



AT A GLANCE

Iowa Spring

YEAR FOUNDED: 1976

LOCATIONS: Adel, Iowa (headquarters); Granite Quarry, North Carolina (a garage door spring location)

EMPLOYEES: 125 total (101 in Iowa)

IMPACT: About \$1 million increased annual sales, \$1.2 million in equipment investment, 30 percent cost savings

OVERVIEW: Iowa Spring is a customer-focused company that designs, engineers, manufactures, and delivers large, heavy-duty metal springs for the agricultural equipment, mechanical equipment, overhead garage door, and related industries.

CIRAS Innovation Service Cuts Costs, Boosts Business for Iowa Spring

An Adel-based manufacturer of springs for garage doors and agricultural equipment cut its costs by more than 30 percent and expects to boost sales by more than \$1 million after adopting an innovative new technology that it tested as part of a CIRAS innovation service.

Iowa Spring had a 25-year history of working with CIRAS even before the latest project. The company contacted CIRAS in 2013 to discuss the feasibility of using new technology to create a large spring for its customers' agricultural equipment.

"Technology to make springs has advanced in the last few years," said Tim Bianco, Iowa Spring's president and chief executive officer. The advances include new equipment that makes it easier to bend bigger wire and make larger springs. Large "hot-wound" springs traditionally have been created

by what Bianco describes as an "antiquated" process of heating metal. Bianco and his team wondered if they could use a "cold-wound" process instead and save their customers money.

CIRAS helped define the idea and put it through a Real, Win, Worth (RWW) framework—a process designed to help company leaders confidently decide whether or not to move forward with a new concept.

The RWW process is part of the Innovation Cycle—a four-step path (Definition, Discovery, Development, and

Delivery) that all new ideas must follow on the way to becoming an innovation. New ideas are fine tuned, probed, and experimented with to determine their true value, then fleshed out more before they're brought to market. The RWW framework is part of the Discovery phase—the point where a cross-functional team from a business refines a concept it's considering investing in by asking three key questions: "Is it Real? Can we Win? Is it Worth doing?"

"Many companies skip the concept Definition and Discovery phases, and jump straight from idea to Development

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On the Cover: An Iowa Spring team member measures the outside diameter of a compression spring.

CIRAS Mission: *Every day we will enhance the performance of industry through applied research, education, and technical assistance.*

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without testing and proving the value to the customer or the company," said CIRAS project manager Pete Nadolny. "This is very risky and often why companies fail when trying to deliver innovations to the market."

Depending on the particular need, CIRAS experts can guide a company through the entire process or only a portion of it, but all the steps must be followed for an innovation to be successful, said Nadolny. "The value we provide is walking companies through how to define a concept and making sure all key things are considered," he said.

For each key RWW question, CIRAS facilitates sessions that help companies understand the problems, opportunities, and solutions involved in a potential investment, including a look at the true marketplace for a concept and the potential reward.

During different sessions, Nadolny asks questions—Who's the target customer? What problem will this new concept solve? What's your proposed solution to this problem? Is it a good fit for our business? What price could we charge? What would it cost to manufacture? "The point is to define exactly what you are proposing to do and why it is going to be valuable to a targeted customer and the company," he said.

CIRAS' innovation services "help provide structure to the decision-making process, especially when you're looking at capital investment, building expansion, or acquiring a different company—anything where you'll have a substantial investment," said Brian Setchell, vice president of operations at Iowa Spring. "Our process before was relatively informal, and this brought structure to it. It gets all team members involved."

Bianco said he recognized the potential benefit for Iowa Spring the first time he heard about CIRAS' innovation services. "Our management team is diverse in age and experience," he said. "Anytime we can use an opportunity to look at processes differently, it's invaluable."

Nadolny facilitated the RWW approach over several sessions, including administering a questionnaire. Each team member did homework and answered the RWW questions based on the data available and their own perspectives. Answers were tallied, then the team met to debate the results, come to a consensus, and create a final score.

"It was enlightening to learn why each person scored things the way they did. We heard perspectives that I doubt, in our normal process, would have come out," Setchell said.

Ultimately, Iowa Spring decided it would be worth the money to invest in new equipment and pay for tests of its new cold-wound process using the Center for Nondestructive Evaluation at Iowa State University. Tests showed that the new cold-wound spring outlasted a sample hot-wound spring. "We've come up with a solution that can save customers money but give them the same performance," Setchell said.

"[CIRAS' innovation services] help provide structure to the decision-making process, especially when you're looking at capital investment, building expansion, or acquiring a different company—anything where you'll have a substantial investment."

— Brian Setchell

Response by customers has been positive. Iowa Spring expects as much as \$1 million in increased sales annually from the cold-wound innovation, which also reduces the company's manufacturing costs by more than 30 percent. Iowa Spring already has invested \$1.2 million in equipment that will expand its production capabilities.

On the heels of the first RWW project success, Iowa Spring enlisted CIRAS' help on a second project. The company had an opportunity to acquire a California manufacturer that has a presence across North America and to grow alongside one of its current customers, a company that's looking to expand its business on the West Coast. "It was another chance to use the Innovation Cycle and RWW," Bianco said.

Based on the results of the RWW approach, Iowa Spring plans to move forward with trying to acquire the California spring company, its main competition in that region. Bianco said a successful acquisition would allow Iowa Spring to retain 20 percent of its volume, service a marketplace that isn't being serviced, and create top line, organic growth.

Bianco described the RWW framework as a "true methodology you can use that's tried and practiced."

"We're going to continue to use this system every time we have an opportunity," he said. "It's inexpensive and not time consuming. We have the process map, we just need to follow it."

Setchell agreed. "We have decided, after doing RWW, that on future projects we're going to have that be the driver for how we meet and make our decisions," he said.

Moreover, Bianco, who is the second generation to run his family's company, appreciates the long-term relationship Iowa Spring has had with CIRAS. "We're in a mature marketplace that's tough to distinguish yourself in, and we've made ourselves unique."

He credits CIRAS with helping them to do that.



Iowa Spring team members gather materials for and shape compression springs.

➤ For more information, contact Pete Nadolny at 515-227-2471 or pnadolny@iastate.edu.

Look closer at Iowa's rolling landscape and you may be surprised to discover what is made here—everything from refuse trucks and powered machinery to buckets and pastries. When you buy products manufactured in Iowa, more money stays in our local communities.

Professional Golf Supply, Inc.

Db a All Star Pro Golf (ASPG)

Overview: ASPG is one of the United States' largest Golf Pro-shop distributors, with a complete line of golf items, including golf tees, grips, and apparel. The company specializes in selling customized golf pencils to courses around the country, producing roughly 14 million a year.

Location: Spencer, Iowa (corporate); Des Moines, Iowa (sales department)

Founded: 1957

Employees: 14

Websites: www.allstarprogolf.com and www.allstarc.com



Pure Fishing

Overview: Pure Fishing is focused on building the world's best fishing company, one brand at a time.

Location: Spirit Lake, Iowa

Founded: 1937

Employees: 380

Website: <http://purefishing.com>



Simply Soothing

Overview: Simply Soothing is a family-owned business with a focus on high quality for a reasonable price. The company manufactures bath products, air fresheners, and Bug Soother, a popular natural bug repellent made to be safe for children and pets.

