

Volume 59 | Number 4

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## Elevating Quality and Supply Chain Resilience

Three Puck Custom Enterprises employees in protective gear welding a large metal structure.

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Since 1963, we have delivered proven services to enhance the performance of industry. Our approach—Engage. Educate. Embed.—creates specific solutions that allow each business and its community to prosper and grow.

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CIRAS is supported in part by the DoC/NIST Manufacturing Extension Partnership, the DoD/OSBP APEX Accelerator, the DoC/EDA University Center Program, the DOT Disadvantaged Business Enterprise Support Services Program, and the State of Iowa Economic Growth Committee appropriation for the CIRAS Technology Assistance Program.

*CIRAS News* is published quarterly by the Center for Industrial Research and Service and edited by the CIRAS publications team. Design and production is by Hobbs Designs, LLC. Please send questions, comments, or address changes to [ciras.news@iastate.edu](mailto:ciras.news@iastate.edu).—August 2024 HD24068

Articles may be republished with the following credit line: "Republished from *CIRAS News*, Vol. 59, No. 4, a publication of Iowa State University Center for Industrial Research and Service." Please send a copy of the reprint to *CIRAS News*, 1805 Collaboration Place, Suite 2300, Ames, Iowa 50010-9166 or email the URL to [ciras.news@iastate.edu](mailto:ciras.news@iastate.edu).

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Puck Custom Enterprises *continued from page 1*



Puck Custom Enterprises warehouse floor.

As Puck Custom Enterprises, a Manning-based manufacturer of liquid transfer equipment, continues to grow, they need to ensure their business practices continue to meet their needs. Recently, this meant upgrading their quality systems and their approaches to managing their supply chain.

"We are always striving to produce a higher quality product, and after being in manufacturing for almost 45 years, we felt it was time to implement ISO 9001 to be able to move up to those standards," said Laura Pepple, Puck's director of business development. "We've partnered with CIRAS on a variety of projects with positive outcomes, so utilizing them as a resource for this project was immediately part of our thought process."

In June 2022, Puck started working with CIRAS and a third-party advisor to implement an ISO 9001 management system.

"Doing this on your own takes a lot of time and people power. We have fully vetted personnel who have a strong track history for being professional and knowledgeable about the standards," said Ben Drescher, CIRAS project manager. "They are focused on getting the quality system up to speed and making sure as a company you are still producing your products and making money."

There is a large learning curve when entering the world of ISO 9001 quality standards and a significant amount of record reviewing and paperwork.

"When you read the standards, they are written with a very broad brush and sometimes are open to interpretation. Being able to utilize CIRAS expertise to further break down how a standard applies directly to our processes was extremely beneficial," said Pepple. "The number one takeaway from working with CIRAS was their ability to explain 'the why' behind the question and then present multiple avenues of approach to accomplish the task or procedure."

"An ISO 9001 audit looks at the entire manufacturing system and quality processes, from how products are designed to how employees are trained on quality post checks and how committed management is to a quality system," said Drescher. "It is a world-recognized standard for how manufacturing is done. Puck is a rapidly expanding company, and obtaining ISO certification will help them attract new business."

Puck achieved ISO 9001 certification in April 2023.

"It was a huge relief, especially when we were able to pass without any major findings," said Pepple.

ISO 9001 companies are required to conduct surveillance audits annually. These are typically internal audits to ensure the company is still meeting ISO standards. "We did our surveillance audit in April 2024 and once again turned to CIRAS. They worked well with our team during the entire certification process, and they were intimate with our company and our processes. That's what we



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needed—someone familiar with us but who could also bring fresh eyes that would find any gaps,” said Pepple.

“As we continue to diversify and seek new markets, having ISO 9001 certification will help tremendously,” said Pepple.

The ISO 9001 certification also has a supplier scorecard, which dovetailed nicely with a supply chain mapping project Puck partnered on with CIRAS.

“This is a deep dive into a company’s complex supply chain. It gives clients better visibility of their inbound supply chain. It identifies risks and opportunities to mitigate them,” said Marc Schneider, CIRAS supply chain project manager.

