



**University of Northern Iowa
Annual Economic Development and Technology Transfer Report – FY2018**

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 throughout all of Iowa's 99 counties for the 19th consecutive year. UNI's economic development outreach programs are housed in the Business and Community Services (BCS) division and work toward supporting the UNI strategic goal of contributing to the economic vitality of the state. 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*.

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

Some exceptional recognition and milestones in the past year include:

- UNI's Regional Entrepreneurship Project (IDM/JPEC/CBGI) received the Veridian Community Engagement Fellowship Award for the ReNew Waterloo Small Business Retention and Expansion project in North Waterloo.
- Business and Community Services (BCS) was recognized by the Greater Cedar Valley Alliance as the Partner of the Year.
- The Iowa Waste Reduction Center (IWRC) was recognized by the Iowa Recycling Association with the Commitment to Iowa Award and by the Environmental Protection Agency with the Food Recovery Challenge Regional Award.
- UNI's Green Iowa AmeriCorps program received the Higher Education Award for Innovative Campus-Corps Partnerships and the Program Best Practices Award from the Service Year Alliance, and the Green Iowa AmeriCorps team in Des Moines received the "2018 Partner of the Year" from the Polk County Soil & Water Conservation District.
- Carmen Finken, CEEE staff who runs the Sustainable School AmeriCorps, received the 2018 New Nonprofit Employee of the Year from the Nonprofit Leadership Alliance
- The Sustainable Schools AmeriCorps program's site in Dubuque with Holy Family Catholic Schools received the US Department of Education's Green Ribbon Schools award.
- CEEE's Community Energy Planning program won the Iowa Campus Compact Emerging Innovation Award.



Summary of BCS' key economic development program outcomes for FY2018:

Overall

- Provided service in all 99 counties to nearly 3,370 unique business, community, and local government clients including an additional 49,000 unique visitors to MyEntre.Net/IASourceLink
- Reached more than 406,000 Iowans through BCS programs and projects
- Engaged 216 faculty members and 356 students in the delivery of BCS services and another 3,240 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

- Incubator graduates have created more than 1,000 jobs over the past several years, with companies such as Far Reach Technologies, id8, Discida, Rite Environmental, Braceability, TargetClick by Mudd, and Red Lab Technologies.
- More than \$800,000 of 3D printing casting molds and cores have been provided to industry in 2018 and this value represents only 5-10% of the value of the final parts for industry. Forty of these companies are based in Iowa.
- Three-fourths of all student entrepreneur graduates remain in business or have remain involved in an entrepreneurial venture
- Military bases and depots saved at least \$500,000 per year in painting and coating costs due to military painter training
- Iowa Workforce Development and the Iowa Economic Development Authority are creating the first statewide laborshed approach with assistance from the Institute for Decision Making's model

Entrepreneurship, Business Incubation and Technology Transfer

- Provided job growth assistance to 119 second-stage Iowa companies in 62 counties through Advance Iowa, the state's certified Economic Gardening program
- Increased participation of entrepreneurs in IASourceLink online resources, a joint program between UNI and the Iowa Economic Development Authority (IEDA), to 49,000 user sessions
- Supported 1,164 Iowa businesses with market information by the Business Concierge team
- Served 10 businesses through the new student consulting program
- Attracted 14 new companies to the UNI incubators
- Graduated 80 innovators from Center for Business Growth and Innovation (CBGI) incubators during the past decade
- Served 270 new clients through UNI's Small Business Development Center (SBDC)
- Incubated 27 student businesses in the John Pappajohn Entrepreneurial Center's (JPEC) R.J. McElroy Student Business Incubator, and 25 additional student entrepreneurs were served as affiliate members
- Received 11 new intellectual property disclosures from UNI faculty and staff
- Filed 3 patent applications and received 1 patent
- Approved 2 new license agreements resulting in 10 license agreements generating income
- Continued to jointly work with the Iowa State University Research Foundation (ISURF) to assess and commercialize intellectual property and submitted a joint patent

