	FY22 Results	Cumulative Results
Advance Iowa (AI)		
Rural/urban consulting program focused on small- and medium-sized existing businesses to provide succession planning, strategic planning, training, peer round tables Serves: Small and medium enterprises (SME)	<ul style="list-style-type: none"> ✓ 102 companies assisted ✓ 21 seminars on succession planning, employee ownership, financial literacy & value building ✓ 19 peer group meetings ✓ Hosted and supported 46 networking and educational events ✓ Service to clients in 23 counties 	<ul style="list-style-type: none"> ✓ Project work with 102 SMEs, impacting 3,672 employees across the state in all quadrants and industries.
Family Business Center (FBC)		
Programs and services for Iowa family-owned businesses including business succession, next-generation leadership development, peer learning and events Serves: Small and medium family-owned enterprises	<ul style="list-style-type: none"> ✓ 5-part seminar series for Family-owned companies ✓ 32 Peer Group Meetings ✓ Annual Conference with 136 attendees ✓ 6 Learning Sessions ✓ Annual Hosted Family Workshop with 84 attendees ✓ Service to clients in 51 counties 	<ul style="list-style-type: none"> ✓ Worked with 143 small- and mid-sized family-owned companies across the state in all quadrants and industries.
Center for Energy and Environmental Education (CEEE)		
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 Serves: Iowa residents, nonprofit organizations, local governments, school districts, and counties	<ul style="list-style-type: none"> ✓ Secured grants to convene stakeholders across Iowa to develop a statewide plan to strengthen Iowa’s food system ✓ AmeriCorps members installed 62 vegetable gardens for underserved members of our metro community 	<ul style="list-style-type: none"> ✓ Green Iowa AmeriCorps provided energy efficiency services to 7,000+ homes and educated 95,000+ people for 13 years. Completed 5,000+ service projects with 350+ community organizations and 22,000+ volunteers. ✓ 850+ members will have given over 822,500 hours to our communities. The program has leveraged \$23 million+ in support for our state.

Geoinformatics Training, Research, Education and Extension Center (GeoTREE)		
<p>Geospatial technologies, education, research and outreach activities for federal, state, local and tribal agencies</p> <p>Serves: Federal, state, local and tribal governmental agencies</p>	<ul style="list-style-type: none"> ✓ Pre-conflation editing of 50 National Hydrography Dataset for the Iowa Department of Natural Resources ✓ Designed temperature collection instrumentation for urban temperature collection in Iowa 	<ul style="list-style-type: none"> ✓ Project work with public agencies, academic groups/departments and private companies to deliver geospatial data and custom applications. Conducted Iowa focused research.
Institute for Decision Making (IDM)		
<p>Hands-on community and economic development guidance and research</p> <p>Serves: Economic development organizations, chambers commerce, city councils, communities, utilities and others</p>	<ul style="list-style-type: none"> ✓ Assistance and research provided to 84 community organizations, 11 regional development groups, and 36 services providers and utilities ✓ Partnered with the IEDA and Iowa utilities for an analysis of statewide existing industry survey data ✓ Assisted with a fourth statewide COVID-19 impact survey, and a statewide survey of human resource professionals about workforce challenges ✓ Partnered in a statewide Industry 4.0 Partner Consortium 	<ul style="list-style-type: none"> ✓ Served more than 840 communities, counties and groups in all of Iowa's counties to date ✓ Trained more than 1,250 economic development professionals
Iowa Waste Reduction Center (IWRC)		
<p>Free, confidential, non-regulatory environmental and energy efficiency assistance for small businesses, public entities, food waste reduction, and education.</p> <p>Serves: Small businesses in Iowa; food waste generators; military and industrial painters</p>	<ul style="list-style-type: none"> ✓ Detailed one-on-one environmental assistance was provided to 230 Iowa small businesses, including 3 food waste reduction visits and 24 energy efficiency visits ✓ Military painter training was conducted by IWRC staff and at 3 new satellite sites training a total of 135 painters 	<ul style="list-style-type: none"> ✓ Provided detailed assistance or on-site review to 6,570 Iowa small businesses. ✓ Certified 32 Iowa craft breweries. ✓ Provided 4,578 certifications to military painters and DoD contractors.