“We were seeking to identify high-risk suppliers, as well as high-risk freight gateways, and we wanted to understand how to perform a risk assessment on suppliers utilizing this type of analysis for our purchasing program,” said Pepple. “Our supplies come from all over the world.”

CIRAS supply chain mapping is designed to provide a company with a comprehensive view of their supply chain, including who is providing materials, geographic concentrations, where main suppliers get their supplies, and how shipments are routed. Each supplier is given a risk index score, a picture of the costs, and then interdependencies related to suppliers emerge.

“We help companies know where to focus their efforts and geographically display that with heat maps, taking into account weather risk areas and other factors,” Schneider said. “Using this information, we can help a company develop risk mitigation plans for top suppliers. All this makes supply chains more resilient and reliable for companies and their customers.”

The process also helps identify opportunities for a company to leverage its supply chain to build stronger relationships with suppliers, enhance efficiency, and reduce costs.

“One of the key outcomes of the Puck mapping project was being able to assess

Employee loading a CNC machine with a metal cylinder.

the risk related to our suppliers across multiple criteria, including reliability, on-time delivery, and critical need of that component,” said Pepple.

“With this analysis, we are now able to make better strategic decisions to reduce the overall risk exposure to our supply chain, whether that be sourcing alternate suppliers or eliminating hard-to-source components,” said Pepple. “We are also able to approach high-risk suppliers and be very transparent about the outcome of the ISO scorecard and CIRAS risk assessment. With this data, we were able to approach one of our highest-risk suppliers and challenge them to do better. We’ve had great success with them since that conversation. This is ultimately the goal: better service from suppliers and higher quality products for our customers.”

**For more information on ISO certification support, contact Ben Drescher at [bdresche@iastate.edu](mailto:bdresche@iastate.edu) or 515-509-0940. For information about supply chain risk mapping, contact Marc Schneider at [maschn@iastate.edu](mailto:maschn@iastate.edu) or 563-221-1596.**



### **PUCK CUSTOM ENTERPRISES, INC.**

**FOUNDED:** 1979 | **EMPLOYEES:** 117

**OVERVIEW:** Manufacturer of liquid transfer equipment, including manure spreading and application equipment as well as fire-fighting equipment.

**IMPACT:** \$750K impact and improved relationships with key suppliers.

## **Online Assessment Supports Workforce Attraction and Retention**

Iowa companies looking to meet the evolving needs and expectations of their current and future workforce now have a valuable tool offered by CIRAS.

The Job Quality Assessment online self-assessment enables companies to identify their strengths and opportunities. Using the assessment results, companies can work with CIRAS advisors to develop effective workforce strategies that improve worker satisfaction, engagement, and retention.

“They learn where they are strong in terms of job quality and where they might be struggling,” said Brenda Martin, CIRAS workforce services director. “A company may benefit by improving their onboarding process or by implementing employee surveys and one-on-one engagement. They may need to look at wages or career pathways. CIRAS has the expertise to support these strategies.”

Since its launch in September 2022, 16 Iowa companies have used the Job Quality Toolkit to engage assistance from CIRAS in implementing new strategies to attract and retain workers.

**For more information, contact Brenda Martin at [bkmartin@iastate.edu](mailto:bkmartin@iastate.edu) or 515-570-5282.**

**To learn more information or access the assessment, scan the QR code or visit [www.jobquality.us](http://www.jobquality.us).**





## ***How Iowa Companies Can Benefit from International Student Talent***

Imagine hiring a trained engineer for a short-term project without long-term commitments. CIRAS connects Iowa companies with international engineering graduate students through Curricular Practical Training (CPT) and Optional Practical Training (OPT) programs.

“CPT and OPT offer Iowa companies the chance to hire degreed engineers for defined periods, without long-term commitments,” says Gary Mirka, director of graduate education at Iowa State University Department of Industrial and Manufacturing Systems Engineering (IMSE). These students often have in-demand skills and practical experience, filling crucial talent gaps. They also bring a global perspective, multilingual capabilities, and valuable market insights.

