IOWA STATE UNIVERSITY
Center for Industrial Research and Service

CIRAS NEWS

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SEE INSIDE >

Learn, Test, Innovate:

Inside the CIRAS Digital Lab Powered by Alliant Energy

Jake Behrens, CIRAS project manager, leads a digital lab tour presentation.

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At CIRAS, we help Iowa businesses grow by offering expertise and resources — so our clients can connect to a variety of services designed to help them succeed.

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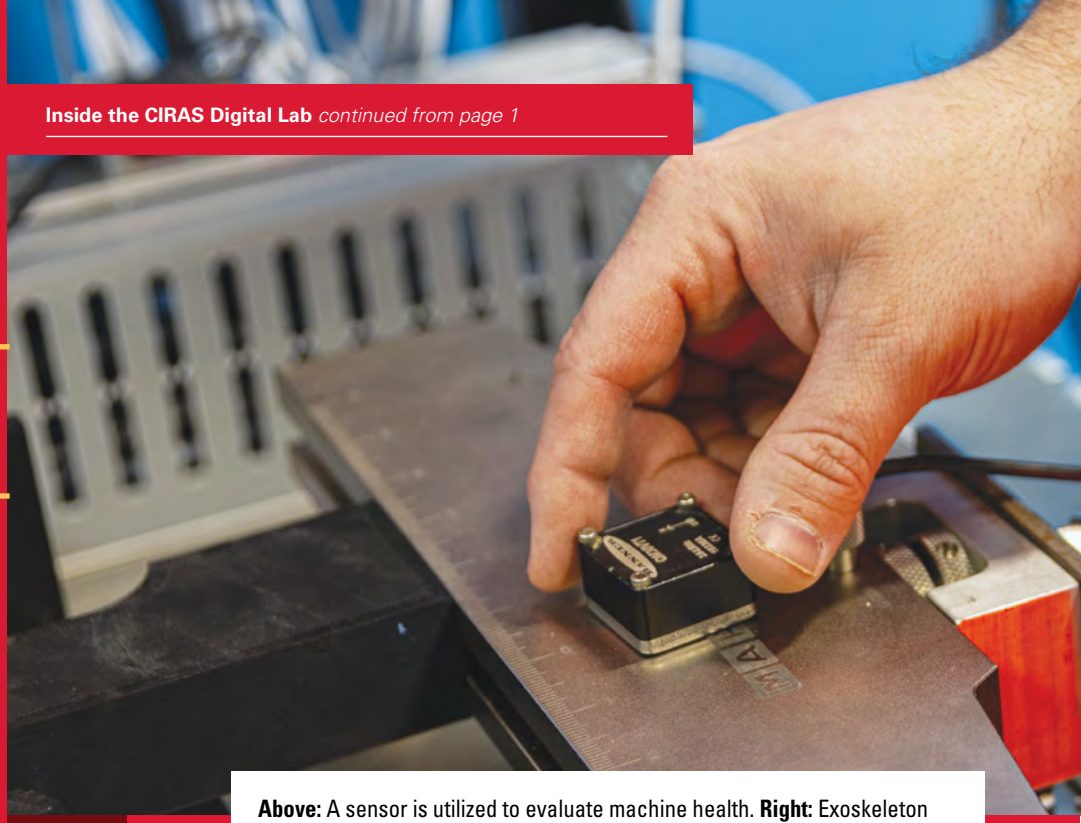
Correction: Barron Equipment Boosts Sales through Enhanced Digital Strategy

A correction has been made to the original story published in the previous issue of CIRAS News. The updated version is now available at go.iastate.edu/KW0XTD.

Inside the CIRAS Digital Lab *continued from page 1*



Above: A sensor is utilized to evaluate machine health. **Right:** Exoskeleton assisting with lifting a box.

CIRAS recently expanded its Digital Manufacturing Laboratory Powered by Alliant Energy, offering Iowa companies even more opportunities to explore how Industry 4.0 technologies can address their unique challenges.

At the lab, visitors are invited to discuss specific pain points, test various technologies, and determine a path forward with support from CIRAS staff. The lab showcases tools such as 3D printers, 3D scanners, robots, cobots, sensors, and wearable technologies including exoskeletons.

"Our goal is to reduce the risks associated with technology adoption. We continuously evolve to meet industry needs and keep pace with rapidly advancing technologies," said Chris Hill, CIRAS program director.

One company that benefited from the lab is Ritchie Industries, a livestock-waterer manufacturer based in Conrad. The company was interested in using a 3D scanner to inspect molds for imperfections.