John Pappajohn Entrepreneurial Center (JPEC) and Small Business Development Center (SBDC)		
<p>Entrepreneurship education, business consulting & training, research, and capital investment programs serving entrepreneurs.</p> <p>Serves: Student entrepreneurs, faculty and staff, small and medium-sized businesses, entrepreneurs, and entrepreneurial service providers</p>	<ul style="list-style-type: none"> ✓ JPEC served 5,847 individuals. ✓ 16 student businesses incubated ✓ 2 cohorts of BBEA served 17 business owners ✓ IA SourceLink (ISL) served 1677 small businesses ✓ ISL website was accessed by 67,000 unique visitors ✓ SBDC served 307 clients. 	<ul style="list-style-type: none"> ✓ Student Business Incubator has provided space to 226+ business owners since FY05 ✓ Since FY13, 3,404 College of Business students have learned about/crafted an elevator pitch ✓ Since FY12, 400,000+ unique users have been served on ISL. ✓ Contributed to the start of 98 businesses
Metal Castings Center (MCC) and Additive Manufacturing Center (AMC)		
<p>Metal casting technologies, applied research, testing, training and manufacturing 4.0 technologies</p> <p>Serves: Iowa casting users, foundries and foundry suppliers</p>	<ul style="list-style-type: none"> ✓ Active contracts with 48 companies, provided outreach projects to 11 Iowa foundries and technical assistance to 50 additional foundries ✓ Conducted DOD-sponsored research into front line manufacturing of cast parts ✓ Conducted projects in Manufacturing 4.0 technologies 	<ul style="list-style-type: none"> ✓ 2,200+ industry-funded projects have been completed to date and more than 100 clients assisted with additive manufacturing and cast metals technology.
Panther Initiative for Environmental Equity and Resilience (PIEER)		
<p>Environmental social justice awareness, education and research</p> <p>Serves: Iowans affected by environmental equity issues</p>	<ul style="list-style-type: none"> ✓ Outreach awareness and education related to environmental social justice to organizations in the Cedar Valley 	<ul style="list-style-type: none"> ✓ Outreach and educational awareness provided to 5 organizations and 800+ individuals this year, including community, UNI and governmental organizations.
Recycling and Reuse Technology Transfer Center (RRTTC)		
<p>Recycling and by-products research, education and outreach</p> <p>Serves: Iowa businesses and citizens, recycling industry</p>	<ul style="list-style-type: none"> ✓ Research project funding and outreach services related to recycling and reuse was provided to 5 companies and organizations 	<ul style="list-style-type: none"> ✓ Over 42 RRTTC-funded research projects and 170 reports and publications available. ✓ Outreach and services provided to 7,000+ people.

Strategic Marketing Services (SMS)		
<p>Market research and analysis Serves: Businesses, entrepreneurs and nonprofit organizations</p>	<ul style="list-style-type: none"> ✓ Market research and analysis services provided to 19 Iowa organizations ✓ Conducted research among Iowa businesses for the IEDA to inform timely economic assistance needs ✓ Conducted research among Iowa human resource professionals for the IEDA to understand workforce experiences 	<ul style="list-style-type: none"> ✓ Since 1990, market research and analysis services have been provided to 329 Iowa companies.
Tallgrass Prairie Center (TPC)		
<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 Serves: 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"> ✓ Distributed more than 1,100 acres of native seed for 40 county roadsides ✓ Developed an online “Botany Beginners: Grasses for the Masses” course attracting 210 learners ✓ Produced Iowa-source foundation seed from over 30 ecotypes ✓ Planted 15 acres of the 77-acre Irvine Prairie ✓ Published a list of prairie seed, plant, and service providers to assist watershed coordinators 	<ul style="list-style-type: none"> ✓ More than 50,000 acres of Iowa counties rights-of-way have been planted to native vegetation. ✓ 47 Iowa counties use ecologically integrated management on 500,000 acres of public roadsides. ✓ Public and private land managers have access to 85 species of genetically diverse, source-identified seed including grasses, sedges and many species of wildflowers.

Section 4: Regents Innovation Funding Report

The UNI FY2022 Regents Innovation Funding (RIF) Annual Report (also known as the Skilled Worker and Job Creation Fund) is on file at the University of Northern Iowa and was submitted separately. Projects and outcomes partially supported by the RIF are included in this annual 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 collaborative projects.

Advance Iowa facilitates partnerships with state agencies and foundations

- Advance Iowa collaborated with the Iowa Rural Development Council to support the challenges faced by enterprises in rural Iowa communities. This includes a focus on succession planning, specifically in the areas of operational improvement and employee ownership.
- Advance Iowa continued the work started with the Kauffman Foundation by partnering with the Governor's Empower Rural Iowa initiative and the IEDA to advance employee ownership as an option to the challenges rural business owners face in identifying qualified buyers and improving employee wealth.