When working with this program, companies are not required to handle visa sponsorship or significant work-permit paperwork. Student participants must hold an undergraduate degree related to engineering or manufacturing, and they often have substantial real-world experience.

CPT must be completed before graduation, whereas OPT allows students to work in the United States for up to three years

postgraduation, offering flexibility for employers. CIRAS, IMSE, and the Iowa State International Students and Scholars Office handle the necessary paperwork to connect companies with these skilled engineers.

Mirka provides an example: A master’s student in industrial engineering with a mechanical engineering background from a top Indian university completes coursework at Iowa State and works with a company for two semesters. The company interviews the student to ensure a good fit, they then can extend an offer letter, and the student develops a syllabus with learning objectives. After working with the company, the student returns to campus to finish their degree. The company might choose to hire the student for an additional three years through the OPT program.

“CPT and OPT programs present Iowa employers with a valuable talent pool,” says Mirka. “We encourage more companies to explore these opportunities with IMSE.”

**For more information, contact Mayra Ramirez at [ramirezma@iastate.edu](mailto:ramirezma@iastate.edu) or 515-520-3101.**

**Top:** Gary Mirka, Iowa State director of graduate education for IMSE, with students. **Bottom left:** IMSE student interacting with a robot in an industrial lab. **Bottom right:** IMSE students collaborating.

# CIRAS Is a Quality Connection for Agricultural Equipment Manufacturer



Employee working with a part at Kooima Ag.

## Company History

In 1988, Kooima Company started making replacement parts for agricultural equipment in a 1,200-square-foot rented building. At that time, their inventory included one part number. The company has since grown and now has 4,000 different part numbers.

About five years ago, Kooima Ag split from Kooima Company. A leading agriculture knife maker, Kooima Ag makes quality cutting components for mixer wagons, forage harvesters, and other applications. The manufacturer invested heavily in technology, using robotics and other advanced processes.

## Introduction to CIRAS

In 2022, CIRAS strategic advisor Derek Thompson visited the Rock Valley company to provide guidance on their interest in a recently closed Iowa Economic Development Authority (IEDA) grant program. Thompson used the opportunity to introduce Kooima Ag leaders to the various services available from CIRAS. This led to a highly cooperative relationship, illustrating how CIRAS can connect with and assist smaller Iowa companies in a range of ways.

“CIRAS offers another level of resource and knowledge that I had not been aware of,” said Nick Vande Waerdt, Kooima Ag general manager. “About every time I have something pop up, I run it by CIRAS to see if I can get some information or advice about it. They get us further down the road or pointed in the right direction.”

## Successful Grant Application

Thompson made a return visit to Kooima Ag in 2023 to perform an assessment for a second chance at the Industry 4.0 IEDA grant. This time, the application was successful and they received a \$50,000 matching grant.

“We have a process for coating our knives, but we knew we could do better. We used the grant to build a custom-

integrated robotic cell for our knife manufacturing process,” Vande Waerdt said. “We increased throughput by two to three times, which benefits our customers.”

## Ongoing Support and Collaboration Toward New Markets

As a tech-focused company, Kooima Ag sought advice from CIRAS when they started investigating 3D scanners to help their engineers design parts.

“We contacted Derek and asked if they had any expertise in this area,” Vande Waerdt said. “It turns out that CIRAS had the exact model that we were close to purchasing. Once again, they validated an important decision for us.”

Kooima Ag produces a knife that cuts corn into feed for cattle, but it was occasionally failing in the field. Kooima Ag needed a Charpy impact test to measure the knife’s toughness. Kooima Ag has an in-house metallurgist but didn’t have this testing capability. However, CIRAS did.

Using the analysis from CIRAS, Kooima Ag chose a different chemistry for the steel used in the product and an optimized heat treatment process. The result was an improved and more reliable product for customers.