Local Economic Development

- Partnered with IEDA and Iowa utility companies to conduct an analysis of statewide existing industry data, which was a collaboration with the Institute for Decision Making (IDM) and Strategic Marketing Services (SMS)



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- Continued as a designated Economic Development Administration (EDA) University Center and expanded the regional entrepreneurship project into its 5th region (a 6-county region in Northeast Iowa) through a partnership between IDM and CBGI
- Provided strategic planning and comprehensive technical assistance to 38 community partners and 4 additional regional groups across Iowa through IDM
- Expanded the market for economic development training to include a 6-state region through the IDM-led Heartland Economic Development Course and achieved enrollment of 85 entry-level economic developers
- Created an average of approximately 1,500 jobs through local economic development technical assistance from IDM, as reported by community clients

Waste Reduction, Environmental Assistance, and the Bioeconomy

- Hosted Green Iowa AmeriCorps sites that combined to weatherize 600 homes and conduct 500 educational programs with 8,000 people in attendance
- Implemented 350 team projects in the community and garnered 7,250 volunteer hours through the Green Iowa AmeriCorps program
- Reduced urban pesticides in public spaces to enhance water quality and child health through the Good Neighbor Iowa program
- Distributed 1,300 acres of native seed for 39 county roadsides as part of the Tallgrass Prairie Center's (TPC) roadside vegetation project and published an interactive map to showcase Iowa's native roadsides
- Delivered painter training to 288 painters within all military branches at IWRC's painting facility and at 4 satellite facilities
- Provided environmental technical assistance and on-site reviews through IWRC to 74 Iowa small businesses, conducted 18 food waste projects, and conducted 16 Green Brewery visits
- Expanded CEEE's Local Foods Program impact to \$23 million worth of locally grown food products purchased by institutional buyers from hundreds of Iowa farmers
- Completed urban watershed modeling for 14 communities in the English River Watershed
- Updated 15 Iowa watersheds' National Hydrography Dataset in collaboration with the Iowa Department of Natural Resources (DNR) and GeoTREE
- Developed a cartographic map series for the Iowa Governor's STEM Council through GeoTREE
- Provided recycling and reuse project funding and outreach services to 18 companies and organizations through the Recycling Reuse Technology Transfer Center (RRTTC)

Advanced Manufacturing and Market Research

- Served 80 foundries and supply chain companies with custom 3D sand-cast core and mold printing services through the additive manufacturing program of the Metal Casting Center
- Assisted the Rock Island Arsenal with research, development, and training projects for the Army and Navy through MCC and IWRC
- Hosted 800 visitors to demonstrate additive manufacturing at MCC's Additive Manufacturing Center
- Presented at a dozen national conferences on metal casting or additive manufacturing during the last year. Topics ranged from additive manufacturing to advanced metal casting processes and materials.
- The MCC was awarded phase III funding for a project initiated by the Air Force Research laboratory. The project involves the manufacture of maintenance and sustainment components for Air Force aerospace systems.
- Awarded best technical paper on molding materials at the 2018 Metal Casting Congress for work with prediction of core gas pressure from chemically bonded sand molds using computer process modeling



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- Launched a new 3D printing technology for investment casting in partnership with 3 original equipment manufacturers in Iowa
- Provided market research and competitive intelligence to 17 Iowa companies by Strategic Marketing Services (SMS)
- Conducted an industry sector partnership inventory and an analysis of Iowa’s existing industry through a partnership between SMS and IDM
- Provided painting and coating research, development, and training to each branch of the military and 9 Iowa companies by IWRC

Section 2. Technology Transfer and Intellectual Property

FY2018

	UNI
Number of disclosures of intellectual property	11
Number of patent applications filed	3
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	10
Revenue to Iowa companies as a result of licensed technologies	\$3,600,000
Number of start-up companies formed with UNI assistance	96
Number of companies in research parks and incubators	20
Number of <u>new</u> companies in research parks and incubators	14
Number of employees in companies in research parks and incubators	66
Royalties/license fee income	\$21,544
Total sponsored funding	\$39,477,000
Corporate-sponsored funding for research and economic development and revenue generation (excludes corporate philanthropy - all in Iowa)	\$803,000
i. Annual appropriations for economic development	\$1,066,419
ii. Regents Innovation Fund	\$900,000