SBDC assists the small business community

- The UNI Small Business Development Center director served as an instructor for the 24/7 BLAC Black Business Entrepreneurship Accelerator (BBEA) Venture School Spring Cohort. Eleven additional Black-owned small businesses participated in this cohort.

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

- CEEE collaborates with Volunteer Iowa to host a significant AmeriCorps Program with more than 120 service members serving many Iowa communities, school districts and municipalities.
- CEEE and ISU Extension are working closely, 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 works collaboratively on projects with various faculty, students and staff from across the campus including academic departments, the Iowa Governors STEM Advisory Council and many others.
- The GeoTREE Center worked on projects with the Iowa Department of Natural Resources, Iowa Energy Center, Iowa Department of Education, Waterloo Water Works, Black Hawk Soil and Water Conservation District, Vacation Okoboji, Iowa Geographic Information Council, Cedar Trails Partnership, and Iowa Governor's STEM Advisory Council.

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

- IDM, in partnership with Strategic Marketing Services (SMS), assisted the BEST of Iowa Management Team. Based on the analysis, SMS and IDM developed the 2021 BEST Annual Report and an executive summary that was provided to the legislature. The findings were used in evaluating and revising the economic development assistance provided to Iowa companies by the state of Iowa, the utilities and economic development organizations around Iowa.
- IDM and SMS assisted IEDA and IWD with a statewide survey of human resource professionals to inform their public policy efforts and programming centered on talent attraction and retention. IDM and SMS presented the survey findings at the Iowa Human Resources Summit sponsored by IEDA and other many other organizations.

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

- The IWRC has partnered with the Iowa Culinary Institute at Des Moines Area Community College, Drake University Agricultural Law Center, the Iowa Brewer’s Guild, the Iowa Association of Energy Engineers and Odyssey Renewables to bring two events to the greater Des Moines metro area focusing on energy efficiency and reducing food waste.
- The IWRC has partnered with the University of Iowa’s Environmental Policy Research Program to further research the impacts of PFAS and other emerging contaminants while working jointly to develop public education materials raising awareness of the potential impacts of these “forever chemicals.”

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

- JPEC staff developed and delivered programming for two cohorts of the Black Business Entrepreneur Accelerator (BBEA), a program of 24/7 BLAC serving 17 Black-owned businesses in the Cedar Valley. The Experiment 529 workshop series provides additional skills to business owners in 10 specific areas including how to build a website, financials, brand awareness, social media presence, eCommerce site, pitch deck, sales funnel and mobile apps.
- JPEC and the IEDA partnered on the IASourceLink program to serve 63,447 Iowans with business information and assistance, and the JPEC provided direct interactions with 1,677 business owners via the Iowa Business Concierge services.

Metal Casting Center (MCC) collaborates with regent institutions and technical organizations

- The MCC collaborated with the University of Iowa Mechanical Engineering department on several projects, the largest of which involves the Defense Logistics Agency and Steel Founders Society of America, integrating additive manufacturing into their operations and supply chain.
- The Foundry 4.0 Center and the Foundry Educational Foundation hosted seven university students from around the country to learn and work in additive manufacturing and applied research projects during the summer semester.

Recycling Reuse Technology Transfer Center (RRTTC) collaborates with area organizations

- The RRTTC has developed a new outreach partnership between Unity Point Health Clinic and the Cedar Falls Lions Club through the new and expanded Parkway Garden and Education Center. This garden has quadrupled its growing capacity this year and added 50 fruit trees and multiple garden beds.
- The RRTTC partnered with Cedar Falls Library, Hearst Center for the Arts, Healthy Cedar Valley Coalition and North Iowa Farm Partnership to organize the Cedar Valley Food and Film Festival.

Strategic Marketing Services (SMS) partners with Iowa organizations.

- The IEDA, IDM and SMS surveyed human resource professionals from businesses and organizations across the state about what they are experiencing and how the businesses and organizations are handling current workforce challenges. The IEDA utilized the study findings to better inform their statewide workforce policy and programs.
- SMS assisted Iowa 4-H in learning general opinions and perceptions of their brand and messaging from parents of children grades 4 through 12 across the state. Two phases of research were conducted. Iowa 4-H utilized the findings in developing a statewide marketing strategy and campaign.