Kooima Ag identified a mixer knife used to cut and mix feed for livestock as a product line for export. They wanted a sense of demand and steps for reaching potential international markets.

“We gave them recommendations for the top two or three and success factors for each,” Thompson said.

“CIRAS validated what we saw as potential markets for our mixer knife,” said Vande Waerdt.

## Workforce Innovation

One of the most innovative Kooima Ag-CIRAS projects involves an exoskeleton. Kooima Ag’s employees do a lot of lifting

and bending as they pick up and pack heavy parts. Workers can wear an exoskeleton to enhance performance and ease wear and tear on their bodies. Studies have shown that the technology can reduce back and knee discomfort.

“It’s like something out of a Marvel movie,” Thompson said. “Companies with aging workforces are particularly interested in exoskeletons as they help reduce stress on the body from repetitive motions.”

CIRAS has systems available for companies to borrow and pilot before investing in one. A team of Kooima Ag employees tried the exoskeleton and now the company plans to purchase a system of their own.

“We make connections that help Iowa companies create better products, have happier employees, and retain more satisfied customers,” said Thompson.

**For more information, contact Derek Thompson at [thompson@iastate.edu](mailto:thompson@iastate.edu) or 515-419-2163.**

### KOOIMA AG

**FOUNDED:** 2019 (after splitting off from Kooima Company, which was founded in 1988)

**EMPLOYEES:** 125

**OVERVIEW:** Specializes in cutting components for ag industry.

**IMPACT:** Empowered company to achieve significant growth and innovation through advanced technology, successful grant applications, market expansion, and improved workplace ergonomics.



# APEX: Your First Call for Government Contracting Support

The general manager of an Iowa cleaning company was ready to throw in the towel on government work until someone suggested connecting with CIRAS.

"I was passed from person to person and organization to organization until someone finally mentioned CIRAS," said Brent Hugen of Absolute Cleaning Systems. "I decided I'd make one more call, and thank goodness I did! Because

of their assistance and the work I did, I was awarded two three-year contracts for \$150,000, and I'm set up to bid on other jobs that might work out in the future. All because I decided to make one more call instead of giving up on the process."

Hugen started his company in 2014 with his brother-in-law. The business has 40 employees and serves southern Iowa with offices in Albia and the Des Moines metro. They specialize in janitorial services as well as floor cleaning, air-duct cleaning, water extraction, and drying services for residential and commercial customers.

Absolute Cleaning Systems had previously done federal and state government work, which Hugen thought gave him a "foot in the door" for other jobs.

"I started a bid, and it wasn't long before I was being asked for CAGE codes and my entity number," he

said. "I assumed I had all of that because I had done earlier cleaning. But either I hadn't done it, or it got lost. At any rate, I had to start over."

Samantha Ferm-LeClere, a government contracting specialist with the CIRAS APEX Accelerator, helped Hugen complete his System for Award Management (SAM) registration, which is required for anyone interested in doing business with the federal government. She also assisted in streamlining the registration process by using an electronic verification system (EVS) designed to minimize delays.

Jasmine Burch also needed guidance with SAM registration to position her company for government work. Burch owns a Davenport-based cleaning company called JB Janitorial Services. Started in 2021, it specializes in commercial cleaning, carpet cleaning, and disinfecting services. The company currently has one employee but hires contract workers when needed.

"I stumbled upon a post in a Facebook group that led me to CIRAS," Burch said. "I got help with the registration process but also learned how to search for bid opportunities and got some overall guidance and support. Right now, I'm a one-person show. Knowing I can turn to CIRAS has taken some pressure off my shoulders."

Burch was awarded the first contract she bid on and received another contract with the city of Iowa City starting this fall. Her success and her continued relationship with CIRAS have given her the confidence to pursue other government work, she said.

"Both clients are go-getters, and I'm really proud of them for not hesitating to reach out and seek the assistance and support they need," said Ferm-LeClere. "It makes all the difference."