Location: Columbus Junction, Iowa

Founded: August 2003

Employees: 12 (in season up to 25)

Website: www.simplysoothing.net



New Regional Peer Forums Launching to Engage and Educate Iowa Professionals

A new series of BizWise regional peer forums is launching this year as part of an ongoing effort by CIRAS and the Iowa Association of Business and Industry (ABI) to help Iowa business professionals stay ahead of the curve and perform at their peak.

"The goal is for ABI and CIRAS to work together to provide manufacturers and businesses throughout the state with a chance to work with their peers in specific topic areas to help each other improve," said CIRAS program director Mike O'Donnell.

ABI and CIRAS piloted the BizWise program in 2014 with a MarketWise peer forum in northwest Iowa. That group quickly grew from 5 members to the maximum 15. Members met one day a month for four hours, with time split between morning sessions covering best practices, leadership, and other topics, and afternoons focused on peer learning. Members shared issues that had been challenging them and received feedback from the group.

"While each member's business is different, the issues we face are similar and transferrable," said 2014 MarketWise member Lisa Johnson, former director of marketing and communication for a company in Sioux Center. In addition to the

education and networking, "there is also a level of accountability. In that following month, you can be sure someone will ask how you are doing on whatever issue the group previously helped you process."

This year's expansion means ABI and CIRAS are introducing four new BizWise peer forums around the state:

- MarketWise, focusing on marketing and communications topics, in northeast Iowa

- LeanWise, focusing on Lean practices, in southeast Iowa
- RiskWise, focusing on risk management, statewide
- FinanceWise, focusing on topics for CFOs and finance executives, statewide

During 2015, new members will be able to join any group each month if spots are available. CIRAS and ABI facilitate the meetings and recruit speakers on topics determined by the members. After the first year, each group will receive a "Pro" designation (such as MarketWise Pro) and become a private group, which means it then will decide for itself whether or not to allow any new members.

New groups may be added later, as professionals statewide demonstrate an interest. "Our goal is to go wherever there is a need," said Holly Mueggenberg,

ABI's member programs coordinator.

For Johnson, the benefits of participating in a peer forum were obvious.

"Disconnecting from the office once a month for

a few hours fills your cup, so to speak," Johnson said. "I think the investment can build confidence, motivate, and raise productivity, which is positive for both the company and the individual."

"While each member's business is different, the issues we face are similar and transferrable."

— Lisa Johnson



IOWA ASSOCIATION OF BUSINESS AND INDUSTRY

➤ To join a new BizWise peer forum, contact ABI's Holly Mueggenberg at 515-235-0572 or hmueggenberg@iowaabi.org.

Misty Harbor Boosts Sales by \$2M and (with CIRAS' Help) Remains on a Path to Improvement

A 25-year-old family-owned boat business is on course for a brighter future after 18 months of work with CIRAS on a host of transformative efforts.

Misty Harbor, a Fort Dodge mainstay since 1989, has reported \$2 million in new and retained sales after working with CIRAS on a variety of mentoring and other projects. Since January 2013, it also has invested in training, computer hardware upgrades and increased employee pay.

“The driving force behind all that we do here at Misty Harbor revolves around our ability to build the finest quality pontoon boats that we can,” said John Jergens, director of operations at Misty Harbor. “In working with CIRAS, we hoped we would see positive changes in our quality and revenue, as well as our bottom line. And we met those expectations.”

Jergens first met with CIRAS program manager Mike Willett in January 2013. The company had experienced steady growth over the years, but Misty Harbor managers believed there might be internal issues constraining the company's true potential. CIRAS was asked to help the company set priorities and map a plan to focus on continued growth.

Willett began by explaining the Theory of Constraints to Misty Harbor's management team and by challenging their processes for making decisions. He led Misty Harbor through creation

AT A GLANCE

Misty Harbor

LOCATION: Fort Dodge, Iowa

FOUNDED: 1990

EMPLOYEES: 70

IMPACT: Over the last 18 months, Misty Harbor experienced a \$2 million sales increase and cut costs.

OVERVIEW: Quality-driven and customer-focused manufacturer of pontoon boats with a worldwide sales and distribution network.

of a Current Realty Tree (CRT), a visual method to determine the root problems that affect the quality of the output of a business process.

A CRT is constructed by listing specific observed problems in or connected to a process and developing a chain of causes and effects that link the

problems to potential sources. CIRAS uses it as a way to bring an entire organization together to recognize and understand current problems and the links between them.

In Misty Harbor's case, the CRT process unveiled facility space limitations

and excessive material handling. Since the initial meeting, CIRAS experts have worked with the company to educate employees about materials management and floor planning. CIRAS also provided training to teach workplace leaders how to develop employees for peak performance and improve the way every job is done, as well as technical assistance such as Lean: 5-S/Visual, the process of creating workspace cleanliness and organization.

All the work appears to be paying off.

“At CIRAS, we view transformation plans as a journey, not as a project,” Willett said. “The transformation at Misty Harbor has been outstanding and is a prime example of just what is possible.”

“In working with CIRAS, we hoped we would see positive changes in our quality and revenue, as well as our bottom line. And we met those expectations.”

— John Jergens

Facebook and LinkedIn Want More Women in Tech

Top executives at Facebook and LinkedIn have announced plans to launch mentoring and support programs at colleges around the country to get more women involved in studying engineering and technology.

Facebook Chief Operating Officer Sheryl Sandberg and LinkedIn CEO Jeffrey Weiner gave an exclusive interview with the Associated Press in February in which they stressed the importance—both to their companies and to the country in general—of broadening the technology talent pool.

According to the companies, 15 percent of Facebook's tech employees and 31 percent of its workers overall are women. LinkedIn has women in 17 percent of its technology jobs and 39 percent of its jobs overall.

“A lot of our consumers, at least half, sometimes more, are women,” Sandberg said. “We build a product that gives people a voice. We know we can't build a product for the world unless our teams reflect the diversity of the people who use the product.”

Reports say the percentage of people enrolled in undergraduate computer science programs who are women peaked at 35 percent in 1985 and is now down to approximately 17 percent.

Speaking of Social Media...

CIRAS broadened its online presence earlier this year with three new initiatives:

- *CIRAS Newswire* is a website where we'll publish original and aggregated news that we believe will be of value to CIRAS' stakeholders. Find success stories, contracting tips, and twice-weekly updates at newswire.ciras.iastate.edu.
- Follow us on Twitter via @CIRAS_ISU.
- Find us on Facebook at www.facebook.com/CIRAS.ISU.

And as always, you can still find our Innovation and PTAP discussion groups on LinkedIn.



➤ For more information, contact Michael Willett at mwillett@iastate.edu or 319-234-6811.



Center for Crops Utilization Research (CCUR)

CCUR is a fee-for-use research facility that explores new food, feed, and nonfood industrial uses for agricultural materials. Thirty-five thousand square feet of pilot plant processing and support space are available for studying new processes, products, and markets for corn, soybeans, and other Midwest crops.

Example Applications

- Develop laboratory-scale processes
- Determine soy protein isolation and concentration
- Extract and characterize vegetable oil
- Grind and size biomass
- Extrude, mold, and film blow plastics
- Manufacture building materials
- Optimize microbial fermentation processes
- Develop enzymes to improve by-products from ethanol production

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CIRAS-Arranged Work Helps Legumes Lift Harvest Innovations

A long and profitable relationship between CIRAS and Indianola-based Harvest Innovations is expected to substantially boost the company's sales, thanks largely to CIRAS-arranged work that helped perfect a technique for extracting proteins from legumes.