Tallgrass Prairie (TPC) Partners with Iowa universities and associations

- The Prairie on Farms Program provided technical assistance on prairie reconstruction in collaboration with technical services providers like the Iowa State University STRIPS team, Practical Farmers of Iowa, Hertz Farm Management, agricultural landowners and Natural Resources Conservation Service; the Iowa Department of Natural Resources and Iowa Flood Center; and watershed coordinators in eight priority watersheds.
- The Research and Restoration Program supplied the USDA Farm Service Agency with an assessment of the Conservation Reserve Program in eastern Iowa, including enhancement practices for monarch habitats. TPC provides research-based recommendations on seed mix design and CRP implementation as requested by the state NRCS office and the USDA Farm Service Agency.
- The Plant Materials Program hosted a STEM Teacher Extern through the Iowa Governor’s STEM Advisory Council and hosted the third Native Seed Stakeholders meeting. Major seed buyers, seed producers, and regulators attended. Collaborators include DNR Prairie Resource Center, USDA North Central Regional Plant Introduction Station, Polk County Conservation and Xerces Society for Invertebrate Conservation.

Regents Innovation Fund Annual Report – FY22

University of Northern Iowa

For the past 11 years, the University of Northern Iowa has received Regents Innovation Funds (now termed the Skilled Worker and Job Creation Fund) from the Iowa Legislature through the Joint Economic Development Appropriations Subcommittee. This funding is allocated to each of the three Regent institutions for projects to support business development, entrepreneurship, regional developments, and innovation activities outlined in Iowa Code section 262B. UNI's projects focus on four primary areas: 1) Technology Transfer, Business Incubation, and Additive Manufacturing, 2) Entrepreneurship Outreach and Business Growth, 3) Regional Development, and 4) Competitive and Market Intelligence. This report outlines the programming and highlights results and projects in each of the four areas.

Project 1: Technology Transfer, Business Incubation, and Additive Manufacturing

Description of the project

Technology transfer efforts focus on assisting faculty and staff with disclosures and due diligence. UNI averages 10-12 intellectual property disclosures annually and two-to-three patent applications. Another strategy that has worked well for faculty and staff inventors is joint development agreements with the private sector. UNI will also continue collaboration with the Iowa State University Research Foundation to help evaluate and commercialize intellectual property.

UNI has a successful business incubation program to support faculty spinoffs and student entrepreneurs. The incubator and support facilities offer a physical link between campus innovators and faculty researchers to support business growth. The R.J. McElroy Student Business Incubator is a part of the John Pappajohn Entrepreneurial Center and provides a physical location for student and faculty entrepreneurs to launch and grow their ventures.

The Additive Manufacturing Center was renamed the Foundry 4.0 Center and is working on initiatives to support Iowa's Manufacturing 4.0 plan. The center continues to support additive manufacturing but has added Manufacturing 4.0 technologies to the services offered. The center's emphasis has been on supporting small and medium enterprises (SME) manufacturing companies with advanced technologies that can be cost-effectively added to existing equipment. The center has been working with the Smart Manufacturing Innovation Institute to bring data driven decision making to the industry. Installation and operation of the automated investment casting shelling line has been used to demonstrate automation of complex manufacturing systems to minimize workforce requirements as well as provide a test bed for advanced process sensors to control the system. The system is being utilized in the center's

federally funded research to bring Manufacturing 4.0 technologies to the manufacturing industry.

What results have been achieved in the past year?

UNI's incubator housed 23 businesses in the past year and eight of these companies were new startups. Student entrepreneurs participated in three separate sessions of the Early Founder program, which resulted in increased participation in the Student Business Incubator. Of the recent students graduating from the incubator with a business, all four remain in business. The JPEC supported 19 additional student business owners with their ventures. In the past decade, 90 community-based entrepreneurs have graduated from UNI incubators and into the regional economy.

Technology transfer outcomes were consistent this past year. An additional 12 disclosures were received and four demonstrate commercial potential and are moving forward. Approximately \$4 million in revenue was generated by small businesses and entrepreneurs using UNI technologies. Four faculty research projects were assisted with financial assistance and an inventor launch series of workshops. In addition, a joint development agreement was initiated, and there was an additional UNI intellectual property that was licensed and is actively being offered to the market.

Additive manufacturing expanded this past year with additional equipment purchases and installation. Applied research in refractory materials was conducted for ceramic sands and with 3D printer manufacturers. The Foundry 4.0 Center is working with CESMII, The Smart Manufacturing Institute, to share progress in embedded IoT sensors for the metal casting process. UNI has been asked to become a satellite center for the CESMII organization. Faculty in Applied Engineering and Technical Management are also working towards this effort.