**For more information, contact Samantha Ferm-LeClere at [siferm@iastate.edu](mailto:siferm@iastate.edu) or 319-333-9558.**

## ABSOLUTE CLEANING SYSTEMS, LLC

**FOUNDED:** 2014

**EMPLOYEES:** 40

**OVERVIEW:** Commercial and industrial cleaning services, including floors, water extraction, and general janitorial services.

**IMPACT:** Awarded multiple government contracts.

## JB JANITORIAL SERVICES, LLC

**FOUNDED:** 2021

**EMPLOYEES:** One;

utilizes contract workers when needed

**OVERVIEW:** Commercial cleaning, carpet cleaning, and disinfecting services.

**IMPACT:** Assistance with SAM registration; secured two government contracts, boosting confidence to pursue more opportunities.



Jasmine Burch, owner of JB Janitorial Services.

Absolute Cleaning Systems providing commercial cleaning services.



# Leadership, Change Speakers to Headline ILC Annual Conference in 2024



**Top:** Keynote Speaker Billy Ray Taylor **Bottom:** Speaker Anne Bonney



At the Iowa Lean Consortium (ILC) Annual Conference in 2023, an exhibitor told Tracy Schuster, ILC program director, that they had never seen so much hugging at a conference.

“People enjoy this conference because they connect with friends and meet like-minded people who understand the challenges they face in their work of improving people, processes, and systems in an organization,” said Schuster. “This is the largest conference in Iowa for continuous improvement professionals, and it brings people together who form lasting and meaningful relationships that help them do their jobs better.”

This year’s ILC Conference will be held on Thursday, October 24, at The Prairie Meadows Conference Center in Altoona, with Anne Bonney and Billy Ray Taylor as keynote speakers.

“These are two high-energy, engaging speakers who will challenge your thinking about leading, team building, improving, and change,” said Schuster.

Bonney, author of *Get Over It: 47 Tips for Embracing the Discomfort of Change*, speaks on change management and leadership.

Taylor is the founder and CEO of LinkedXL, a company focused on operations management and executive leadership. Prior to LinkedXL, Taylor worked at Goodyear, where he spearheaded several turnarounds for the company and was named senior operations executive. He also wrote the book *The Winning Link*.

The annual conference offers the following:

**Expert-led Sessions**—Learn from keynote speakers and industry experts who will share valuable insights and practical tools to elevate your Lean journey.

**Networking Opportunities**—Connect with more than 300 dedicated continuous improvement practitioners and influential businesses.

**Preconference Workshops and Gathering**—Join on Wednesday, October 23, for additional learning and networking.

The conference is open to both ILC members and nonmembers. Nonmembers can take advantage of the annual conference membership special to receive a 17-month membership for the price of a 12-month membership.

**To learn more or register for the ILC Annual Conference, visit:**  
[go.iastate.edu/98GLP0](http://go.iastate.edu/98GLP0).



The ILC Annual Conference offers sponsors and exhibitors a platform to engage with more than 300 continuous improvement practitioners and influential businesses, with additional exposure on social media. If interested, visit [go.iastate.edu/THFR5Y](http://go.iastate.edu/THFR5Y).

**For more information, contact Tracy Schuster at [tschust@iastate.edu](mailto:tschust@iastate.edu) or 515-715-0164.**





# How the CIRAS-Ivy Partnership Impacts Iowa Companies



Four photos showcasing interaction between attendees at the recent Ivy College of Business Sales Innovation Summit.

CIRAS routinely connects Iowa companies with technical and business capabilities at Iowa State University, including faculty, research laboratories, and students. One example is the highly collaborative relationship between CIRAS and Debbie and Jerry Ivy College of Business. Both focus on similar business interests, including business analytics, entrepreneurship, supply chain management, human resources, marketing, and international business.

“The strengths of the Ivy College of Business align perfectly with the services CIRAS offers to Iowa industry,” said David Spalding, the Raisbeck Endowed Dean of the Ivy College of Business. “Working together, we are bringing exceptional learning, networking, and development opportunities to Iowa companies, as well as to our faculty and, most importantly, our students.”