The project is the latest in a series of successful collaborations, beginning when Harvest Innovations first approached CIRAS shortly after the company was founded in 2009.

Harvest Innovations, which manufactures chemical-free, non-GMO, gluten-free, and organic food ingredients, initially sought help creating a business continuity plan. A year later, the company toured the pilot lab at Iowa State University's Center for Crop Utilization and Research (CCUR) and quickly arranged to work with CCUR on a proof-of-concept study and a shelf-life study. Additional work followed.

The most recent project bore fruit in 2014 after nearly three years of effort. CCUR worked with Harvest Innovations to turn a prototype process for legume protein extraction into a large-scale production capability. The result already has helped a small Iowa agri-science company build a larger national profile.

Dr. Noel Rudie, director of research at Harvest Innovations, has been the lead on multiple projects with CIRAS and CCUR over the past six years—projects that resulted in an economic impact in the millions of dollars, according to surveys completed by the company.

Rudie, who also serves on the CIRAS Advisory Council, said CCUR has helped Harvest Innovations grow and “it’s actually driven some business commitments for us.”

For example, following completion of the business continuity plan, Harvest Innovations was able to contract with a large cereal company that likely would not have worked with the Iowa business otherwise.

That growth is expected to continue as Harvest Innovations adds sales spawned by its legume protein process.

“By doing this research, we’ve been able to have the proteins purchased from an Iowa company as opposed



AT A GLANCE

Harvest Innovations

FOUNDED: 2009

LOCATION: Indianola, Iowa

EMPLOYEES: More than 90 employees

IMPACT: Projects over six years have helped drive double-digit growth for the company

OVERVIEW: Develops high-quality and nutritionally dense food ingredients with no chemicals and no artificial ingredients; its ingredients can be found in products including bakery, cereals, dairy, meat and seafood, pasta, prepared meals, snacks, and pet foods

Why Legumes?

For four decades, Dr. Wilmot Wijeratne has studied natural grain production and ways to bring the best products to consumers. He was instrumental in developing the basic technique for extracting excess oil from soybeans, and he helped create a process to do that on a large scale.

Now, Wijeratne, director of food technology for Harvest Innovations, is looking at legumes—lentils, chickpeas, and garbanzo beans—to feed the latest needs of savvy shoppers.

Harvest Innovations started out as a soy ingredient manufacturer. But the company has adjusted in response to public interest and increasing research showing the importance of healthy eating.



“The nexus between food and health in general in the past three or four decades . . . has heightened tremendously,” Wijeratne said. “We looked at what opportunities there are in this particular climate that educated and informed consumers can be interested in. That is when we went in the direction of nonchemical, organic, non-GMO ingredients.”

Wijeratne said small companies “must have a niche to be profitable—a niche where we have the freedom of movement—and we found mega food companies have interest in what we do.”

Harvest Innovations’ interest in soybeans will not go away, Wijeratne said. But “there is a segment of the market that wants to be nonsoy. We have to have an answer to high protein, nonsoy.”

Regena Butler, left, the product development specialist and quality assurance manager at Harvest Innovations, and Dr. Noel Rudie, director of research for the company, conduct an antibody test for gluten as part of ongoing research at the Indianola-based company.

to being sourced from the Pacific Rim,” said Barry Nadler, Harvest Innovations president. “It’s coming from Iowa producers of soybeans – Iowa processors – as opposed to bringing it from overseas sources.”

Harvest Innovation’s manufacturing also is substantially more efficient now because CCUR helped the company figure out how to better control its pneumatic system, which cut losses and increased throughput.

Darren Jarboe, program manager for CCUR, said the legume project involved two major efforts.

“One was to make smaller samples they could send out to customers and send out to labs to test and see if they function like they’re supposed to,” Jarboe said. Next, “they took the process they developed and put it into a large scale, tons quantity.”

Hui Wang, pilot plant manager at CCUR, said their equipment helped Harvest Innovations test its process before committing to a full-scale effort.

“Our mission is to help faculty, help students, help industrial companies to

succeed,” Wang said. “When we help them with that, we are happy.”

Dr. Wilmot Wijeratne, director of food technology at Harvest Innovations, traveled to the CCUR lab frequently as the effort advanced. The company used applied research to optimize results as the project moved toward creating a full commercial production process. “I can say now we have, with the help of CCUR, accomplished that,” Wijeratne said.

CCUR cites economic development as a key reason for its work to aid the development of new products and increase the demand for crops. Harvest Innovations is a prime example of how that works, according to Rudie. He credits CIRAS and its connections, including CCUR, for helping the company grow.

“We might have been able to work with a large cereal company, but it was work with CIRAS that helped the company get the contract and start working right away,” Rudie said. “We’re always looking for those kinds of opportunities and looking at what the market is asking for. We know we have a resource we can go to when those questions are asked and we can move forward.”

CIRAS Seeds New Forum for Discussing Sustainable Businesses in Iowa

Four Iowa corporations have joined forces with CIRAS to create the Iowa Sustainable Business Forum (ISBF)—a new nonprofit organization that will be dedicated to improving businesses while boosting environmental stewardship and social responsibility.

The still-evolving organization was formed at the end of 2014 after a CIRAS-funded feasibility study identified a desire among Iowa companies for a place to learn more about sustainability practices.

“As a business, as I look to grow my business, I have to look at all the possibilities,” said Doc Wilson, branch manager at Cummins Central Power, a diesel engine wholesaler in Des Moines.

“Sustainability is a very important part of that equation.”

But Wilson, who will serve as a founding board member of the ISBF, said sustainability becomes “a little vague in substance” when people new to the issue first attempt to practice it. Anyone seeking information finds that companies have different focuses, different areas of expertise, and different ideas of what “sustainability” involves.

“If I go looking for best practices, I can’t find them,” Wilson said. “You can’t find what you want to see.”

The hope is that the ISBF will fix that by offering companies a way to compare themselves to others and an outlet for frank discussion of any specific business issues that arise. Companies will be able to seek advice instead of struggling in silence.

Renee Davlin of The Principal Financial Group will serve as the first ISBF board

president. The vice president will be Michele Boney of West Liberty Foods, and Barilla America’s Ryan Witt will serve as treasurer. CIRAS will have a nonvoting seat on the board and is planning to initially support the ISBF’s administrative expenses.

“A lot of it is just being able to get companies together, get them in a room and say, ‘What

works for you?’” said Witt. “If you aren’t looking at these issues, sometimes you don’t know what you don’t know.”

Witt said a growing number of businesses are “looking at sustainability both as a PR and a financial game.” Reducing waste and cutting your company’s carbon footprint, among other steps, can both save money and enhance public opinion of your business.

But first, Iowa businesses have to know where they have room to improve—something that’s not as easy as it could be right now.

“I think the benchmarking is probably the best aspect,” Witt said. “I think that’s the biggest

bang for the buck for a lot of companies—finding out where you stand in relation to everyone else.”

Wilson said Cummins has managed to save \$24,000 a year by recycling paper and cardboard, but “we are just scratching the surface of what we can do to be more efficient.”

“This just adds a huge dimension,” Wilson said of the new forum. “Just to be able to go up and ask other companies, ‘What’s your experience?’ so I don’t have to recreate the wheel, so to speak.”

The Iowa Sustainable Business Forum will hold its first sustainability event on Wednesday, June 3, in Cedar Rapids.