Section 3. Overview of UNI’s Economic Development Programs

UNI outreach services for community and economic development activities are outlined in a table format on the following seven pages. The format provides a brief overview of each program, its purpose, those served, outcomes for the past year, and some aggregate outcomes as well. Together, the programs served nearly 3,372 unique businesses and organizations in the past year and another 49,000 individuals through the MyEntre.Net entrepreneurial development system and IASourceLink.



Section 3. Overview of UNI’s Economic Development Programs

Programs	Services	Those Typically Served	FY 2018 Results (listed)	Cumulative Results
Advance Iowa (AI)	Rural/Urban Consulting program focused on small and medium sized existing businesses providing succession planning, strategic planning, business consulting, training, and peer round tables	Small and medium enterprises	<ul style="list-style-type: none"> ✓ 119 companies assisted ✓ 7 seminars on Succession Planning & Value Building ✓ 6 Seminars on Strategic Planning ✓ Service to clients in 62 counties 	<ul style="list-style-type: none"> ✓ Project work with 513 mid-sized companies in all regions of the state
Center for Business Growth & Innovation/ Small Business Development Center	Rural/Urban entrepreneurship development, online entrepreneurship resources, business consulting, business training, business incubation	Small and medium sized businesses, entrepreneurs, entrepreneurial service providers, community leaders	<ul style="list-style-type: none"> ✓ Launched the Student Consulting program – completing 10 client projects during pilot phase ✓ 8 Webinars – 2,000 attendees ✓ Business Concierge served 1,164 small businesses 	<ul style="list-style-type: none"> ✓ IASourcelink has reached 150,000 unique users since its launch in 2012 ✓ Engaged more than 510 entrepreneurs in the Dream Big Grow Here grant contest and Iowa’s Great Idea Challenge since 2010 ✓ Over 4,900 business intelligence requests have been completed since 2010 ✓ 80 companies have graduated from the CBGI and Innovation Incubators ✓ More than 30,000 live and archived webinar views since 2003



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Small Business Development Center (SBDC)	Rural/Urban entrepreneurship development, online entrepreneurship resources, business consulting, business training	Small and medium sized businesses, entrepreneurs, and community leaders	<ul style="list-style-type: none"> ✓ SBDC served 270 clients across Iowa with 692 counseling hours. SBDC coordinated and facilitated the Financing Basics session in the Business Builders workshops hosted by the CBGI 	<ul style="list-style-type: none"> ✓ SBDC was credited with helping create 16 new businesses, 65 jobs and supporting infusion of \$1,203,618 in capital for clients
Center for Energy and Environmental Education (CEEE)	Technical assistance, educational programs and leadership in energy conservation and renewable energy, environmental conservation, and community-based agriculture	Iowa cities, counties, Iowa schools, teachers, farmers, businesses, elected officials, state agencies, community leaders, citizen organizations	<ul style="list-style-type: none"> ✓ UNI Conservation Corps engaged 16 UNI faculty/staff and over 100 UNI students in 9 community-scale projects to reduce energy consumption, restore ecosystem services, and improve environmental health ✓ CEEE’s Good Neighbor Iowa helped reduce urban pesticides in public spaces for water quality, pollinator and biodiversity protection, and child health ✓ Green Iowa AmeriCorps sites combined to weatherize over 600 homes, conduct over 500 education programs with over 8,000 people in attendance, implemented 350 team projects in the community, and garnered 7,250 volunteer hours 	<ul style="list-style-type: none"> ✓ Since 1998, UNI’s Local Food Program has facilitated purchase of \$23 million worth of locally grown food products by institutional buyers from hundreds of Iowa farmers