“Our collaboration with the Ivy College of Business is also instrumental in retaining talented students within the state,” said Gayle Mastbergen, CIRAS marketing manager. “By involving students in conferences and projects, we highlight the opportunities available within Iowa companies and foster a connection that encourages them to build their careers in Iowa.”

As part of the partnership, CIRAS and the Ivy College of Business collaborate on a range of professional conferences on topics that are relevant to industry, faculty, and students.

In May more than 90 sales professionals, marketing faculty, and students gathered for the third annual Ivy College of Business Sales Innovation Summit, which focused on understanding individual and team strengths to unlock personal potential and maximize company sales performance.

Additionally, the 2024 Business Analytics Symposium drew nearly 450 people to the Community Choice Credit Union Convention Center in downtown Des Moines in April. Considered Iowa’s premier analytics event, the symposium brought together industry leaders and analytics professionals to explore the impact of artificial intelligence on business practices and the workforce.

Next, CIRAS will support the 2024 Voorhees Supply Chain Conference on October 10th at the Gateway Conference Center in Ames. Learn more about this event and others by visiting [ciras.iastate.edu/events-workshops](http://ciras.iastate.edu/events-workshops).

An exciting new offering for CIRAS clients is the Ivy College of Business Custom Education.

The professional development program is designed to connect employees with the expertise and experience of the faculty through interactive sessions focusing on such topics as leadership, change management, innovation, data analytics, sales, supply chain management, and finance.

To learn about the program, visit [ivybusiness.iastate.edu/custom-education](http://ivybusiness.iastate.edu/custom-education).

“The Ivy College of Business is a dynamic business college, and thanks to our partnership, when they grow, so do the opportunities available to CIRAS clients,” said Mastbergen.

**For more information, contact Gayle Mastbergen at [gmallen@iastate.edu](mailto:gmallen@iastate.edu) or 515-815-5042.**

**“Working together, we are bringing exceptional learning, networking, and development opportunities to Iowa companies, as well as to our faculty and, most importantly, our students.”**



# Revolutionizing Custom Quartz Designs with CIRAS Expertise

David and Aaron Bush wanted to take their custom quartz countertop designs to the next level, but as Aaron noted, “We didn’t even know what questions to ask to get started.”

The father-son duo, along with founder Pat Malloy, own Quartz Impressions, an Iowa-based company that stands out as a leading source in the country for large, exceptionally detailed, or uniquely colored custom quartz slabs for countertops, tabletops, fireplace surrounds, and more.

## QUARTZ IMPRESSIONS

**FOUNDED:** 2012

**EMPLOYEES:** 3

**OVERVIEW:** Creates unique quartz countertops, tabletops, and more.

**IMPACT:** Pioneering a new process of detailing quartz to make the company a national leader in customization.



Sample of Quartz Impressions product with custom logo applied in the material.

Their existing process for creating custom inlays, such as company logos or detailed fonts within a quartz slab, was rather laborious. They wanted to find a way to reduce manufacturing time and improve the cost with a level of detail that no other custom quartz supplier has been able to achieve. “We want to further refine and improve a product concept to create a type of product that we don’t think exists anywhere else,” David Bush said.

David found CIRAS through a Google search and was intrigued. He especially liked that the primary goal of CIRAS is to help companies thrive. “We knew they weren’t in it just to make a sale. Their job is to help develop and foster companies in Iowa.”

They appreciated that CIRAS was enthusiastic about working through the trial-and-error process often required to develop a new process. “They were willing to test the waters with us to see what worked and what level of detail we could get in a project,” Aaron Bush said.

They connected with Jake Behrens, CIRAS project manager. “With some experimentation, we were able to help them create a highly customizable design with a 3D printer that basically makes a mold for a fraction of the cost of the old method,” Behrens said.

Previously, Quartz Impressions had to create a template, sandblast the quartz to create a void, and then fill that void with a different color, which took a relatively long time and limited the type of designs they could create. Now, says

Behrens, “all it takes is some computer-aided design (CAD) time and a short print. With this workflow, the process is incredibly fast.”