For additional information or to apply for membership to the forum, please contact Mike O’Donnell at modonnll@iastate.edu.

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— Doc Wilson

“A lot of it is just being able to get companies together, get them in a room and say, ‘What works for you?’”
— Ryan Witt



➤ For more information, contact Mike O’Donnell at modonnll@iastate.edu or 515-294-1588.

SPECIAL REPORT: WORKING ON WORKFORCE

IOWA'S WORKFORCE SHORTAGE

(Fourth in a Series of Articles)

THE PROBLEM: Iowa has a gap between its share of "middle skill" jobs and the number of people who have those skills.

HOW WE GOT HERE: Decades of low unemployment means fewer available workers. Young people tend to leave rural Iowa, and experienced factory workers now are approaching retirement.

PREVIOUS ARTICLES: Iowa businesses have been reaching out to schools, recruiting from other companies or locations, and turning to women.

THIS TIME: Retention and training become extra important.



Dave Zrostlik

The Importance of Growing What You've Got by Ron Cox and Jeff Eckhoff

In a time of tight budgets and unfavorable demographics, it's in Dave Zrostlik's best interest to keep all the employees he has.

Zrostlik is president of Stellar Industries, an employee-owned maker of truck-mounted hydraulic equipment in Garner. Like the rest of Iowa, Stellar faces a growing shortage of skilled workers, as older employees retire and young rural residents head out of town for the brighter lights of big cities.

"Here in rural Iowa, it's difficult to find people just living in the area to come into these positions," Zrostlik said.

"Unfortunately, it's also difficult to find people outside the area to move back."

Relocation costs are one reason—along with prices tied to the training, recruitment, and lowered productivity of new employees—that the retention and upskilling of workers have become major concerns for successful Iowa businesses.

A 2012 review by the Center for American Progress found that it costs

the typical American business slightly more than one-fifth (20.4 percent) of an employee's salary to replace workers making \$75,000 or less per year. For C-level executives, where the qualifications and talent requirements are more specific, the per-salary cost of replacement could reach as high as 213 percent.

Reducing turnover, therefore, can both save a company money and lessen

AT A GLANCE

Stellar Manufacturing

LOCATION: Garner, Iowa

BUSINESS: Maker of truck-mounted hydraulic lift equipment

EMPLOYEES: 280

RETENTION: Company offers 401(k) match through an ESOP, as well as an extensive wellness program, tuition reimbursement, and a plan that shares savings through its health-insurance fund

Danfoss Power Solutions

LOCATION: Around the globe, including a plant in Ames, Iowa

BUSINESS: Mobile hydraulics company

EMPLOYEES: 1,000

RETENTION: Company pays for a variety of training and membership in professional organizations; puts a lot of effort into training managers

Hagie Manufacturing

LOCATION: Clarion, Iowa

BUSINESS: Maker of agricultural spray equipment

EMPLOYEES: 475

RETENTION: Focuses on hiring right to begin with—building company culture and finding workers who fit within it; offers training and employee-specific feedback

Geater Machining & Manufacturing, Co.

LOCATION: Independence, Iowa

BUSINESS: Machining, sheet metal fabrication and finishing operations for the aerospace and defense industry

EMPLOYEES: 240

RETENTION: Frequent employee cookouts and other team-building exercises, training, and tuition reimbursement; increased focus on improving hiring process to get employees that fit the culture



Two Stellar employees discuss the final steps during a crane assembly.

the threat from a still-looming worker shortage. An estimated 56 percent of Iowa jobs require “middle skills” training (beyond high school but less than four-year college), but only 33 percent of Iowa workers currently have those skills.

However, Rowena Crosbie, president of Des Moines-based training firm Tero International Inc., argues that it takes more than a focus on bottom-line numbers to understand why smart companies invest heavily in upskilling workers. Today’s fast-changing world means information and technology expire quickly, and a groundbreaking production process won’t keep you ahead of competitors for long, she said. What will keep you ahead is a team that’s customer friendly and always searching for the next innovation.

“If I’m employing people during an information and knowledge time in history, the loss of people is more serious than it would have been in the old days, when I could just replace them,” Crosbie said. “If competitive advantage is now going to come from

the way I treat my customers, from the intangible services that I provide, then the delivery vehicle for that is the people, not the product. So I need to put more attention on the human aspect of the product than I ever did before.”

In practice, this increased attention means a mixed focus on perks to keep employees happy, training to keep them skilled, and a healthy workplace culture that keeps everyone productive.

At Stellar Industries, Zrostlik touts the company’s benefits—including a wellness program that covers everything from colonoscopies to flu shots for spouses, a 401(k) that matches worker contributions in an employee stock ownership plan, and an incentive plan that gives workers a share of savings from the company’s self-insured health fund.

“Everybody’s going to have to think twice about leaving here when it comes to thinking about the benefits we provide,” he said. “I think there probably are companies who pay more per hour than we do. I don’t know anybody that’s had the kind of profit sharing we’ve had.”

Zrostlik said Stellar’s workers also have access to a wide range of opportunities to improve themselves, from welding classes to tuition reimbursement.

“I think if people start out with you and you can train them and bring them up through their jobs into being leaders, I think then you have a more committed person within the organization,” he said.

Danfoss Power Solutions, a mobile hydraulics company with a plant in Ames, uses similar benefits to recruit and retain engineers. Human resources manager Jill Bidwell said Danfoss employees are able to tap a “fairly generous” company tuition reimbursement policy to obtain an advanced engineering or business degree. The company also foots the bill for workers to join various professional organizations or to obtain technical certifications.

Bidwell characterized the company’s employee turnover as “extremely low compared to industry benchmarks.” She attributes this fact largely to the extensive effort that Danfoss puts in to training its managers.

“If your manager can reduce the politics and reduce the noise and remove barriers so you can focus on what you do best, that plays a key part in somebody’s satisfaction and willingness to stay with the company,” she said. “I think with today’s job seeker, there are so many options out there—I think you have to be competitive with salary and benefits for people to even consider applying with your company, But once an employee signs up to work with you, the majority of the reason they stay is in the hands of the manager.”

Studies show the overall attitude of a workplace is one of the key factors in an employee’s happiness.

“I think if people start out with you and you can train them and bring them up through their jobs into being leaders, I think then you have a more committed person within the organization.”

— Dave Zrostlik

According to a February report by Gallup, only 32.9 percent of 25 million surveyed American workers currently classify themselves as “engaged”

in their jobs—a state pollsters defined as “involved in, enthusiastic about, and committed to their work” and contributing “in a positive manner.” The number represents a three-year high.

Good managers can “greatly increase the odds of employee

engagement,” according to the 2012 version of Gallup’s *State of the American Workforce* report. The report urged companies to eschew promotions as a reward and instead “select managers with the right talents for supporting, positioning, empowering, and engaging their staff.”

Gallup estimated that “bosses from hell” cost American companies \$450 billion to \$550 billion annually by pushing some workers toward “active disengagement,” which includes spreading discontent and lowering productivity.

“People don’t leave jobs, people leave people,” agreed Molly Mummelthie, human resources manager at Geater Machining & Manufacturing Co. in Independence, Iowa.

“There should be a continuous effort focused on treating our employees better and working to establish and maintain that good relationship with our employees. Geater invests a significant amount of time and dollars into training our supervisors, and this is a big reason why.”