"If it weren't for CIRAS, we would have had to find a supplier, hope for the right support, arrange a demonstration, and ensure our factory software was compatible," said Jason Kern, quality coordinator at Ritchie Industries.

Instead, CIRAS simplified the process.

"CIRAS came up with a game plan for us," Kern said. "We visited the digital lab, we saw a 3D scanner demonstration, and they made it easy. CIRAS took the risk out of the decision."

"CIRAS took the risk out of the decision."

The digital lab also supported Hach, a global water-testing company in Ames. Hach needed a better tool for removing adhesive residue from blades used to cut test-strip paper. Their existing tool was awkward and lacked ergonomic efficiency. After years of trying to solve the issue internally, the company partnered with CIRAS.

Together, they used CAD modeling and 3D printing to develop a more effective and ergonomic cleaning tool.

"We've seen a series of incremental improvements in the tool," said Marty Schildroth, process engineering manager

at Hach. "Partnering with CIRAS and utilizing Iowa State interns has benefited our company and helped develop our team members."

Satyam Sharma, an Iowa State junior in mechanical engineering, played a key role in the collaboration.

"Using the various technologies and the team approach made a huge difference for the project," Sharma said.

Mary Lisle Landhuis of Lisle Corporation, an automotive specialty tool manufacturer in Clarinda, appreciates the lab's portability—especially for companies located hours away from Ames.

"They helped us evaluate some technologies we were considering and identify the best fit," she said. "Sometimes knowing what not to pursue is just as helpful. Working with the CIRAS team to objectively identify both was a great benefit."

With all the success stories coming out of the CIRAS digital lab, Hill noted that the partnership with Alliant Energy has been vital to the lab's achievements since 2019.

"Our partnership with Alliant has been instrumental—both in our growth and in the recent expansion, which increased our space by nearly 50 percent," Hill said. "We also work with numerous technology partners—leaders in their fields—who help us showcase an expanding range of technologies that Iowa companies can use to enhance competitiveness and strengthen communities."

"We invite companies to attend a digital lab tour and explore practical solutions to their most pressing challenges."

Contact Chris Hill at chhill@iastate.edu to learn more.

To sign up for an upcoming lab tour, visit go.iastate.edu/AVCMFI.

Director's Update

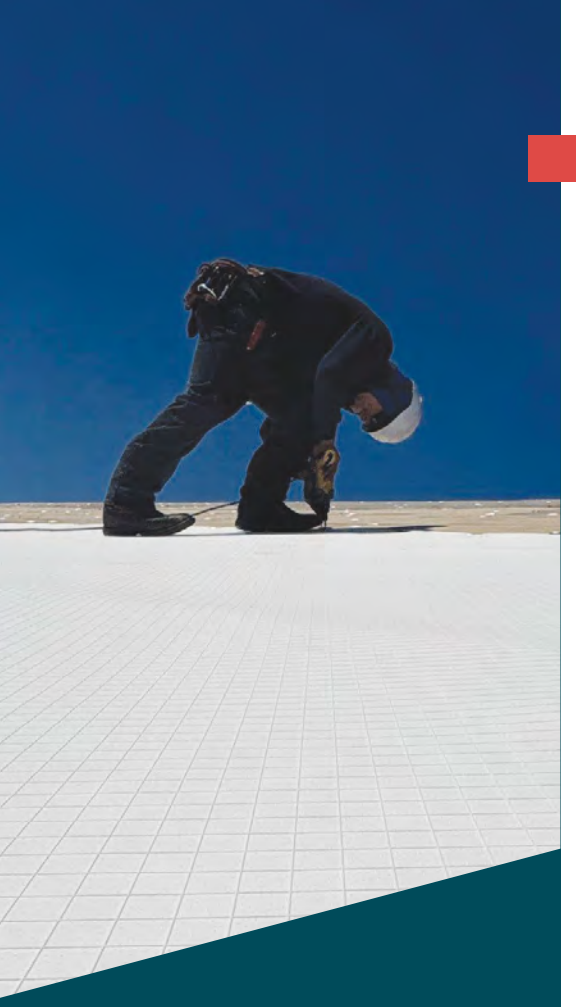
CIRAS exists to make Iowa industry better. For more than 60 years, we've worked alongside Iowa leaders, providing perspective, expertise, and connections to help you make informed decisions and implement change.

Today's business environment can feel like walking through dense fog. You know where you're trying to go, but the path forward isn't always clear. Supply chains remain unpredictable. Markets shift with global events and policy. Internally, you are navigating workforce shortages, retirements, and rapid changes in technology, including artificial intelligence and Industry 4.0 tools.