Quartz Impressions is continuing to refine their process based on their newly found knowledge from CIRAS. “The next challenge is figuring out how to make the edges of the designs a little sharper,” Aaron Bush said.

“We are now so much closer to the final product. Without CIRAS insights, we never would have been able to quickly get through the “fail fast and fail quickly” stage, which is what you need to do to find out what works.”

**For more information, contact Jake Behrens at [jbehrens@iastate.edu](mailto:jbehrens@iastate.edu) or 515-815-5003.**



Owner and CEO,  
David Bush.



## Upcoming Events

### Midwest Manufacturing & Networking: Find Your Competitors & Collaborate

**October 1 – Davenport**

Experience this interactive one-day event to expand insights on government contracting, AI in manufacturing, cybersecurity, market strategies, and networking opportunities.

[go.iastate.edu/CTOTSA](http://go.iastate.edu/CTOTSA)

### 2024 Iowa Artificial Intelligence Summit for Industry

**October 10 – Ames**

This one-day conference targets professionals from small and medium-sized industrial businesses interested in how AI can drive innovation, enhance marketing and sales strategies, improve manufacturing operations, and support workforce development.

[go.iastate.edu/KJCKPO](http://go.iastate.edu/KJCKPO)

### Human Resource Strategies—Innovative Hiring Approaches for New Talent Insights

**November 13 – Virtual**

Explore novel hiring practices that broaden the talent pool, enabling organizations to tap into previously untapped resources.

[go.iastate.edu/AQ0LMC](http://go.iastate.edu/AQ0LMC)



Visit [go.iastate.edu/BOEFSU](http://go.iastate.edu/BOEFSU) for details on upcoming events.

## NEW CIRAS ADVISORY BOARD MEMBER

**Lisa Brunie-McDermott**

Director, Corporate Social Responsibility  
HNI Corp



## CIRAS Staff News

**Kathy McKown** is a government contracting specialist serving clients in Polk County.

Kathy has more than ten years of contracting-related experience in construction and consultant contracts and in sponsored research. In her previous role at Iowa State University Facilities Planning and Management, she oversaw more than \$100M in annual expenditures and ensured compliance for federally funded projects.

She earned her bachelor of science in English and psychology from Union University and later earned her master of arts in library science from the University of Tennessee.

**For more information, contact Kathy McKown at [kmckown@iastate.edu](mailto:kmckown@iastate.edu) or 515-686-0422.**



**John Michel** is a government contracting specialist serving clients in western Iowa.

John brings more than seven years of expertise in public procurement and contracting, specializing in various commodity areas, including scientific, medical (veterinary), construction, and maintenance, repair, and operations (MRO).

John earned his bachelor of science in supply chain management from Iowa State University.

**For more information, contact John Michel at [jmichel@iastate.edu](mailto:jmichel@iastate.edu) or 515-686-0279.**



**Jason Armstrong** is the strategic advisor for southwest Iowa.

Jason brings 27 years of experience in corporate and plant management.

His extensive background includes strategy development, international collaboration, automatization, continuous improvement, AI, plant development, and ISO standards. He earned his bachelor of science in organizational leadership and supervision from Purdue University and holds certifications from APICS, including Certified in Planning and Inventory Management (CPIM).

**For more information, contact Jason Armstrong at [jasona1@iastate.edu](mailto:jasona1@iastate.edu) or 515-686-0441.**





# CHALLENGE TO INNOVATION: TIMBERLINE MANUFACTURING OVERCOMES WORKFORCE SHORTAGES WITH AUTOMATION SUPPORT



Timberline Manufacturing faced a difficult challenge. The Marion-based electronics contract manufacturer, like many employers in today's economy, struggled to find assembly-line employees for its wire harness department. As a solution, they began exploring ways to augment their current workforce putting together the harnesses, which organize and protect electrical wires.

Wire harnesses are just one of the diverse product offerings of Timberline, but they are labor intensive, accounting for 60 percent of the workforce but generating more than 30 percent of the company's revenue.