Hagie Manufacturing in Clarion for years has made engagement the chief goal

of its personnel practices—to the point where the company won’t hire someone unless it sees the potential for a long-term relationship.

“We can find people to hire,” said human resources manager Dave Maxheimer. “We will not ever hire for skills alone. They must be a fit with this company. Because if they are not a fit with this company, they are going to drag the company down.”

Hagie uses a speed-dating interview process to give a wide group of people the chance to assess prospective employees. Before anyone gets to that point, would-be workers have to fill out a long application that includes at least a question or two that will require them to actively research facts about the Hagie family. Applicants who don’t bother with those questions don’t get hired.

“We want to make sure that they’re fully engaged in the Hagie lifestyle, the Hagie culture, that they want to be a part of the culture,” Maxheimer said. “And to do so, they’re going to have to work for it.”

Once they do work, they’re encouraged to stay. Hagie has a flexible dress code (jeans or shorts whenever you want), and free snacks, among other things. The company also has an extensive tuition reimbursement policy for its employees and holds an average of

five classes per month on-site. Employees are encouraged to better themselves, including by reading specific business books suggested through a company book club.

“If you have the right employees and employees that are

engaged...you’re going to build those awesome products every time,” Maxheimer said. “We have to provide them the right tools to get them to the next level.”

“If you have the right employees and employees that are engaged... you’re going to build those awesome products every time.”

— Dave Maxheimer

Iowa State University—Training the Next Generation of Manufacturing Leaders and Engineers

Are you wondering where your next corporate leader will come from?

CIRAS may have developed a way for you to find out.

This fall, CIRAS expects to graduate its first class from a new Manufacturing Leadership Program—a one-week boot camp designed to test the skill levels of would-be corporate executives and assess their readiness to take the reins of an Iowa manufacturing firm.

CIRAS program manager Mike O’Donnell said the program is intended to be used as a tool for measuring promising employees, some of whom might not know how unprepared they are to be a corporate leader.

“The bottom line is that Iowa’s manufacturing leadership is very quickly nearing retirement age and in some cases retiring right now,” O’Donnell said. “The bench strength varies widely from company to company. There are some companies out there who have seen this coming, are well prepared, and have their next generation of leadership ready. But there are a lot that don’t.”

The nature of the leadership void is hard to quantify, but demographics hint at some of the problem. A CIRAS analysis of data from the U.S. Census Bureau shows that, compared to the national average, Iowa’s manufacturing sector has a higher percentage of its technical and scientific workers concentrated in the “under 40” early-career age range. Iowa is roughly equal to the national average in its percentage of late-career workers (ages 55–66). But we’re below average in the concentration of 40- to 54-year-olds—the mid-career workers who usually would be tapped for the next wave of senior leadership roles.

CIRAS’ Manufacturing Leadership Program is planned to be a one-week overview of a broad range of topics that corporate leaders would encounter at the head of an Iowa manufacturing plant. CIRAS and Iowa State University experts will teach classes on both business and leadership, ranging from finance, marketing, and supply chain management to human capital leadership, organizational behavior, and negotiation skills.

“This is not, ‘Go to this course, and you’ll be ready to take over the company,’” O’Donnell said. “This is for the people who in five years might be ready to take over the company. You go to this course so that you know what you know and what you don’t know.”

For those who already know that they need technical help, Iowa State for years has offered online courses through the College of Engineering. Iowa State’s Engineering-LAS Online Learning (ELO)

started in 2000 and now sees annual enrollment growth of nearly 10 percent in engineering.

ELO today offers 10 master’s degree programs in engineering-related fields, 13 engineering graduate certificates, and several continuing education courses. More than 70 undergraduate, graduate, and certificate courses are offered each semester.

Tom Brumm, professor-in-charge of ELO, said this type of professional

development can help companies retain employees and better integrate new technologies into the workplace.

To learn more about course offerings, visit www.elo.iastate.edu.

Classes for the CIRAS Manufacturing

Leadership Program, which will be capped at 20 participants, are scheduled for August 9–14. The \$4,500 cost will be discounted 50 percent for the first year.

“This is for the people who in five years might be ready to take over the company. You go to this course so that you know what you know and what you don’t know.”

— Mike O’Donnell

CIRAS’s Manufacturing Leadership Program will cover a broad range of technical and leadership skills.

Business Excellence	Leadership Excellence
Business Strategy	Leadership Styles
Finance	Organizational Behavior
Marketing	Human Capital Leadership
Supply Chain Management	Productivity and Culture
Manufacturing Technology	Project Leadership
Innovation	Communication Skills
	Negotiation Skills

➤ **For more information, e-mail Mike O’Donnell at modonnll@iastate.edu or contact your local CIRAS account manager.**

Job-to-Job Changes by U.S. Workers by Liesl Eathington

Retaining talented workers may require greater effort by employers as job opportunities expand in a growing U.S. economy. As Figure 1 shows, job-to-job flow rates among U.S. workers of all ages have been trending upward since 2009, near the end of the last recession.

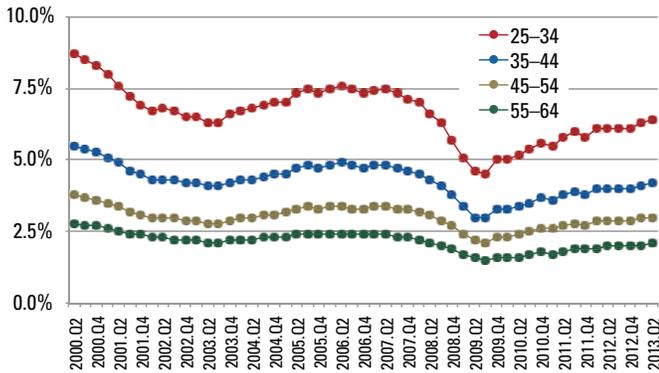


FIGURE 1: Percentage of workers with a different employer than in previous quarter, by age groups.

Some employers may be questioning the efficacy of worker retention efforts, giving in to the popular notion that today’s workers change jobs more frequently than in generations past. Statistics on worker mobility over time paint a more complicated picture of employee-employer attachment levels.

Employers in the United States in the early 1900s faced much higher turnover rates than today. Prior to the 1920s, employers in some industries were replacing 100 percent of their workers each year. Available historical evidence shows no notable upward trend in U.S. worker turnover rates after the 1950s.*

Data from the U.S. Bureau of Labor Statistics (BLS) suggest that the duration of typical worker-employee relationships has actually increased over the last 20 years. In January 1996, half of U.S. workers had been with their current employer fewer than 3.8 years. The median tenure of workers dropped to 3.5 years by 2000, but it has been climbing ever since. In January 2014, the median tenure of U.S. workers was 4.6 years.

An aging U.S. workforce could explain some of the increase in median tenure, since job change rates are lower among older workers. If today’s young workers are indeed more footloose than in previous generations, employers will feel the implications more acutely as Baby Boom-era workers retire.

Any evidence of a generational shift in workers’ attachment to their employers is more anecdotal than factual. Proving it would involve tracking the job histories of individuals across generation groups while controlling for changes in prevailing economic conditions, and that requires data not available from most employment statistics programs. An exception is a set

of longitudinal studies by the BLS that has followed a sample of workers in two cohort groups through several decades: (1) people born near the end of the Baby Boom (1957–1964), and (2) people born in the early 1980s (1980–1984).

The BLS studies suggest very similar patterns of early career job mobility among workers in the two groups.