We're adapting, too. Changes in what you need and shifts in federal funding are reshaping how we work. But our commitment remains the same: to walk with you through uncertainty to make your business better.

In the coming months and years, we'll create more ways to connect with our team, collaborate on your biggest challenges, and help you prepare for the future. We'll continue our long history of being your trusted partner to help your business, and Iowa, thrive.

Contact Mike O'Donnell at modonnll@iastate.edu to learn more.



Above: Roofer installs a safer alternative roofing material. **Below:** Rolls of Triton roofing material.

Creating Safer Commercial Roofs

Slips and falls from heights are among the most common causes of construction incidents—and they consistently rank among the costliest workers' compensation claims. Roofs are the most frequent surface involved. Most flat roofing membranes sold in the United States are thermoplastic, creating slippery and unsafe walking surfaces.

Recognizing the need for research in this area, Triton Inc. partnered with Iowa State to study materials commonly used on commercial and industrial flat and low-slope roofs. The Cedar Rapids-based company manufactures roofing systems for industrial, institutional, and commercial facilities worldwide, with a focus on developing safer technologies.

"It is a known problem that commonly used materials are the most dangerous, but there is little research in this area," said Dustin Brooks, president of Triton. "When someone replaces a flat roof, they typically use smooth membranes. We are the only manufacturer to provide textured materials, which we believe to be safer. I thought a study would not only benefit us, but our industry as a whole."

Brooks contacted Dr. Rick Stone, Iowa State's director of engagement for industrial and manufacturing systems engineering, who then connected him with CIRAS. Stone and Brooks worked with CIRAS project manager Brian Muff to initiate the study. "The process was seamless," said Brooks. "We never had issues. We love working with CIRAS."

The 10-month study evaluated walking performance on various roofing materials under a range of weather conditions. Nine materials were tested on commercial and industrial flat and low-slope roof setups.

Human testing was a key component of the study. Stone and his team recreated realistic walking conditions using Triton-provided materials in actual weather scenarios, including waiting for ice and snow events to occur. With multiple safety precautions being taken, participants walked across the surfaces, being closely monitored by videos to track slips and falls.

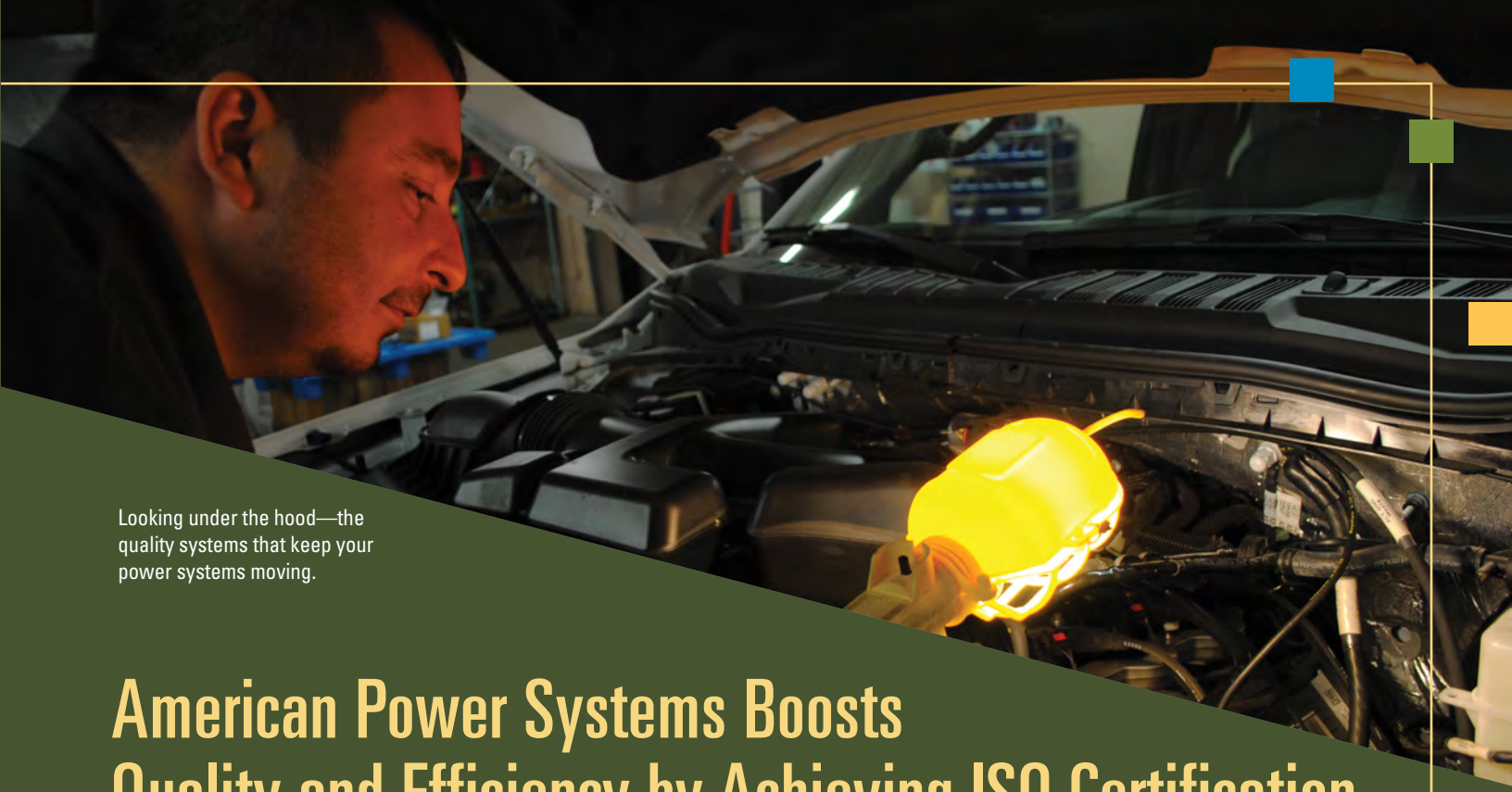
The study found that material type plays a critical role in reducing slip risk, while factors such as shoe type have minimal influence. Textured thermoplastics significantly outperformed smooth versions, with higher friction leading to fewer slips and falls. These findings could help reduce workplace injuries and lower workers' compensation claims.