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<p>Geoinformatics Training, Research, Education and Extension Center (GeoTREE)</p>	<p>Geospatial technologies, education, research, and outreach activities for federal, state, local, and tribal agencies</p>	<p>Federal, state, local, and tribal (FSLT) governmental agencies</p>	<ul style="list-style-type: none"> ✓ Updated 15/55 Iowa watersheds National Hydrography Dataset water body area data ✓ Completed urban watershed modeling for 14 communities in English River Watershed ✓ Developed cartographic map series for Iowa Governor’s STEM Advisory Council ✓ Developed and delivered elementary school lessons based around mapping concepts 	<ul style="list-style-type: none"> ✓ Project work with hundreds of public agencies, academic groups/departments, and private companies. Development and delivery of many geospatial data and custom applications
<p>Institute for Decision Making (IDM)</p>	<p>Hands-on community and economic development guidance and research</p>	<p>Economic development organizations, chambers, city councils, communities, and others</p>	<ul style="list-style-type: none"> ✓ Assistance and research provided to 38 community partners and 4 regional development groups ✓ Partnered with Iowa Economic Development Authority and Iowa utilities for an analysis of statewide existing industry survey data ✓ Assisted 6 regions with developing and implementing regional entrepreneurship plans 	<ul style="list-style-type: none"> ✓ Served 774 communities, counties and groups in nearly all of Iowa’s counties to date ✓ Community clients report 1,500 – 2,000 new jobs annually as a result of IDM assistance ✓ Trained over 950 economic development professionals



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Iowa Waste Reduction Center (IWRC)	Free, confidential, non-regulatory environmental assistance for Iowa small businesses, as well as industry training and education	Small businesses throughout Iowa, food waste generators, military and industrial painters	<ul style="list-style-type: none"> ✓ Environmental Technical onsite reviews were provided to 74 Iowa small businesses including 18 food waste reduction visits and 16 green brewery project visits ✓ Industrial painter training was provided to 9 businesses training 151 workers ✓ Military painter training was conducted at IWRC facilities and at 4 satellite sites training a total of 288 painters 	<ul style="list-style-type: none"> ✓ Provided 6,103 on-site reviews to Iowa small businesses ✓ Certified 10 Iowa craft brewers ✓ Provided 3,744 certifications to military painters and DoD contractors
John Pappajohn Entrepreneurial Center (JPEC)	Research, entrepreneurship education, technology transfer, and capital investment programs	Students interested in entrepreneurship, UNI faculty and staff entrepreneurs, new ventures, and rapidly growing small companies	<ul style="list-style-type: none"> ✓ 2,027 businesses and individuals were assisted through all JPEC programs ✓ 27 student business owners running 17 businesses with 44 employees were provided space and services in the student business incubator ✓ 25 student business owners were provided services as part of the student business affiliate incubator program ✓ 662 middle and high school students were educated about entrepreneurship 	<ul style="list-style-type: none"> ✓ The JPEC Student Business Incubator has provided space to more than 111 student business owners since FY05 ✓ The JPEC has consulted with 675 faculty and staff from around the U.S. and the world regarding student business incubation ✓ Since FY13, 2,134 College of Business Administration students have learned about and crafted an elevator pitch through presentations by JPEC instructors ✓ Since FY14, 41 businesses and non-profits have had their projects completed by Entrepreneurial Strategy students



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Programs	Services	Those Typically Served	FY 2018 Results (listed)	Cumulative Results
Metal Castings Center (MCC) and Center for Additive Manufacturing	Metal casting technologies, applied research, testing, and training	Iowa casting users, foundries, and foundry suppliers	<ul style="list-style-type: none"> ✓ Iowa active contracts with 80 clients, provided outreach projects to 4 Iowa foundries and technical assistance to 50 additional foundry suppliers ✓ Conducted DOD-sponsored research into front line manufacturing of cast parts ✓ Sponsored commercialization of Zircon Sand Additive, 2 patents submitted 	<ul style="list-style-type: none"> ✓ Over 2,000 industry-funded research projects have been completed to date and more than 100 clients assisted with additive manufacturing
Materials Innovation Service (MIS)	Mechanical, physical and chemical tests of metals, polymers and cementitious materials	Serving Iowa manufacturers and suppliers	<ul style="list-style-type: none"> ✓ Technical assistance and testing was provided to 5 companies across Iowa 	<ul style="list-style-type: none"> ✓ Technical assistance or testing provided to approximately 160 companies. More than 2,100 hours of testing provided since the beginning of the program
Panther Initiative for Environmental Equity and Resilience (PIEER)	Environmental social justice awareness, education, outreach, and research	Serving Iowans, especially those affected by environmental equity issues	<ul style="list-style-type: none"> ✓ Outreach awareness and education related to environmental social justice to 10 organizations 	<ul style="list-style-type: none"> ✓ Outreach and educational awareness provided to 10 organizations and more than 2,000 individuals this year, including community, UNI and governmental organizations