As visitors returned to the Foundry 4.0 Center, an open house was held in conjunction with Stratysis and 125 persons attended from area manufacturers and foundries. For the year, approximately 1,000 visitors were hosted at the center. Collaborations with other universities continues within Iowa by sharing facilities and expertise in additive manufacturing and metal casting. The Foundry 4.0 Center is also collaborating with universities outside of Iowa including Youngstown State and Texas El Paso, combining joint expertise with specialties in computer data acquisition and wireless communication technologies.

Examples of projects

The Early Founders student entrepreneurship program in the John Pappajohn Entrepreneurial Center was conducted in the summer of 2021, winter break 2021-22 and early summer of 2022. The program returned to in-person cohorts with 10 students participating in the summer '21 cohort, six in the winter cohort and an additional five in the recent summer cohort. Most of the student businesses that have not graduated are now tenants in the R.J. McElroy Student

Business Incubator. The Early Founders program is receiving additional private donor support and will be expanded.

JPEC staff supported the Black Business Entrepreneurial Accelerator with the development and delivery of curriculum for two cohorts in FY22. The fall cohort served seven business owners and the spring cohort served nine businesses. The 529 Experiment is a 10-part workshop series that focused on training business owners on using technology to help their businesses. Over the course of the series more than 15 businesses attended.

The Foundry 4.0 center has been busy working with SME manufacturing companies to design and build a one of a kind applied research center in robotic part processing and Smart Manufacturing. The center has been working with the Smart Manufacturing Institute and Rensselaer Polytechnic Institute to be designated a Smart Manufacturing Innovation Center satellite. Three large industrial robots have been installed to date with three more planned. The center will be working with industry to train employees and assist in the adoption of the technology. The center continues to work with the industry technical organizations and the Armed Forces through the Defense Logistics Agency to strengthen the Casting Industry Supply Chain.

Plans for next year

Plans for FY2023 include finalizing the full automation of the investment casting shelling system. This system will be integrated with the current additive manufacturing resources to develop and demonstrate, and educate the industry on automated production cells. The current robotic mold milling equipment is being upgraded with a large format pellet extrusion plastic printer with machining capabilities that can produce accurate plastic parts up to two cubic meters on volume. New workshops are being developed for industry instruction in robotics, the Internet of Things and Data Driven Decision Making. The new technology 3D sand printer is currently being optimized with production rates of 10 times current technology designs.

Intellectual property workshops will be expanded to educate faculty, staff, and graduate students about the resources and assistance that is available to further develop technologies and ready them for commercialization. Innovator workshops will be continued for faculty and staff innovators to expand emphasis on commercialization. The Intellectual Property Team will work to grow the program from four participants and tailor the program to meet the unique needs of UNI.

Substantial reorganization of innovation programs has begun and will allow for more emphasis on innovation in the industrial sector and with the defense sector. Incubation services and space will be expanded to create an environment for more collaboration and spinoffs. Business transition will also be a priority and new partnerships are being formed to explore alternative types of business structures, including business coops.

Project 2: Entrepreneurship Outreach, Business Growth and Family Businesses

Description of the project

UNI Entrepreneurship Outreach and Business Development programs focus on serving SMEs through the Advance Iowa program. This statewide program continues to create and deliver programming to fill gaps in the SME ecosystem related to growth and profitability and ownership transition.

The John Pappajohn Entrepreneurial Center (JPEC) is the producer and manager of resources found at IASourcelink.com, which is an online resource guide for entrepreneurs. Other direct services offered alongside the IASourcelink program include the direct service assistance, online webinars and referrals to resource partners.

The Family Business Center (FBC) focuses on providing consulting through education and awareness, offering leadership and skill development, ecosystem building and networking opportunities, and a platform for peer learning. Its mission is strengthening the viability and success of Iowa's family owned businesses.

What results have been achieved in the past year?

The FBC was awarded Center status through the Board of Regents in February of 2022. The FBC worked in conjunction with the other Regent's schools to dedicate specialized resources, expertise, and funding to this area of programming to be held exclusively at UNI. Pilot programming started in 2018 and has continued to grow in both programming and the number of Iowa families served. Approximate 80 family businesses are now members.

IASourceLink serves many businesses each year with direct assistance. A Chat Box was added to the site this past year and resulted in 1,114 new interactions. The success resulted in the need to add another program associate to the program. Overall, more than 67,000 people accessed the site to find Iowa business resources. JPEC partnered with the Iowa Department of Revenue to host nine webinars on IASourceLink with more than 4,000 attendees. The IASourcelink platform directly served 1,887 Iowa small businesses and service providers.