The report recommends adopting textured thermoplastic membranes as a baseline safety standard. "This groundbreaking research will affect the entire industry," said Brooks. "The study's impact has been significant for our clients, and we're seeing increased demand for these materials. Creating awareness will take time, but it will begin a monumental shift in the commercial roofing industry."

Sales of thermoplastic membranes in the United States are projected to reach $2.7 billion by 2026. Triton estimates that even a modest one percent increase in market share would generate $12 million in revenue. Based on the study's findings, the company forecasts its market share could increase to 5–10 percent by 2032—representing $135 million to $200 million in annual revenue.

Contact Brian Muff at bmuff@iastate.edu to learn more.

TRITON INC.
FOUNDED: 2010
EMPLOYEES: 18
OVERVIEW: Manufactures strong, safe alternatives to traditional roofing and waterproofing technologies.
IMPACT: Up to $12M in increased sales by 2026.



Looking under the hood—the quality systems that keep your power systems moving.

American Power Systems Boosts Quality and Efficiency by Achieving ISO Certification

American Power Systems (APS), a leading supplier of DC-power solutions, partnered with CIRAS to achieve ISO 9001:2015 certification for its quality management system. The Davenport, Iowa-based company pursued this internationally recognized standard to demonstrate its commitment to quality, efficiency, and customer satisfaction.

"It's very economical and a quick, easy way to find the right expertise that has already been vetted."

The rigorous certification process included on-site audits and extensive reviews of policies and documentation. This ensures that APS has well-defined procedures for production, supply chain management, engineering, quality, risk management, and customer service.

"ISO certification has long been a goal of mine," said Amy Lank, president and CEO of APS. "It demonstrates our commitment to exceeding customer expectations and fostering a culture of quality improvement, which helps companies stand out. But when we researched it, the process appeared daunting and expensive."

In October 2023, APS reached out to CIRAS for support. "CIRAS has been a great resource," said Lank. "It's very economical and a quick, easy way to find the right expertise that has already been vetted."

After collaborating with several members of the CIRAS team, CIRAS project manager Ben Drescher and Northstar Quality president John Moorhouse developed a certification plan tailored to fit APS's business needs. At the beginning of the project, Moorhouse helped employees engage with the process by breaking it down into simple steps and explaining the ISO standard in plain language.

Over the next eight months, APS interviewed employees, conducted a gap analysis, identified actions needed for compliance, and performed an internal audit, which was followed by a registrar audit.

"Northstar Quality made it easy for us to understand what we needed to do for certification," said Lank. "The process was very straightforward and painless. They explained that many necessary policies and procedures were already in place—we just needed to tighten things up. They helped us identify formats required by ISO and provided templates."