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<p>Recycling and Reuse Technology Transfer Center (RRTTC)</p>	<p>Recycling and by-products research, education, and outreach</p>	<p>Serving Iowa businesses, the recycling industry, and Iowa citizens.</p>	<ul style="list-style-type: none"> ✓ Research project funding and outreach services related to recycling and reuse was provided to 18 companies and organizations 	<ul style="list-style-type: none"> ✓ Conducted 42 RRTTC funded research projects ✓ Over 170 reports and publications available ✓ Outreach and services provided to more than 6,000 individuals, including business/industry, K-12 students, teachers, and Iowa citizens
<p>Strategic Marketing Services (SMS)</p>	<p>Market research and analysis</p>	<p>Businesses, entrepreneurs, and non-profit organizations</p>	<ul style="list-style-type: none"> ✓ Market research and analysis services were provided to 18 Iowa companies ✓ In partnership with IDM, SMS performed analysis and developed a report for statewide existing industry data for the IEDA and Iowa utilities ✓ Assisted Hawkeye Community College’s Corporate & Business Solutions group identify business training needs and preferences ✓ Assisted MCC’s Center for Additive Manufacturing in assessing additive manufacturing (AM) technology knowledge and adoption among businesses 	<ul style="list-style-type: none"> ✓ Since 1990, market research and analysis services have been provided to 304 Iowa companies



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Programs	Services	Those Typically Served	FY 2018 Results (listed)	Cumulative Results
Tallgrass Prairie Center (TPC)	Research, education, and technology transfer supporting restoration of tall grass prairie; coordination and assistance for county roadside managers, farmers, and agricultural conservation professionals	Iowa county governments, state DOT, USDA-NRCS technicians, and ag technical service providers, commercial native seed producers, county conservation boards, K-12 science educators, restoration ecology private businesses	<ul style="list-style-type: none"> ✓ Distributed 1,300 acres-worth of native seed for 39 county roadsides ✓ Published an interactive map, “Showcase of Native Roadsides” ✓ Released ten lesson plans for science educators on prairie root systems ✓ Published a technical report on the equipment needs for using prairie biomass for space heating ✓ Began planting 77-acre prairie in Benton County for benefit of students and the surrounding community 	<ul style="list-style-type: none"> ✓ More than 50,000 acres of Iowa counties rights-of-way have been restored to native vegetation ✓ Forty-five Iowa counties use ecologically integrated management on ~315,000 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 wild flowers ✓ Over 90 UNI students have gained hands-on practical experiences and/or scientific training on prairie restoration since 2002



Section 4: Regents Innovation Funding Report

UNI's 2018 Regents Innovation Funding (RIF) Annual Report (also known as Skilled Worker and Job Creation Fund) is on file at the University of Northern Iowa and the Board of Regents Office. Projects and outcomes partially supported by the RIF are included in this 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.