Workers born near the end of the Baby Boom held an average of 11 or more jobs before reaching their 45th birthday. They averaged six or more jobs before age 27, with about three job changes occurring before age 22.

Workers born in the early 1980s also averaged six or more jobs before reaching age 27, with about three job changes occurring before age 22.

Worker age is clearly an important factor in worker tenure. Apart from age differences, job change rates also differ by workers’ educational attainment and industry. Job-to-job changes occur less frequently among more highly educated workers. By industry, job change rates are lowest in government jobs, where workers tend to be older and more highly educated. Manufacturing jobs also have low job change rates, especially when compared to many lower-skill service industries. Figure 2 illustrates recent job-to-job flows by workers’ educational attainment and in selected industries.

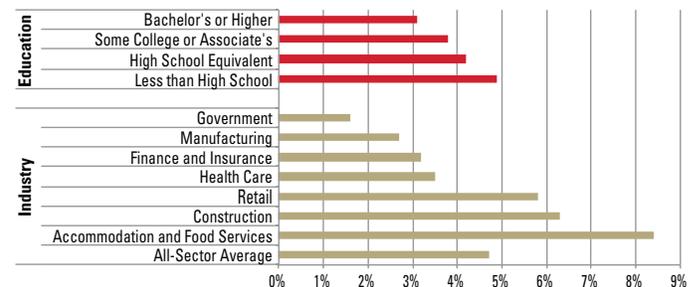


FIGURE 2: Percentage of workers changing employers in Q2, 2012.

Worker turnover is a complicated issue that has concerned U.S. employers for more than a century. The changing demography of the U.S. workforce, the growing skill and education demands placed upon workers, the nation’s changing industrial portfolio, and the effects of economic growth and recession all factor into changes in worker tenure over time. Explaining high rates of employee turnover with declining worker loyalty vastly oversimplifies the dynamics of employee-employer relationships and won’t likely contribute to effective worker retention strategies.

*Owen, Laura. 2004. History of labor turnover in the U.S. In R. Whaples (ed.). *EH.Net Encyclopedia*. April 29, <http://eh.net/encyclopedia/history-of-labor-turnover-in-the-u-s/> (17 February 2015).

Is Automation an Answer? CIRAS Can Help You Think through the Question.

Iowa manufacturers in search of a way to grow their businesses (at a time when growing the payroll isn't possible) will soon have a go-to source for understanding automation.

CIRAS hopes by the end of this year to hire a new staff member who will focus almost entirely on automation projects. The new specialist, who should arrive roughly a year after CIRAS began development of an educational presentation for factory leaders, essentially will lead a new service aimed at helping Iowa manufacturers understand the possibilities involved in automating certain procedures.

Chris Hill, an industrial specialist at CIRAS, said the goal is to be an educational resource for companies that know they need to expand their businesses but are hampered by factors such as a shortage of available workers.

"Typically, we hear, 'I need to make more of this' and either 'I don't have the people' or 'I need a better way to produce the item because of competitive pressure,'" Hill said. "Or, in a few cases, it's that 'I've got a lot of competitive pressures, and I've got to find a new way to do what I'm doing.'"

The CIRAS presentation, authored by Hill and Emmanuel Agba, a former Ford Motor Company executive and current senior lecturer in the Iowa State University College of Engineering, is designed to teach Iowa factory owners about all the possible levels of automation—from rotating fixtures that let workers quickly change equipment to complicated conveyor belts and sensors integrated with other systems. Company leaders then can use that knowledge to decide what path to pursue and how they should properly shop for automation equipment.

Agba said the presentation was born once researchers discovered "a gap in communication and understanding of what is needed by manufacturers and what should be provided by system integrators." Automation decisions can lead to "costly and disastrous" failures if they're not made with a clear understanding of how the changes will impact the entire business, he said.

Business owners sometimes overestimate what is needed due to a lack of information, Hill said. "Some people believe that if I'm going to automate, I'm going to need to get multiple-axis robots," he said. "It can be very uncomfortable for a person, so they may not take action. What we try to get people to understand is that there are many different levels of automation, and risk can be managed with information.

"When you talk about automation, a key goal is to minimize any non-value time," Hill said. "When you're swapping out fixtures to start making a different part, you're really not creating something of value. You're getting ready to create something of value. So what are the options to reduce this non-production time?"

The CIRAS presentation walks company officials through multiple ways to evaluate automation, including a look at the math involved in figuring its return on investment. Technology upgrades required to automate don't always pay for themselves quickly, Hill said—unless you factor in less tangible benefits, such as faster time to market and ability to free up employees

Four Types of Automation

FIXED AUTOMATION

Fixed automation involves special equipment (although not necessarily high tech) in a fixed sequence of processing or assembly operations. These types of systems can produce high volumes of products at a low cost, but they can be difficult to upgrade down the road.

PROGRAMMABLE AUTOMATION

Programmable automation is designed with the capability to change procedures to allow for different versions of a product. Machines can make batches of one product, then batches of another. But the overall output is less than with fixed automation.

FLEXIBLE AUTOMATION

Flexible automation uses computer controls and flexible attachments to perform multiple functions automatically. Systems switch easily between different configurations of a product without stopping, but the machines that make it happen can be expensive to install.

INTEGRATED SYSTEMS

Integrated systems are the most efficient, because production machines can respond quickly to changes in demand and shift output accordingly. But they're complicated and expensive.

to work on other value-added projects as a result of these new processes.

Picking the correct system for a particular company requires a clear understanding of what a company wants to accomplish today and in the future. You can design things in a way that maximizes the current benefit of new machines, but allows for future flexibility – if you develop an automation strategy at the beginning.

“There are a lot of pitfalls,” Hill said. “Some automation projects fail, and they fail for typical reasons. We help companies understand the type of information that is needed, assess options, and develop an automation strategy.”

Such projects work best when they’re used to squeeze productivity out of a growing-but-strained business, he said. “If a company is in trouble, automation is probably not going to be the answer.”

Agba believes that “a majority of Iowa manufacturers know that automation is inevitable” and that Iowa can “keep our competitive edge” by becoming a leader in automated manufacturing.

“The question we are asking Iowa manufacturers is ‘What are those things that you don’t want to spend time doing?’” he said. “We can assist you in thinking about creating a machine that will help you do those things so your employees can go and do more important things.”

➤ **For more information or to see the CIRAS automation presentation, contact Chris Hill at 515-294-5416 or chhill@iastate.edu.**

AT A GLANCE

DR. EMMANUEL AGBA

Senior Lecturer, Mechanical Engineering

BORN: Nigeria

LIVES IN: Ames

EDUCATION: BS and MS degrees in mechanical engineering from University of Benin, Nigeria; PhD from Florida Atlantic University

INTEREST AREAS: Product realization, product lifecycle management, virtual manufacturing engineering, computer-aided engineering, high-speed machining, robotics, composite materials, plastics production, reverse engineering

PROFESSIONAL BACKGROUND: Previously a plastics production manager in an industry in Nigeria and later a manufacturing manager at Ford Motor Company; experience in virtual manufacturing technologies, product lifecycle management, components traceability, supplier integration, design and manufacturing collaboration, technical training, and plastics production

Agba Guides Iowa State Engineering Students in Solving Problems for Iowa Businesses

Emmanuel Agba came to Iowa State University as a senior lecturer in mechanical engineering after a career with the Ford Motor Company. His area of specialization in the automotive world was to develop specific metal processes and techniques. Eventually, new challenges beckoned.