The initiative has been well received by both employees and customers. "It gives more ownership to employees, who take enormous pride in their work," said Lank. "And the reaction from our customers has been fantastic. A few have adopted policies mandating ISO certification, so we are ready proactively. And it helped us attract new clients. It really levels us up as a vendor."

Certification has helped APS increase efficiency, improve product and service quality, and enhance customer satisfaction. "I couldn't be more satisfied working with CIRAS and Northstar Quality," said Lank. "Their goal is to help companies like ours build and grow, and they succeeded. We are very grateful for the resource."

Contact Ben Drescher at bdresche@iastate.edu to learn more.

AMERICAN POWER SYSTEMS

FOUNDED: 2006 | **EMPLOYEES:** 15

OVERVIEW: Designs and manufactures robust power solutions for armored security, commercial, fleet, and marine vehicles; RVs; and luxury motor coaches.

IMPACT: ISO certification has helped increase efficiency, improve product and service quality, and enhance customer satisfaction with an estimated $1.3M impact.

M's Machine Invests in People to Improve Productivity

M's Machine and Manufacturing, based in Monona, produces precision metal and plastic parts for the agricultural, asphalt, automotive, and electrical industries.

Keeping up with demand during peak production had become a challenge due to labor shortages and the time-consuming process of changeovers on intricate lathes. The company has nine lathes, each averaging 75 changeovers per year. When changeovers slow down, so does production.

M's Machine has five people trained to perform changeovers. These can take two hours and involve various tools, lathe jaws, fixtures, bolts, and wrenches. The goal was to shorten changeover time, improve production, and better serve customers.

Automation was seriously considered. Steve Wilson, CIRAS strategic advisor, conducted an Industry 4.0 Assessment for potential grant funding from the Iowa Economic Development Authority. But vice president and co-owner Candace Drahn and the leadership team decided the equipment was costly and required extensive training. Drahn had seen companies invest in robotics and fail to realize the benefits.

M's Machine has worked with CIRAS for more than 20 years on staff training and recruitment. Drahn once again turned to CIRAS for a more practical, cost-effective solution.

"They offer a lot of expertise and people from different backgrounds," said Drahn. "They are also familiar with us and are able to visit, walk around, listen to our challenges, and help develop solutions."

"Sometimes a client believes they have the solution, and we can come in and show them options that may be more cost-effective for their company," said Tracy Schuster, operational excellence service director. "Automation isn't always the best solution. You don't want to automate a bad process. Sometimes you can improve a process by working with team members to understand it and provide training on Lean thinking and methods."

CIRAS recommended engaging directly with the five individuals doing the work to identify improvements.

"M's Machine looked at automation and ultimately put their focus on their people," said Schuster. "They invested in their people—the ones closest to the work."

Schuster brought in Lean consultant Bonnie Slykhuis, a third-party resource who works closely with CIRAS. She led a one-day setup reduction training

M'S MACHINE AND MANUFACTURING

FOUNDED: 1981 | **EMPLOYEES:** 26

OVERVIEW: Produces metal and plastic parts for leading agricultural, automotive, and industrial manufacturers.

IMPACT: Reduced lathe changeover time by 30 minutes, generating $40K in impact during peak periods.

that resulted in strategies to reduce downtime, raise productivity, and create a roadmap for continuous improvement.

As part of the training, Drahn videotaped three different setups, and Slykhuis analyzed them to find wasted movements and inefficiencies.

Staff proposed a variety of ideas. One key change was creating carts stocked with the necessary tools and parts for each changeover. Visual aids, using 5S protocols, ensured items were consistently stored and easily accessible.

These steps were expected to reduce setup times by at least 30 minutes.

"It was very telling how their process was lacking in certain places," said Slykhuis. "In the video, we saw staff leaving to get tools and parts. Having a cart with these items more readily available seems like a simple thing, but when you've been doing a process the same way for a long time and have busy production schedules, it can be hard to step back and truly evaluate how you're completing an important task. This exercise forced them to look at their processes and recognize the opportunities for improvement."

M's Machine continues to work on improvements, despite a slowdown easing production pressure. They're also reviewing a key quality-check process that can cause delays.

"We still want to improve and will keep pushing to finish the tasks we learned from the training," said Drahn. "I'm definitely glad we went through it. It was a busy time to take four people off the floor, but when the team completed the training, they all had good things to say about what they learned."

"One of the guys had been doing this for years and didn't see how we could make any changes. He wound up being one of the biggest proponents for making these changes," noted Slykhuis.