Center for Business Growth and Innovation (CBGI) Partners with State and Regional organizations to expand small business assistance

- IASourceLink: The IASourceLink program continues as a strong partnership between UNI and the Iowa Economic Development Authority. This program provides assistance to business related issues as well as links Iowa's businesses with support resources from around the state. The program collaborated with the following regional, state, and local partners: Iowa Department of Revenue, Iowa Commission on the Status of Women, Iowa Innovation Corporation, New Bohemian Innovation Collaborative (NewBoCo), Technology Association of Iowa, Pappajohn Entrepreneurial Centers, Iowa Waste Reduction Center, SourceLink, U.S. Small Business Administration, Iowa Small Business Development Centers, Iowa Farm Bureau/Renew Rural Iowa, Iowa Area Development Group, Iowa Association of Business and Industry, BizStarts, Entrepreneurial Development Center (EDC), Main Street Iowa, and more. In FY2018, 48,943 Iowans sought information, and business assistance was provided to 1,164 direct interactions with Iowa business owners via the Iowa Business Concierge services.
- Local Entrepreneurial Events: Several local events were conducted where the UNI Center for Business Growth and Innovation worked collaboratively with local partners. These include monthly 1 Million Cups events, the annual Startup Weekend, and Bar Camp events. Partners for the events included the Greater Cedar Valley Alliance, TechWorks, Inc., Mill Race Co-working and Collaboration, Waterloo Center for the Arts, Cedar Falls Utilities, Far Reach, the UNI Pappajohn Entrepreneurial Center, and numerous local entrepreneurs.

Advance Iowa (a program of CBGI)

- The UNI Advance Iowa program has continued a partnership with the Greater Dubuque Development Corporation to offer a monthly Peer Round Table and provide project services and consulting support to 10 small-medium business clients.
- The UNI Advance Iowa program has partnered with the Iowa Association of Business and Industry to offer a strategic planning program for their members and the Iowa Jewelers Association to offer succession planning and value building services to their members throughout the state.



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

- CEEE collaborates with the Iowa Commission on Volunteer Service to host a significant AmeriCorps Program with 35 service members serving many Iowa communities by offering comprehensive energy services to people in need.
- CEEE and ISU Extension are working closely together on local food initiatives in Region 9 Extension, which includes Black Hawk and surrounding counties. UNI and ISU Extension have jointly funded a local food coordinator to expand markets for local agricultural products among institutional buyers, and make locally grown foods visible to the residents of the region.

GeoTREE Center worked with Iowa Department of Natural Resources and the Iowa Department of Agriculture and Land Stewardship

- In collaboration with the Iowa Department of Natural Resources, the GeoTREE Center is updating the Iowa contribution for the National Hydrography Dataset. Multiple UNI Geography students edited and updated 15 out of 55 watersheds in Iowa in the past year.
- The GeoTREE Center conducted a project that was a collaboration with multiple organizations across the state (e.g. Polk County Soil and Water Conservation District, the East Central Iowa Council of Governments, City of Waterloo) to develop geographic databases and to model urban storm water and pollutant runoff.

Institute for Decision Making (IDM) Collaborates with Iowa Economic Development Authority, Iowa Utilities, local economic development organizations and entrepreneurial development service providers

- IDM, in partnership with Strategic Marketing Services (SMS), assisted the BEST of Iowa Management Team (Iowa Economic Development Authority, MidAmerican Energy, Black Hills Energy, Alliant Energy, and the Iowa Area Development Group) analyze data from interviews completed with Iowa companies which are in one of the 12 distinct industry clusters driving Iowa's economy or were identified as major employers. The industry clusters were identified in 2014 by the Battelle Technology Partnership Practice. The interview data was collected by economic development organizations across Iowa from July 2016 thru August 2017. 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 partnered with the Center for Business Growth and Innovation (CBGI) to develop the Small Business Opportunity Toolbox (SBOX) to assist economic developers in conducting small business visits. The first SBOX program was rolled out in partnership with Midwest Partnership Development Corporation in eight communities and surrounding rural areas in Adair and Guthrie Counties. Over 300 businesses were targeted for a visit over three separate events. Visits were made by a team from the SBDC, CBGI, Iowa Workforce Development, local chambers, and others who serve businesses in the area. The SBOX program was utilized in an urban setting in North Waterloo in March 2018 in partnership with the City of Waterloo, ReNew Waterloo, the Cedar Valley Alliance and Chamber, and UNI's John Pappajohn Entrepreneurial Center (JPEC). A core response team of economic developers and service providers, together with UNI Entrepreneurship students and local neighborhood volunteers made 112 visits to local businesses.



