



Rich Tradition of Innovation Continues at Hagie Manufacturing

When talking with Alan Hagie, president of Hagie Manufacturing, it is clear to see that the spirit of innovation and a strong commitment to its customers, suppliers, and employees continues to drive the success of the family business.

Innovation Spans Three Generations

Hagie Manufacturing has an unparalleled heritage in Clarion, Iowa. Three generations of the Hagie family have been focusing on innovation in the agricultural machinery manufacturing industry since the 1940s.

Starting out in the seed corn business, Ray Hagie was witness to the introduction of 2,4-D, which brought with it the promise of clean fields and higher yields. Knowing there was no unit suited to apply the product post-crop emergence other than an airplane, he retooled his first piece of equipment, a detassler, and built the first self-propelled high-clearance sprayer in 1947.

Waves of innovation, sparked by customer demand, continued throughout the '50s and '60s, including the transition from three-wheel to four-wheel sprayers and the expansion of product lines with features such as hydraulic drive, a front-mounted boom, and mechanical agitation.

Throughout the remainder of the 20th century, Hagie Manufacturing continued to grow. For more than sixty years, it has remained a family business even amid widespread consolidation.

Strong Leadership Continues

Hagie Manufacturing has used vision, great leadership, and family values to build a solid company. Ray Hagie had that vision, which has been carried on by his son, John, and now his grandson, Alan Hagie, as the third generation has taken over the business and welcomes the opportunities of the 21st century.

Today, it continues to have an incredible impact, with expanded facilities in Clarion and a workforce of more than 300 employees, including 20 recent hires and seasonal help.

While increased governmental regulation will almost certainly affect the overall design of tomorrow's application machines, focusing on what the customer wants will continue to be the

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On the Cover: In late 2010, Hagie Manufacturing introduced the new STX10 high-clearance sprayer. This is the first ground-up sprayer design from Hagie since the STS12 model was released in 1999.

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

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Hagie Manufacturing facility in Clarion, Iowa

key. "There's no limit to the innovation we can bring to the market," stresses Hagie. "We just need to understand what the customers want and give it to them."

Partnering with CIRAS Adds Dimension and Depth

"CIRAS has been an invaluable partner of Hagie Manufacturing," says Hagie. "Their professional staff members provide a wealth of technical support services and tools to assist with our growth strategies."

With a strong continued emphasis on research and development as well as growth strategies, Hagie is also focusing on human capital and company synergy.

Recently, Paul Gormley, a CIRAS project manager, provided a cross-section of Hagie Manufacturing employees a seminar on growth strategies titled Eureka! Winning Ways® (E!WW). The program is designed to help manufacturing leaders significantly grow their businesses. Gormley, a CIRAS certified E!WW growth coach, led Hagie Manufacturing employees through a disciplined process for generating ideas

on how to grow the company and to determine how obvious and self-evident the ideas are to potential customers. Gormley advised the group on how to implement their ideas and accelerate them to market.

"Employees from all areas of the company attended the workshop, and all brought different perspectives," says Hagie. "Innovation just doesn't happen, it lives in the entire company—and Eureka! Winning Ways helped spur that level of thinking for us."

Another key service provided by CIRAS this past year was business continuity planning facilitated by Mike O'Donnell. This was a very insightful exercise as it led Hagie to consider business disruption planning, information technology operating system upgrades, and secondary power sources.

"One of the best outcomes of the business continuity planning was the fact that we addressed our risks and created solutions, thus paving the way for an unobstructed view of our growth strategies," says Hagie.

Connections to Valuable Resources at Iowa State University

In April, Brenda Martin, account manager at CIRAS, introduced Hagie's senior management team and research and development staff to the Virtual Reality Applications Center (VRAC) at Iowa State University. Hagie was in the beginning stages of design for a new sprayer cab to use in their existing STS sprayer product line, and management wanted to investigate design simulation opportunities with VRAC.

In traditional thinking, engineers make decisions about a product's design by looking at large amounts of data from multiple analyses and simulation models. This kind of evaluation makes it difficult to visualize how the components work together as a whole without building a physical prototype. Creating one-of-a-kind physical prototypes is not only costly and time consuming, but it can also potentially limit the range of concepts that can be evaluated.