Advance Iowa has worked with the Iowa Governor's Office Empower Rural Iowa initiative and the Iowa Rural Development Council to build on prior work to educate and support employee-owned cooperatives. Training and awareness sessions have been provided, along with assessment and exit planning services, to assist business owners, employee groups and select resource providers (economic developers, attorneys, accountants, lenders and consultants) to determine the pathways to transition ownership to employees. Additionally, Advance Iowa has developed a business financial statement analysis and management program that is helping business owners and their key staff understand the financial position of the business and to develop the strategies and tactics needed to improve the profitability and cash flow of their businesses.

Examples of projects

The FBC's fourth year of programming saw continued growth in services and the number of businesses served. The Breakfast Series was a five-session program attended by 367 people from 63 Iowa family businesses. The first annual Iowa Family Business Conference was held in November of 2021 with 136 attendees. The peer leadership development program was offered with facilitated groups across the state for 42 members. A new program called Tour and Talk attracted 84 Iowa family business members in August of 2021.

Through web form integrations and website automation, the IASourceLink team was able to grow direct connections with Iowa businesses through the platform, reaching an all-time high of 1,887 business interactions. Additionally, self-directed guides were created that allowed more than 1,000 people to get immediate assistance they needed to start their business.

Advance Iowa, working in conjunction with the Iowa Governor's Office Empower Rural Iowa initiative and the Iowa Rural Development Council, was able to present workshops and webinars to 547 individuals representing 38 businesses and employee groups as well as 52 support organizations from 43 Iowa counties. The financial statement analysis and management program targeted 121 individuals from 28 businesses and nine different support organizations.

Plans for next year

The UNI FBC continues to grow and expand programming. For the coming year, the FBC will be expanding virtual offerings to continue to reach families across the state. This will include topic specific, relevant content for business families on legal, tax, governance, and other areas.

IASourceLink will work with the Iowa Economic Development Authority to integrate and implement the Business License Information Center more deeply into IASourceLink. This will create direct service offerings on the most searched topics for Iowa small businesses. These programs will continue to integrate the student experience with small business support programs and will provide high-end services remotely.

Advance Iowa is making business ownership transition a major focal point of programming for the coming year. Recognizing that for many rural businesses, the prospective new ownership will come from within the organization or community, Advance Iowa is partnering with private sector service providers, private foundations, and state agencies to provide support to transition many of these operations to an employee owned model. An estimated 200 participants from 50 distinct geographical communities will participate in various work sessions aimed at educating current and future business leaders in employee ownership.

Employee ownership continues to be a major focus area for the coming year along with an emphasis on the growth and sustainability of Iowa's SMEs, especially in the rural communities that rely on these firms to provide jobs and economic vitality to their region. The targets for employee ownership are to work with 300+ business owners and employees from 60+ unique

geographic communities and work with 10 firms to establish employee ownership transition plans. For the financial statement training, the target is to work with 150 business leaders that will lead to better understanding of the financial position of their firms and the creation of an actionable strategic plans.

Project 3: Regional Development

Description of the project

The Institute for Decision Making (IDM) continues to lead the implementation of the EDA University Center's Business Retention and Expansion through Innovation (BREI) project focusing on assisting businesses in enhancing their innovation and helping economic development organizations (EDOs) elevate their BRE programming. As part of the project, IDM continued its active engagement in the statewide Industry 4.0 Partner Consortium organized by Iowa's community colleges, and Iowa State University's Center for Industrial Research and Service (CIRAS). IDM staff members have played a leadership role in implementing the Consortium's education and awareness activities including development of videos, a webinar series and informational material on various Industry 4.0 technologies and applications.

With the ongoing impacts of COVID-19 on Iowa's businesses and organizations, IDM led efforts to complete the fourth statewide business impact survey, which included a statewide report for the Iowa Economic Development Authority/Iowa Finance Authority (IEDA/IFA). A statewide report on nonprofits, and a statewide report on rural respondents are currently being developed. The statewide report on rural respondents will be provided to the Empower Rural Iowa Task Group and the Iowa Rural Development Council. IDM, in partnership with UNI's Strategic Marketing Services (SMS), continues to complete local survey data reports for EDOs, Councils of Governments and other organizations.

Workforce shortages are one of the most significant impacts of the pandemic on Iowa employers. To help assess how the state of Iowa and its partners could help Iowa employers meet their current workforce demands, IDM and SMS assisted the Iowa Economic Development Authority in completing a statewide survey of human resource professionals from businesses and organizations. This survey was completed to better understand what they are experiencing and how their organizations are handling the current workforce challenges.

IDM continued to assist the Business Expansion and Strategic Trends (BEST) of Iowa program, which included revising the business interview questions used by local EDO's and the utilities to interview businesses, IDM also assisted the BEST Management Team and a statewide advisory group undertake a complete review of Iowa's BRE process and technology platform.