Iowa Waste Reduction Center (IWRC) Collaborates with State and National Partners

- The IWRC partnered with the Iowa Department of Natural Resource's Land Quality Bureau to reduce food waste being directed to Iowa landfills. This collaboration entailed promoting the IWRC's Food Waste Reduction Web portal, completing joint presentations, and providing technical on-site visits to food waste generators.
- The IWRC collaborated with the Iowa Department of Natural Resources and the federal Environmental Protection Agency through the Strategic Goals Program. This project involved all three organizations working together to plan and implement two workshops per year that provide pollution prevention and environmental assistance to Iowa businesses.
- The IWRC partnered with the Iowa Department of Natural Resources and the federal Environmental Protection Agency to host the 2018 Midwest Food Recovery Summit in Des Moines. This partnership involved jointly developing the agenda and promoting the Summit.

John Pappajohn Entrepreneurial Center (JPEC) Collaborates with Regional and International Organizations

- UNI's John Pappajohn Entrepreneurial Center partnered with UNI's International Admissions Department to create a two day shark-tank camp for prospective high school students from Pakistan - 21 high school students, 4 Pakistani instructors, 4 UNI International Admission staff, and 2 Career Pathway staff attended.
- UNI's John Pappajohn Entrepreneurial Center partnered with UNI's College of Education to provide a half-day class focusing on innovation, creativity and entrepreneurship principles for 16 students and 5 teachers from the Meskwaki Settlement School.
- UNI's John Pappajohn Entrepreneurial Center partnered with Cedar Falls Main Street and five Main Street business owners to offer a three day Lemonade Stand camp for third through sixth graders. The camp teaches students the basics of running a business as well as the importance of philanthropy and giving back. The 12 students raised \$1,075 for local charities in one and a half hours of selling lemonade on a Saturday morning in June.

Metal Casting Center (MCC) Collaborates with UI, ISU, Iowa Community Colleges, and other educational institutions.

- The MCC is collaborating with the University of Iowa Mechanical Engineering and Art departments on several projects, the largest of which involves the Rock Island and Watervliet Arsenals.
- The MCC is collaborating with Youngstown State and Penn State universities on two federally funded research projects to expand use of bio-based aggregates in 3D printing.
- The MCC is collaborating with Northeast Iowa Community College on a federally funded project to develop training materials for additive manufacturing.



RRTTC/Panther Initiative for Environmental Equity and Resilience (PIEER) Collaborates with many Cedar Valley organizations

- RRTTC started a new collaboration with UNI Study Abroad and with the Universidad Latina de Costa Rica. Latina students will travel to Iowa to participate in a Sustainability Immersion Program while integrating existing courses from their home institution. While on campus, the UNI Intensive English Program collaborated to develop the program with the UNI Recycling & Reuse Technology Transfer Center.
- RRTTC/PIEER collaborated with Tri-County Head Start, Operation Threshold, Birthright, and Young Parents Together to deliver lead education and awareness to their staff, volunteers, clients, and parents of unborn and young children. Oral presentations as well as written materials were given.
- RRTTC/PIEER partnered with Blue Zones, Healthy Cedar Valley Coalition and North Iowa Farm Partnership to organize the Cedar Valley Food and Film Festival. Local food producers and supporters were available to showcase their products and services to kick off the farmer's market season. Four films were also shown followed by a discussion that included upcoming technology, healthy food choices, water quality, and food waste.

Strategic Marketing Services (SMS) Partners with Iowa Organizations

- SMS assisted Hawkeye Community College's Corporate and Business Solutions group in conducting primary research among their customers and other businesses located in the counties of Benton, Black Hawk, Bremer, Buchanan, Butler, Chickasaw, Fayette, Floyd, Grundy, and Tama. The project was designed to assess the overall training market to identify business training topic needs and preferences, gauge pricing ranges and tuition reimbursement utilization, assess key performance criteria and satisfaction with Hawkeye Community College's Corporate & Business Solutions training offerings, and learn about the decision-making process for training utilization.
- SMS assisted MCC's Center for Additive Manufacturing and the Iowa Innovation Council in assessing additive manufacturing (AM) technology knowledge/understanding levels, interest level, and current vs. future adoption/utilization among businesses. The project also gauged participation interest in an AM cooperative/partnership organization that would bring together suppliers, users, and technical experts interested in additive manufacturing.