The company took the initial steps to research automation options. However, the employee who had been leading the effort left the company, putting the project in limbo. Simply hiring a new employee or contractor to wrap it up wouldn't be easy. Partly finished projects can be the toughest for someone to jump in and complete because figuring out exactly where the project manager left off and deciphering notes is, in some ways, more challenging than starting from scratch.

Fortunately, Timberline's Jim Kivell, director of operational excellence, had already built a relationship with CIRAS. He knew that the end goal of CIRAS was to help Iowa companies succeed, so he reached out.

CIRAS project managers Ty Hill and Emily Betz stepped in. The CIRAS team conducted time studies to assess the potential return on investment for automating the harness process. They thoroughly investigated and proposed several automation alternatives. Then they reached out to potential contractors to solicit bids.

"They had the bandwidth and the experience to put it all together," Kivell said.

Also helping the project was a Manufacturing 4.0 grant that Timberline received from the Iowa Economic Development Authority.

Hill says, "I'm glad Timberline reached out because, too often, companies don't realize that CIRAS can step in at any stage of the project and be of assistance and get it over the finish line."

Ultimately, Timberline selected the automation provider they believed was most suitable. Kivell said their confidence in their decision was significantly bolstered by the thorough evaluation process conducted in collaboration with CIRAS. "We were able to de-risk technology adoption for Timberline," Hill explained. "Even in a case where they may have potential solutions identified, we can consult with companies to make sure they're truly the best choice."

**For more information, contact Ty Hill at [tyhill@iastate.edu](mailto:tyhill@iastate.edu) or 515-357-4379.**

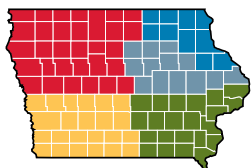
## TIMBERLINE MANUFACTURING COMPANY

**FOUNDED:** 1993 | **EMPLOYEES:** 240

**OVERVIEW:** Manufactures electrical subassemblies.

**IMPACT:** Overcoming workforce challenges and enhancing operational efficiency through innovative automation solutions.

## CIRAS CONTACT INFORMATION



**Locate your county to find your best introduction to CIRAS.**

Your strategic advisor can help connect you with the expertise you need for your business.



All staff information can be found at [www.ciras.iastate.edu/staff-directory](http://www.ciras.iastate.edu/staff-directory).

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### WORKFORCE SOLUTIONS

## Innovative Work Aids Reduce Physical Strain on Employees

A growing number of employees prioritize supportive work environments equipped with the right tools for safe performance. Category 5 of the Baldrige Excellence Framework® highlights this trend, revealing a shift in employee preferences that, combined with Iowa's population demographics, presents both challenges and opportunities for companies. To attract and retain employees, especially those beyond the traditional retirement age, companies must meet their evolving needs. CIRAS is at the forefront of helping companies address these challenges with innovative solutions.

CIRAS offers insights into how innovative technologies can be tailored to meet your company's needs. Two key approaches include the following:



**Ergonomic Tools**—CIRAS helps companies evaluate and pilot equipment designed to reduce physical strain and enhance workplace safety. Tools like exoskeletons are customized to meet specific worker needs, allowing them to perform tasks with greater ease and comfort.



**Wearable Sensors**—These sensors gather data to help companies proactively identify potential hazards and variations in employee physicality. This insight promotes a safer workplace, encourages best practices, and guides the selection of ergonomic tools to reduce task-related physical strain.

These technologies not only help reduce costs but also enhance employees' work lives. For instance, an employee experiencing shoulder pain from repetitive hammering received feedback from a wearable sensor. The sensor data showed how they could adjust their technique to reduce stress on the shoulder, demonstrating that they didn't need to hit harder, just more efficiently.

By investing in these innovative solutions, Iowa companies can create a supportive work environment that encourages employee retention and satisfaction, driving long-term company success.

**For more information, contact Ty Hill at [tyhill@iastate.edu](mailto:tyhill@iastate.edu) or 515-357-4379.**