Contact Steve Wilson at wilsons@iastate.edu to learn more.

Left: M's Machine technician inspects part for precision. **Middle:** CNC machine in action. **Right:** Precision gear part machined on CNC lathe.

FROM COMPETITORS TO COLLABORATORS: How Manufacturers Are Networking with Purpose

The Midwest Manufacturing Competimates is a networking event designed for people who may be wary of traditional networking.

Held in eastern Iowa, the CIRAS-hosted one-day event turns manufacturing competitors into collaborators—and removes the awkwardness that often accompanies networking. Attendance is capped at 100, allowing participants to meet everyone in the room. Connections and conversations are structured.

As a value-add, the event includes regional exhibitors such as the Rock Island Arsenal Joint Manufacturing and Technology Center, Iowa Workforce Development, Iowa Prison Industries, and others who serve manufacturers.

But the heart of the event is connecting people in manufacturing with one another.

"We don't just put people together and hope they'll connect," said Melissa Burant, Competimates coordinator. "We create opportunities for meaningful engagement."

That was the experience of Trevor Bollers, president of Letter B Global Technologies, a custom software group based in Coralville.

"I had a chance to connect with attendees and share my story," he said. "Most conferences say they have networking, but it's usually people huddled with friends at the food line—not really making new connections."

The event begins with assigned seating that matches companies and roles that may complement each other. CIRAS works to deliberately connect companies and agencies throughout the day.

Each exhibitor gives a two- to three-minute pitch about their company or agency, which drives engagement to booths and sparks additional conversations.

Loras Schaul of Douglas Machine and Engineering, a machine parts manufacturer in Davenport, said the focus is on connections, not focused solely on deals. He met a local contractor—technically a competitor—who had landed a contract and needed machining help.

The two struck a subcontracting agreement.

Schaul also met several prospective customers in adjacent industries. "Your struggles and their struggles are pretty much the same," he said.

He now meets monthly for coffee with two attendees and invited Bollers to a ribbon cutting.

Ben Paper of Grace Technologies, a Davenport-based electrical safety products company, said one connection led to a sale, and another resulted in three facility tour requests. "I think I'd call it purposeful networking," he said. "It was well worth the time and effort."

Contact Melissa Burant at mmburant@iastate.edu to learn more.

To register or learn more about the next event, visit go.iastate.edu/ZCL1FV.

LETTER B GLOBAL TECHNOLOGIES

FOUNDED: 2008
EMPLOYEES: 17
OVERVIEW: Custom software company focused on solving complex business challenges through tailored digital solutions.
IMPACT: Built meaningful connections at the Competimates event, including new professional relationships and increased visibility through structured networking opportunities.

DOUGLAS MACHINE AND ENGINEERING

FOUNDED: 1946
EMPLOYEES: 26
OVERVIEW: Precision machine parts manufacturer serving a range of industries with machining expertise.
IMPACT: Secured a subcontracting agreement with a local competitor and expanded its customer base by connecting with prospective clients in adjacent industries.

Attendees from the fall 2024 Competimates event.

RCS MILLWORK

FOUNDED: 1966 | **EMPLOYEES:** 101

OVERVIEW: Designs and manufactures custom interior components for commercial spaces, including restaurants, hospitals, and entertainment venues.

IMPACT: Revamped on-boarding improved the new-hire experience and retention—13 new employees hired and 101 jobs retained, with an estimated $6.8 million impact.

Manufacturer Brings CIRAS on Board for Onboarding

RCS Millwork in Ankeny crafts high-quality interiors for a variety of companies and industries, including restaurants, entertainment and athletic facilities, and hospitals.

Betsy Hansen, RCS vice president, saw opportunities to improve hiring and workforce retention and reached out to the CIRAS workforce team. After assessing their current state, CIRAS proposed a project that blended HR fundamentals with Lean process improvement techniques.

"They do a lot of outstanding custom work, and they want their employees to feel like they are part of a family," said Emily Betz, Iowa Lean Consortium director. "It makes sense for them to have a strong hiring and onboarding process."

"They are great resources with so much knowledge. They knew exactly what we needed to do and then some," said Hansen.

The CIRAS team took a deep dive into RCS's practices, focusing on what happened post-hire and how new employees learned about the company's culture. Previously, new employees would meet briefly with HR for paperwork—sometimes even reporting to their work area before that—and were left to navigate the workplace alone, unsure of things like where to find the break room.

"We started by mapping their current state to make their processes and any weak points visible," said Betz. "This really opened Betsy's eyes to the gaps in the hiring and onboarding process, including missed opportunities to welcome new employees and incorporate them into the culture."