Tallgrass Prairie (TPC) Partners with the Iowa Department of Transportation, Department of Ag and Land Stewardship, DNR, Iowa Corn Growers, USDA, Iowa Soybean Association, ISU, UI, and the Iowa Economic Development Authority

- The Integrated Roadside Vegetation Management Program (IRVM) coordinated with the Iowa Department of Agriculture and Land Stewardship, Iowa Department of Transportation, Iowa Department of Natural Resources, USDA Natural Resources Conservation Service, Iowa Soybean Association, Iowa Corn Growers Association, Iowa State University, and two county roadside managers to propose changes to Iowa's noxious weed law. The IRVM program also coordinated with members of the Iowa Monarch Conservation Consortium, a partnership of over 40 farmer and conservation organizations, state agencies, companies, and Iowa State University, to develop a draft statewide monarch conservation plan. The IRVM program



coordinated with the Iowa DOT in the administration of a grant from the Federal Highway Administration that provided enough seed to plant 1,300 acres of county Iowa roadsides with native plants.

- The Natural Selections Program partnered with the Iowa DNR Prairie Resource Center to clean seed for native plantings on state lands, and the Iowa Department of Transportation and USDA NRCS on issues of native seed quality assurance for roadside and CRP plantings. The USDA-Farm Services Agency is funding a study of the native seed supply chain in Eastern Iowa.
- The Prairie on Farms Program of the TPC partnered with the Iowa Economic Development Authority (IEDA) on a community development block grant. Additional partners with this grant includes the University of Iowa, Iowa State University Outreach and Extension, Iowa Department of Natural Resources, and the Iowa Flood Center. As a partner, the TPC assisted Watershed Coordinators in eight designated priority watersheds across the state of Iowa to reduce flood risk and improve water quality. The TPC assisted county US Department of Agriculture- Natural Resources Conservation Service offices and watershed coordinators in eight watersheds across Iowa to provide tailored technical guidance on prairie restoration.

Section 6. Suggestion for New or Expanded Program to Enhance UNI's Impact on Iowa

UNI proposes expansion of a very successful program to support additive manufacturing and its supply chain. Additive manufacturing is an emerging and disruptive technology that is revolutionizing the manufacturing sector. Since its establishment in 2013, the UNI Metal Casting Center's additive manufacturing program has become the national leader in sand core and mold 3D printing. More than 100 manufacturers and all branches of the U.S. Military have been assisted with 3D design and printing services. Existing clients are 80 percent Small-Medium Enterprises (SMEs) and serve as the supply chain for the Original Equipment Manufacturers (OEMs).

Demand for Additive Manufacturing expertise and services currently exceeds the Metal Castings Center's capacity to meet this need. Equipment, space, and staffing are needed to meet growing demand and further position Iowa as the national leader in metal casting additive manufacturing. In addition, more funding will accelerate advancements in new technologies, such as investment casting 3D printing. The Metal Casting Center will leverage funding from the Legislature by attracting more fee-based projects, seeking grants, and expanding industry partnerships.

The primary goal of the additive manufacturing expansion is to partner with manufacturing industries to adopt new additive manufacturing design and 3D printing technologies, thus allowing businesses to increase competitiveness in the world market and promote new product development.

The Additive Manufacturing expansion will help SMEs:

- Fully develop and evaluate designs for prototyping and production in a low risk, low-cost environment
- Work with advanced design rules that complement and take advantage of the additive manufacturing processes
- Develop a process for SMEs to learn how and where to apply 3D technology
- Bring products to market faster
- Create complex designs not possible using traditional materials and processes
- Adopt and integrate additive manufacturing technologies