“When that was done, it became routine work,” he said. “At some point, industry work becomes repetitive.”

Today, Agba finds challenge by matching students in Mechanical Engineering 415, a capstone design course he teaches, with real-world situations in which they can solve a problem for Iowa’s industries.

Since he joined Iowa State in 2010, Agba has collaborated with CIRAS on projects that match his soon-to-be-graduating students with hands-on engineering applications that help businesses grow, increase efficiency, and succeed.

Projects often aid the client by solving a problem that has been a barrier to business growth. Assisting with the creation or implementation of automation is one example.

“We help Iowa industries define specifications for automation and help them implement automation into their process,” Agba said.

During any semester, one student team may be assigned to work with a company that has no automation and desires to put new systems in place. Other student teams may be tasked with helping a different business define issues with existing automation practices that are keeping that company from working to its highest potential.

The goal in working with all clients is to take a process from design prototype to full implementation to improve that business, save time, or create a quality product.

CIRAS serves as the bridge connecting Agba’s students to the specific needs of area businesses.

“CIRAS exposes (students) to industry projects and real products so their ideas are actually helping local industries,” he said. “To have people with real experience able to talk with a client about saving time and money—it’s a real skill to have. I think CIRAS is doing a really important job.”

Agba enjoys exploring ways to teach person-driven applications in the classroom and putting his skills to use “to train young engineers to be ready for the work world.”

It’s a change of pace from the auto industry, but the CIRAS connection ensures the mechanical engineering students and their teacher are involved in real industry work.

“Here, you are physically educating people and not just making a product,” he said. “You have more room to actually look at things from different perspectives.”

How the Government Saves a Place for Small Businesses *by Beth White*

Small businesses are expected to always have a place in government contracting.

United States policy, per the Small Business Act and other subsequent legislation, says the maximum practical opportunity must be provided to all small business categories. The president annually establishes government-wide goals declaring the minimum percentage of prime contracts that should go to businesses in the following categories:

- Small (23 percent)
- Service-Disabled Veteran-Owned Small Businesses (3 percent)
- Women-Owned Small Businesses (5 percent)
- Historically Underutilized Business Concerns Small Businesses (HUBZone) (3 percent)
- Socially and Economically Disadvantaged Small Businesses (5 percent)

Government agencies establish programs to monitor their spending and ensure that an appropriate amount is going to these small business categories. The Small Business Administration also acts like a liaison in some cases to ensure agencies are complying with the rules. Failure to meet goals must be justified.

Many federal contractors have similar goals for subcontractors written into their contracts.

Businesses that are not considered “small” must have subcontracting plans, with specific goals for small business participation, if they’re awarded a contract valued at more than \$650,000 (or \$1.5 million, for construction). Companies must report on progress and will be asked to justify any shortcomings.

Smaller businesses may not require a formal plan. But anyone receiving a contract valued at more than \$150,000 must agree in the contract to provide the same “maximum practical opportunity” for small businesses.

What does this mean to you, as a small business?

You should work to understand your target customer (whether government or prime contractor) and how the goals apply to them.

Research the target’s historical use of small businesses and their goals.

Respond to sources-sought notices from agencies looking for small businesses, market proactively, and where appropriate, obtain additional certifications required for prime contractors to meet their internal requirements.

If you are a small business or a prime contractor looking to partner with a small business, contact CIRAS via Beth White at 563-370-2166 or whiteb@iastate.edu.



With CIRAS’ Help, Air Control Seeks to Breathe New Life into Government Sales

By all accounts, it was a successful first date.

Mary Connell, president of Clinton-based Air Control/ACI Fabricators, attended an annual Midwest NDIA (National Defense Industrial Association) conference because CIRAS asked her to in its capacity as the company’s “matchmaker.” And she found a new business opportunity.

“After that conference, we met with John Deere and are now considered one of their vendors,” Connell said. “They are a Fortune 500 company and had never heard of Air Control. That, to me, was really big.”

Government contracting specialist Beth White describes CIRAS’ role in introducing such matches as just the beginning of what can be achieved when businesses such as Air Control set and work toward bigger goals. Opportunities abound—especially since federal rules actually require some larger firms to work with small businesses.

“We provided some of the connections and some education,” White said of Air Control. “They have taken it to the next level.”

It has been a long and fruitful collaboration between Air Control and CIRAS.

“We were going to build a whole new building and basically they told us we didn’t need to do that, but we should look at utilizing our existing building differently,” Connell said. “That was a really nice experience with them.”

Most recently, Air Control worked with White to apply for Small Business Administration 8(a) certification. The lengthy process

AT A GLANCE

Air Control/ACI Fabricators

LOCATION: Clinton, Iowa

EMPLOYEES: 42 among five divisions

SALES: More than \$8 million annually

HISTORY: Founded in 1956 by Vern Witt; now run by Witt's children, Mary Connell and Joe Witt; Sean Connell is a third-generation owner

FOCUS: Residential, commercial, and industrial heating, ventilating, and air conditioning (HVAC) work; two metal fabrication shops

RECENT AWARDS: Mary Connell named 2014 Iowa Small Business Person of the Year by the U.S. Small Business Administration; former SBA Small Business of the Year for the Cedar Rapids district; and Iowa Family Owned Small Business of the Year

Above left: Veteran employee Jake Huff welding a dimple plated jacket onto a vessel for a roofing manufacturing customer.

to receive that classification was recently approved and marks Air Control, a female-owned company, as economically disadvantaged compared to other firms in the same line of work. That opens more opportunities under federal rules.

Working with CIRAS, Connell said, taught her how to navigate the extensive list of requirements and paperwork that made the case showing the 57-year-old family heating and cooling company should get those opportunities that can help it grow and compete on a larger scale.

Connell said Air Control hopes to double in size and reach sales of \$12 million to \$15 million a year now that it has the 8(a) certification. White, she said, helped the company "every step of the way."

"It's up to us to get the work," Connell said. "But Beth is there to put out information and help us run with it."

➤ **For more information, contact Beth White at 563-370-2166 or whiteb@iastate.edu.**

CIRAS Supports Iowa Lean Consortium's Continuing Growth

Six years ago, the Iowa Lean Consortium (ILC) was just a group of volunteers with a passion for Lean and a desire to bring its practitioners together from across the Iowa economy.

Today, the organization has 76 member companies and 63 individual members and routinely hosts events with capacity crowds—sometimes with a waiting list to get a seat. Members come from manufacturing, health care, insurance, finance, government, and education to learn from one another.

Now, with increased help from CIRAS, the ILC is poised to take things to the next level with a statewide expansion of consortium programming and the hiring of its first full-time executive director, Teresa Hay McMahon.

CIRAS first teamed up with the ILC in 2011—the year before the consortium hired its part-time coordinator—to cohost the ILC's first national-level Lean speaker, Mike Hoseus. McMahon, a founding member of the consortium who assumed her new full-time job at the end of February, said the Hoseus event helped gain important exposure for the consortium. From there, CIRAS began sponsoring several keynote speakers for ILC events each year. Together, CIRAS and the ILC have brought in several more nationally known Lean professionals, including John Shook, Jamie Flinchbaugh, Art Byrne, and Tracey and Ernie Richardson.

"People really appreciate the opportunity to have an affordable chance to see national-level speakers right here in Iowa," said McMahon, who also is a past ILC board president.