What results have been achieved in the past year?

During the past fiscal year, IDM continued implementation of the University Center's BREI project with the primary focus of assisting businesses, EDOs and service providers to elevate

their awareness and understanding about Industry 4.0 and common technologies and applications utilized in Industry 4.0. IDM continued to deliver Industry 4.0 awareness trainings for local EDOs and regional economic development groups. IDM remained active in the statewide Industry 4.0 Partner Consortium. IDM staff served leadership roles in implementing the Consortium's education and awareness activities. IDM staff led the development of a video promoting Manufacturing 4.0 and highlighting the State's efforts to assist manufacturers implementing Manufacturing 4.0 technologies and applications. IDM also assisted with the development of a webinar series on Industry 4.0/Manufacturing 4.0 and has led the development of informational material on various Industry 4.0 technologies.

Under the University Center's BREI project, IDM continued to assist local EDOs in implementing their BRE programming and being more effective with their business interviews to identify opportunities to assist businesses enhance their innovation. IDM continued to work with a variety of service providers to assist businesses in fostering innovation and technology utilization, innovative practices, and research and development, as well as support EDOs in their efforts to assist their businesses.

IDM continued to assist the Iowa Economic Development Authority/Iowa Finance Authority (IEDA/IFA) in gathering information from businesses related to the ongoing impacts of the COVID-19 pandemic. IDM led the completion of a fourth statewide survey and a statewide analysis, and a report was completed for IEDA/IFA for the survey. A statewide report on the rural respondents is being developed for the Empower Rural Iowa Task Group and the Iowa Rural Development Council, and a statewide report on nonprofit respondents is being developed for the Iowa Council of Foundations and its partners.

IDM assisted BEST with revising and implementing the business interview questions used by local EDO's and the utilities to interview businesses. IDM assisted the BEST Management Team and a statewide advisory group undertake a complete review of Iowa's BRE process and technology platform utilized by the EDOs and utilities. IDM is assisting the BEST Management Team with finalizing the recommendations from the review process. IDM and SMS completed the analysis of the statewide existing industry interview data and produced an Annual Report and executive summary document. IDM assisted in updating the BEST of Iowa Local Reporting Template tool used by EDOs to benchmark their community's and region's data with statewide data.

Examples of projects

IDM continued to assist IEDA/IFA in gathering information from Iowa businesses on the ongoing impacts of the pandemic. The fourth statewide survey was completed in March and April 2022 with 2,642 businesses and organizations responding. IDM and SMS worked with IEDA/IFA staff and other statewide organizations to develop the survey instrument and to encourage businesses statewide to complete the surveys.

Three statewide reports were or are being developed. The first was a statewide analysis and report for IEDA/IFA, and an extended executive summary was developed and publicly released. A statewide analysis of rural respondents is being developed for the Empower Rural Iowa Task Force and the Iowa Rural Development Council, and a statewide analysis and report is being developed for the nonprofit respondents on behalf of the Iowa Council of Foundations and its partners. Nearly 20 local and regional reports were produced following the first survey for EDOs, chambers of commerce, and Councils of Governments.

To help IEDA assess how the state of Iowa and its partners can help Iowa employers meet their current workforce demands, IDM and SMS completed a survey of human resource professionals from businesses and organizations across the state about what they are experiencing and how their organizations are handling current workforce challenges. The survey was completed in October 2021 with more than 1,000 employers completing the survey. IEDA and its statewide partners utilized the survey results to help inform their public policy efforts and programming centered on talent attraction.

As part of its leadership in UNI's University Center BREI project and its active participation in the statewide Industry 4.0 Partner Consortium, IDM staff served a lead role in the development of a video promoting Manufacturing 4.0 and highlighting the State's efforts to assist manufacturers implement Manufacturing 4.0 technologies and applications. IDM also assisted with the development of a webinar series on Industry 4.0/Manufacturing 4.0 and has led the development of informational material on various Industry 4.0 technologies and applications that can be utilized by businesses, EDO's and service providers.

Plans for next year

As part of the University Center's BREI project, IDM will continue to assist businesses and local EDOs in the Cedar Valley region, with a particular focus on assisting the EDOs interview more businesses in partnership with other service providers in the IRN. IDM will continue to participate in the statewide Industry 4.0 Partner Consortium by continuing to be active in the Consortium's education and awareness efforts including supporting the webinar series on Industry 4.0/Manufacturing 4.0 and continuing to develop informational materials on various Industry 4.0 technologies and applications.