As a result of the collaboration with CIRAS, RCS has made several key improvements. After gathering input from supervisors, new hires now receive an email outlining first-day expectations. Their first stop is HR. Hansen now uses a checklist covering everything needed for a new hire—from administrative steps to welcoming activities. She introduced a buddy system, connecting new employees with a current team member to help guide them through their first weeks.

On the employee's first day, Hansen buys lunch for the new hire and their buddy so they can eat together and get acquainted.

> "They knew exactly what we needed to do and then some."

"I love it. People are my thing, and getting to know a person on their first day is great," she said. "We've retained everyone we've hired since implementing this new process."

Hansen has also joined the CIRAS Manufacturer's HR Collaboration Cohort.

"It's been a fantastic experience," she said. It is so nice to have a group of people also in the manufacturing industry to talk with about issues."

Contact Emily Betz at betze@iastate.edu to learn more.

Left and Middle: RCS Custom Fabricators bringing designs to life. **Right:** Betsy Hansen, Vice President, and Joe Keller, President of RCS Millwork.

ACP INC (ACCELERATED COOKING PRODUCTS)
FOUNDED: 1965 | **EMPLOYEES:** 120
OVERVIEW: Manufactures a full line of commercial microwave ovens and high-speed cooking equipment for the professional food-service industry.
IMPACT: Capstone students generated $133K in total impact, including $50K in cost savings.

Capstone Program Helps ACP Develop Affordable, Efficient Proof of Concept

The first affordable consumer microwave oven, the Amana Radarange®, became available in 1967. Today, Accelerated Cooking Products (ACP), based in Cedar Rapids, Iowa, produces commercial microwave ovens under the Amana® brand and others for the professional food-service industry. That commitment to reliable, high-performance products remains unchanged.

Casual dining and quick-serve restaurants worldwide depend on Amana Commercial microwave ovens, known for their performance, reliability, and ease of use. These companies value efficiency and productivity, with automation and AI playing an increasing role.

"Due to labor shortages and the drive toward higher operational efficiency, customers are demanding more automation," said Ed Cook, vice president of engineering at ACP. "An automated door reduces labor and speeds up the process. Saving four to six seconds is significant for quick-serve fast-food restaurants. Fortunately, we have a unique product that is the perfect platform for automation."

"The team did a nice job providing a proof of concept worth refining into a production-ready version."

To meet this need, ACP worked with CIRAS to develop a proof-of-concept for an automated door system. Current ovens require the user to manually close the door. Automating this step would improve speed and competitiveness.

Tens of thousands of ovens are already in use, so Cook wanted a solution that could integrate into the existing design without major cost or disruption. "That would be a huge win for us," he said.

Smaller companies like ACP often face tight R&D budgets. CIRAS project manager Mayra Stephanie Ramirez suggested involving Iowa State University's College of Engineering Capstone Program. The program connects student teams, guided by faculty, with companies seeking affordable, innovative solutions.

In fall 2024, a team of students collaborated with an ACP engineer. "The students were very engaged and asked smart questions," said Cook. "Each brought a unique skill set, such as programming or industrial design. This cross-section of skills produced really interesting ideas."

The team proposed a design using two timing-belt systems controlled by servomotors to automatically open and close the door.

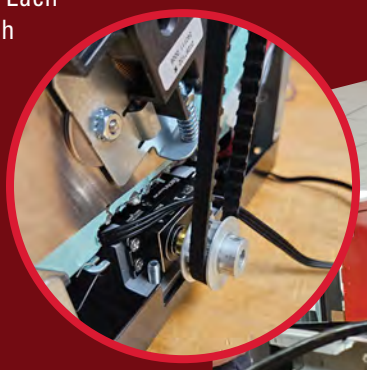
"The team did a nice job providing a proof of concept worth refining into a production-ready version," said Cook. "The project will help us better understand and proceed with the design."

ACP is planning a follow-up project. "The next step is to refine the concept into a working oven," said Cook. "We look forward to what the students present us."

Contact Mayra Stephanie Ramirez at ramirezm@iastate.edu to learn more.

CAPSTONE REQUEST FORM: Complete this form to match your project with the most suitable academic department by sharing its goals, focus, and needs.

go.iastate.edu/1SGFBX



Above left: Close up of prototype design. **Right:** Capstone students demonstrate a prototype design during testing, helping refine a cost-effective concept for future development.