The innovative spirit and forward-thinking mindset of Alan Hagie and the resource-rich support from CIRAS then came into play. The VRAC connection gave Hagie's team the ability to create and evaluate virtual prototypes.

Hagie Manufacturing engineers used the virtual reality (VR) technologies as a design tool because they provided an immersive and intuitive environment for the creation and evaluation of their sprayer cab design. As a result, potential problems with the product's design were identified in the early design stages before physical prototypes were built.

While at VRAC, several stations were also set up for a group of Hagie Manufacturing customers to experience the VR technology, discuss the virtual modeling of the new sprayer cab, and

answer any questions they had about the new design considerations.

Focus on Company Culture

Over the past several years, Hagie has invested his time and energy in the culture of the workplace. "When you have happy, healthy, and motivated employees, the result is a superior product and experience for the customer," explains Hagie.

Taking cues from business plans that he admired, such as the Wright Medical Center's incorporation of a service excellence philosophy and the Zappos Insights Program, Hagie shifted the company focus to build on its internal strengths—the employees.

"We were experiencing tremendous company growth. In 2008 we had 140 employees, and currently we have just over 300 employees," says Hagie. "We certainly didn't want to lose our small-company feel, and we wanted to ensure a high level of employee satisfaction."

Along with this change in critical thinking, Hagie made changes in the workplace. One recent culture change includes flexible scheduling on the production floor, where employees start anywhere between 4:00 and 7:00 a.m. "Although this may occasionally cause scheduling challenges," explains Hagie, "we've found that the employees and their families truly appreciate the flexibility." Hagie also offers free fountain beverages, coffee, cappuccino, and popcorn to the employees, customers, and vendors all day, every day.

Additionally, employees are encouraged to decorate their work areas to reflect their personalities. Hagie has even moved his office from the formal office suites in the facility to the center of the production area. His former office is now referred to as the Innovation Lounge, where brainstorming blitzes frequently occur.

"As a result of all these and other culture changes, we have a workforce of engaged employees with positive attitudes and energy that is highly contagious," says Hagie.

Because of its legacy of innovation in the agricultural machinery manufacturing industry and its strong commitment to the employees, Hagie Manufacturing recently received the Iowa Farm Bureau's *Renew Rural Iowa* Leader Award.

CIRAS nominated Hagie Manufacturing for this award. "They are innovative. They have a very strong desire to grow, they are very people oriented, and they have a commitment to the community," says Martin.

Alan Hagie, president and CEO of Hagie Manufacturing Company



Q & A with Cathann Kress, Iowa State Vice President for Extension and Outreach

Editor's note: Cathann Kress became vice president for extension and outreach at Iowa State on July 1. Following are her responses to interview questions about ISU Extension and Outreach, its approach to economic development, and its relationship with CIRAS.

Q What are some of the ways extension can best contribute to the economic well-being of Iowa?

A I believe there are three major ways that extension can make a contribution. First is anticipation. Because extension has connections all across the state and because we are often hearing those conversations as trends are starting to emerge or as situations are beginning to percolate that require reaction, we have the ability to anticipate where our state is going, what issues we are facing, what we need to be thinking about. What issues are our small businesses perhaps not thinking about today that are going to be important for them to thrive and succeed? Our ability to anticipate—enhanced by our local perspective, our relationships throughout the state, and our connections to colleagues at other land-grant universities across the country—gives us a true advantage.

The second role that extension can play is to be a catalyst—and this really is the heart of what we should be doing. Again, because of our networks and unique connections, oftentimes we are aware of different opportunities. We also can connect people in ways that perhaps they never thought of being connected before. In doing this, we may create unique relationships or new funding opportunities that possibly didn't exist before. This ability to catalyze, to gain energy from people coming together in some unique ways, is very helpful for the state of Iowa.