IDM will finalize the development of the statewide rural respondent report for the Empower Rural Iowa Task Force and the Iowa Rural Development Council, and will finalize the statewide nonprofit report on behalf of the Iowa Council of Foundations and its partners. IDM will continue to provide customized local reports for all four of the statewide COVID impact surveys as requested. IDM will also develop a report that compares the aggregate responses for the survey questions that are in all four of the statewide COVID impact surveys.

IDM will continue to assist the BEST of Iowa program and help the BEST Management Team finalize and implement agreed upon revisions to Iowa's BRE process. IDM will assist with the analysis of the statewide data and the development of the statewide annual report and a more

detailed summary report. IDM will help to update the Local Reporting Template tool for EDO's to utilize in comparing their existing industry data with statewide data. IDM will continue to provide technical assistance to local EDOs on how they can better utilize their BRE programming based upon the data produced through their company interviews.

IDM will continue to support the economic development regions as requested with regional targeting, workforce assessments, marketing, organizational management, and planning efforts. IDM will work closing with the Governor's Empower Rural Iowa Taskforce and the Iowa Rural Development Council in providing appropriate services and programming to assist rural communities and regions. IDM will also continue to assist with the statewide workforce efforts and the regional sector partnerships in partnership with the Iowa Department of Education, Iowa Workforce Development, and the Sector Partnership Leadership Council.

Project 4: Competitive and Market Intelligence

Description of the project

Strategic Marketing Services (SMS) develops and manages a competitive and market intelligence program for Iowa SMEs and organizations. The purpose of devoting investments to competitive and market intelligence projects is to foster economic growth across Iowa by stimulating business expansion opportunities. Accurate information is needed to make sound market entry or expansion decisions. Gathering and analyzing information to make sound business decisions is what SMS provides. Established businesses are required to pay at least one-half of their project cost with a match from RIF funds. SMS has a goal of assisting a minimum of 12 Iowa companies per year with either advanced market research projects or tailored consulting services. Priority is given to businesses in the state's target industry clusters.

What results have been achieved in the past year?

SMS continued to work with BCS partners to assist Iowa organizations in understanding the impact of the pandemic in Iowa. A continuing example of this is the repeat work with IDM in assisting the IEDA in studying what Iowa businesses and organizations have experienced during pandemic recovery and how they continue to handle related challenges. Nearly 4,000 Iowa businesses and organizations provided responses to the fourth survey. Topics included impact on revenue and employment, supply chain issues, operational concerns, and implementation of new operational strategies. The IEDA has utilized the study findings to continue providing needed resources and assistance programs. Additionally, regional, county, and local reports have been provided to economic developers, community agencies, and local decision makers for use in strategy and policy planning. During FY22, SMS completed seven Iowa projects with eleven organizations including the BEST of Iowa Management Team. Additionally, SMS provided two consultations to Iowa-based organizations.

Examples of projects

SMS in collaboration with IDM once again assisted the BEST of Iowa Management Team with their annual business study. In a span of six months, 1,065 Iowa companies from 66 different counties were interviewed with SMS and IDM providing oversight and troubleshooting challenges that arose. This program collects existing business data through interviews with local employers by local economic developers. The data collected helps economic development organizations and their partners identify such things as business expansion opportunities or potential issues that could lead to a business downsizing or closure in their community. The statewide data also helps to inform and shape Iowa's economic development programs and policies.

SMS partnered with IDM to survey human resource professionals from businesses and organizations across the state about what they were experiencing and how their organization was handling workforce challenges. Just over 1,000 businesses and organizations provided responses. Key topics included on the survey were recruitment problems and barriers, utilization of recruitment efforts and strategies, retirement preparedness and awareness of state resources and engagement. The findings were presented at a statewide human resource conference sponsored by the IEDA in December of 2021. SMS assisted the Janesville Consolidated School District in conducting a comprehensive high school perceptions and reimagining assessment by performing primary research interviews with middle and high school staff, students, parents and alumni.

Plans for next year

SMS will continue to consult with, and provide market research services for, Iowa businesses, public/private partnerships, utilities, economic development organizations, non-profit organizations, statewide associations, and government entities as SMS leverages RIF dollars to strengthen Iowa's economy. As pandemic recovery continues, Iowa businesses and organizations will benefit from market intelligence. SMS will continue planning to assist a minimum of 12 Iowa companies with advanced market research project studies or tailored consulting services. Iowa businesses/organizations will be eligible at a minimum to receive a discount of up to 50 percent of the project cost, but not to exceed \$10,000.