Building Bridges to Success in Government Contracting

TAYLOR CONSTRUCTION
FOUNDED: 1972
EMPLOYEES: 30
OVERVIEW: A small business specializing in road and bridge construction across Iowa.
IMPACT: Leveraged CIRAS APEX Accelerator services to secure government contracts, expand business, and support small company participation in federal projects.

Taylor Construction, based in New Vienna, Iowa, has emerged as a key player in the state's road and bridge infrastructure development. Under the leadership of Krista Thier, president of Taylor Construction, the company has grown steadily through strategic partnerships and a deep commitment to community and collaboration.

Thier, who holds a background in business, joined the family-owned firm founded by her parents more than 30 years ago. While she is not an engineer or builder by trade, Thier has been instrumental in driving the company's growth and long-term success. Her instincts for networking and building relationships have helped position Taylor Construction as a trusted name in the industry.

As a small company, Taylor Construction recognizes that competing for government contracts and managing complex infrastructure projects requires thoughtful collaboration. The company has established a strong, ongoing relationship with CIRAS and the APEX Accelerator program, leveraging its resources to navigate the competitive government contracting landscape. Through their work with Julie Fagle, a CIRAS APEX Accelerator government contracting specialist, Taylor Construction has secured projects with the U.S. Army Corps of Engineers, focusing on road and bridge construction across the region.

Beyond contract acquisition, Taylor Construction champions the role of small businesses in the construction industry. Thier and her team advocate for unbundling large contracts into smaller, more accessible segments—making it easier for small and mid-sized firms to compete. This effort has helped open doors for other Iowa-based companies looking to grow their capacity in the government marketplace.

Thier believes in "strength in numbers" and actively seeks partnerships with construction and civil engineering firms that offer competitive pricing and high-quality service. CIRAS APEX has supported this approach by guiding Taylor Construction through the federal contracting system (SAM.gov) and introducing the company to the Freedom of Information Act (FOIA) process. These tools have allowed Taylor to gain valuable insights into awarded contracts, enabling smarter networking and subcontracting strategies.

Taylor Construction also benefits from CIRAS APEX's bid-matching services, which provide customized notifications of relevant government bid opportunities based on the company's capabilities and target geographic area.

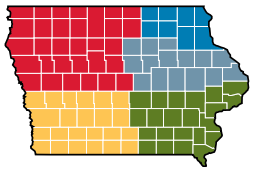
Through its collaboration with CIRAS APEX, Taylor Construction has not only expanded its own operations but has also helped pave the way for other small businesses across Iowa. The company's projects emphasize safety, durability, and historical preservation—improving the efficiency and connectivity of Iowa's infrastructure.

By bridging both infrastructure and opportunity gaps—both literal and figurative—Taylor Construction continues to drive progress, one project at a time.

Contact Julie Fagle at jafagle@iastate.edu to learn more.

Above left: Krista Thier, President of Taylor Construction.
Below: Taylor Construction bridge project over Highway 30.

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.

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WORKFORCE SOLUTIONS

Turning Challenges into Opportunities through Operational Excellence

Operational Excellence (OE) is essential for success in today's competitive business landscape. It begins by cultivating a culture where employees are encouraged and empowered to recognize inefficiencies and suggest meaningful solutions. At the heart of OE lies a strong Continuous Improvement (CI) system—one that supports the collection, evaluation, and implementation of ideas. When CI is embedded in the organizational culture, it enables staff at all levels to actively contribute to ongoing improvements and drive lasting change.

Key Strategies of OE

- **Lean Principles.** Optimize processes by identifying and eliminating waste, mapping workflows, and implementing visual management tools. This approach enhances transparency and efficiency throughout the organization.
- **Data-driven Decision-making.** Establish key performance indicators aligned with strategic goals and utilize data analytics to uncover trends and improvement opportunities. This information needs to be accessible to all employees to enable informed decision-making at every level.
- **Employee Development.** Invest in regular training on Lean thinking and professional growth. Cross-train staff to increase flexibility and knowledge sharing while cultivating leadership skills across all levels.
- **Customer Focus.** Regularly assess customer needs and align processes and strategies to deliver maximum value. Implement feedback loops to gauge and improve customer satisfaction.
- **Standardization.** Document effective processes and regularly review and update standard operating procedures to ensure consistency across the organization.
- **Long-term Commitment.** Operational excellence requires a clear vision and strategy. Align improvement initiatives with long-term goals, and remain patient and persistent—cultural change takes time. To support lasting impact, employ organizational change management practices to encourage greater adoption and long-term success.

CIRAS is here to guide you through each step of this process. Contact Brenda Martin at bkmartin@iastate.edu to learn more.