Today, CIRAS continues to sponsor ILC events and connect the consortium to national Lean experts. A CIRAS staff member also attends and provides input at ILC board meetings.

In the coming year, CIRAS is looking to expand its sponsorship and financial support of the ILC—from being an event sponsor to becoming a recognized organization partner. This will allow CIRAS to continue to support the ILC as it grows further, particularly as the consortium explores potential additional services such as assessments, certification, and classroom training.

In her new role, McMahon will help grow membership and services, allowing the board to focus on strategic items such as expanding ILC events to each corner of the state.

"Because of previous growth... we have reached capacity for what we can do as a volunteer-based organization," said Jeff Dahm, current ILC board president and a John Deere Quality and Production System factory adviser at Deere & Company.

Dahm said the partnership between CIRAS and the ILC is a natural one. "We've got a similar objective to help companies across Iowa—to provide them tools and resources that they can use to add value to their companies," Dahm said. "We value the relationship as it is today, and we're excited about continuing to work with CIRAS."



Job Shops Able to 'Get More Jobs Done Faster' Again

Are you a job-shop machine manufacturer? Ever wonder why there sometimes doesn't seem to be enough time in the day?

A webinar set for 11 a.m. to noon on July 14 will help custom job and machine shops shift from the "work efficiently" mentality and focus instead on maximized productivity—getting a steady stream of work completed—for a maximized bottom line. It's called the Velocity Scheduling System.

Dr. Lisa Lang, president of Science of Business, a consulting group based on the Goldratt Theory of Constraints, will lead the webinar. The free online talk, "How to Get More Jobs Done Faster," is a repeat from a CIRAS session last summer.

CIRAS project manager Mike Willett will moderate the session. Willett said after last year's session four companies followed up by hiring Lang for a 14-week course.

"I think the biggest impact we have seen is the improvement in our backlog/past-due orders," said Adam Gold, president of The Dimensional Group in Mason City. "Overall we have reduced our past-due days more than 65 percent."

Learn more and register for the webinar at www.VelocitySchedulingSystem.com/ CIRAS. For information after the session, e-mail mwillett@iastate.edu.

- **Pricing and Quoting for Improved Profitability**
May 8, 2015 • 9:00 a.m.–4:00 p.m.
Des Moines, Iowa
- **BizTalk Mastermind Series—Using Online Communities**
May 21, 2015 • 7:00 a.m.–8:00 a.m.
Webinar
- **Making the Most of Your Government Tradeshow/Conference Experience**
May 25, 2015 • 1:00 p.m.–2:00 p.m.
Webinar
- **Midwest Small Business Government Contracting Symposium**
June 3, 2015 • 8:00 a.m.–1:00 p.m.
Moline, Illinois
- **Iowa Partnerships and Networking Event—Professional Services Industry**
June 12, 2015 • 9:00 a.m.–Noon
Iowa City, Iowa
- **Velocity Scheduling System—How to Get More Jobs Done Faster**
July 14, 2015 • 11:00 a.m.–Noon
Webinar

STAFF NEWS



Andy Alexander: Government Contracting Specialist, Council Bluffs

Alexander previously worked eight years as the Procurement Technical Assistance Center (PTAC) program director at the University of Nebraska at Omaha. He graduated in 1977 with a degree in management from Tarkio College in Missouri and received his master of arts in personnel management from Central Michigan University in Mount Pleasant, Michigan, in 1981. He also served 25 years in the U.S. Army and graduated from the Command and General Staff College with the U.S. Army at Fort Leavenworth, Kansas, in 1988. Alexander's areas of expertise include government contract counseling, bid proposal preparation assistance, and certified contracting assistance. He also is a certified Veterans Affairs Center for Verification and Evaluation (CVE) verification counselor. He joined CIRAS in November.



Laurel Kelch: Finance and Strategic Projects Manager, Ames

Kelch gained an extensive background in university operations throughout her career at Iowa State University, which has included positions in the Department of Electrical and Computer Engineering, Ames Laboratory, the Purchasing Department, and the Institute for Transportation (InTrans). She has experience in fiscal management, research coordination, and financial auditing. Kelch earned a bachelor of science in business management from Iowa State. She joined CIRAS in January.



Mary Zimmerman: Government Contracting Specialist, Ames

Zimmerman has 30 years of experience in the purchasing arena as a buyer in manufacturing, a purchasing supervisor at a municipal medical center, and a purchasing agent with the Iowa Department of Transportation. She earned a bachelor of arts in speech communications with a minor in English from Iowa State. She is experienced in construction and service proposals and facilitates customer service and communication seminars for various audiences. Zimmerman is also a Center for Verification and Evaluation (CVE) Certified Assistance Counselor through the U.S. Department of Veterans Affairs. Her areas of expertise include government contracting and bid preparation assistance. She joined CIRAS in October.

CONTACT INFORMATION



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. Coupled with a satisfaction guarantee, our typical client has achieved a 200% ROI. Clients have reported an economic impact of more than \$1.8 billion over the past five years.

				Account Manager	Economic Development	Engineering	Government Contracting	Innovation	Management Practices	Productivity	Quality Management	Safety	Supply Chain Management	Sustainability	CIRAS Operations
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Miller, JoAnn • Associate Director	515-294-4449	jvmiller@iastate.edu	Campus												•
Alexander, Andy	402-547-0333	andyalex@iastate.edu	Council Bluffs				•								
Bangalore, Savitha	515-294-5240	savitha@iastate.edu	Campus												•
Barton, Leah	515-291-0733	bartonl@iastate.edu	Waterloo												•
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Boesenberg, Adam	515-294-5903	aboesenb@iastate.edu	Campus			•		•							
Burant, Melissa	563-726-9958	mmburant@iastate.edu	Bettendorf				•								
Clark, Susan	515-294-4475	skclark@iastate.edu	Campus						•	•					
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THE INNOVATION CYCLE

Product Testing is a Crucial Part of Bringing Innovations to Market by John Roberts

Product or performance testing is one of the best activities a company can conduct for helping to ensure it produces and markets successful products. The main objective is to evaluate a product's performance against market requirements. Tests also identify the performance limits of the product or materials, which provides guidance on possible improvement.

To get the most value from product testing, you need a good test plan. A good plan starts with developing and understanding the questions you want to answer. Engineering personnel typically develop the test plan; however, other areas of the company—such as production, purchasing, and marketing—should be included. This group will help identify variables that could impact the product's test performance and eventual market acceptance. This is one of the most critical and challenging components of any test plan. The variables to be addressed will dictate almost everything else in the test plan, including types of tests, the number of specimens required, and how or what data should be collected. Not considering a "critical" variable could lead to delays in product delivery or dissatisfied customers.

Other items to be covered in the test plan include specimen identification procedures, how the specimens should be handled for testing, and how data will be used in addressing the questions you are trying to answer.

A common misconception about product testing is that it eliminates the need for theoretical engineering analysis. Such analysis can help address issues such as variation in material properties. It also may help reduce testing for some sources of variation and in assessing levels of risks. Testing is conducted to verify the results of the theoretical analysis.

It's essential to establish requirements the design needs to meet and define what factors dictate performance compliance. If you don't have design requirements that relate to market needs, then you may not know when you are "market ready."

Finally, be sure to document everything. Take photos of the test setup and the condition of the product before and after testing. Take video as the testing occurs. Documentation can help spot product shortcomings and will improve any future test plans.



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