The third way for extension to contribute to the economic well-being of Iowa, and this I believe is the hallmark of extension, is that we are here for the long haul. We are not like a number of programs that get started and then are gone. Perhaps, after a year or two into a new venture, some issues arise where additional support or research and development are needed. In these scenarios, extension is uniquely positioned to

do what is necessary because we are still there. We continue to partner, monitor, and provide new resources, research, or information that can assist a particular individual or group when the need arises.

Q How does your own background allow you to understand the challenges facing manufacturers and other businesses in Iowa?

A I divide my background into two categories, and the first is my personal experience. I grew up in Iowa, was raised on a farm, and was part of a family that crossed counties. I watched as my family members worked on the farm, were involved in farming cooperatives, or started or worked in small manufacturing companies. Sitting around the table and talking about these issues, I came to understand the intricacies of these connections firsthand. For example, if there is a problem with agricultural production in the state, you quickly start to realize the implications and the domino effect it can have on small manufacturing companies and vice versa. These personal experiences that directly involved my family members are very meaningful.

Second, I have a clear understanding of the challenges facing manufacturers and other small businesses in Iowa because I have worked at the county level, the state level in policy, and the federal level engaged in policy particularly related to rural development. And at each level, I gained perspective as to the direction and reasoning for policy. For example, with my professional experience I can better explain why a certain policy is coming out of the federal government, or why the state is focused in a certain direction, especially when people at the county level may question the reasoning behind these policy decisions. It certainly helps me communicate the context of decision making, since I have had the opportunity to sit in each of these different seats.

Q What are some extension programs now in the planning stages that you are most excited about?

A In terms of CIRAS, I am very excited about the Sustainable Economies program. While it is one thing to be thinking about start-up opportunities and new ventures, it also is very important to sustain the existing economic foundations in the state, especially considering policy

implications. Again, I think this program plays to our strengths in extension in that we are there for the long run, as a catalyst and a connector.

I also am really interested in starting a program here in Iowa that I started nationally, called Youth Entrepreneurship Service (YES). I am very excited about this program because the whole point of YES is to connect and engage young people who are seniors in high school as they transition as freshmen and sophomores in college. So many times there are great opportunities for college seniors such as internships or cooperative experiences, but I wish to engage the ones who are in their early years of higher education. I think of this program as our version of AmeriCorps, where we provide training and they then make a yearlong commitment to provide service to one of our programs. By doing this, my hope is not only to connect them to our programs across the state, but also to help them recognize the vast array of careers available right here in Iowa. If we want to attract our brightest and best, we need to show them their opportunities firsthand. I believe it was Woodrow Wilson who said, "I not only use all the brains that I have, but all that I can borrow." Project YES, in my mind, is really an important step for us to cultivate this young audience and connect meaningfully with this generation.

Q How do you see extension working with state economic development agencies and federal agencies?

A I have already touched on this a bit, but I would also like to add that having been both at the state and federal levels, one of the things that I got really tired of, quite frankly, was people coming to me because they wanted something. Oftentimes the people who were on the short list were the ones who demonstrated how they could help me accomplish my goals. Considering this, one of the things we will be doing with ISU Extension and Outreach as we work with our partners is to make sure we understand what mandates they are operating under and what priorities they have been given. Then we can help them better understand how we can advantage them by partnering with us.

Q How do you see extension changing in an era of increasing globalization and decreasing budgets?

A There is this huge paradigm shift in how people access information. I was really proud of the fact that I was involved with the development of extension's Knowledge That Works campaign. Then along came Google and cable television, and suddenly our little ownership of the corner on knowledge went away.



The Internet was a game-changer for extension because it provided at-your-fingertips access to information. Suddenly, all the questions that used to come to the local extension office started to be answered by search engines. So, if everyone has access to similar kinds of information, what exactly is unique about ISU Extension and Outreach? If we're no longer operating within an "expert" model, what model do we use?

The point is that extension is not simply about knowledge, but we really are about people. Sometimes we educate citizens and sometimes citizens educate us. It all comes down to being a connector and a catalyst. With extension, it is important to really recognize our strengths, our skill-sets, and what is unique about what we do, versus getting hung up on the fact that information can be found on the Internet. Information alone is not the solution.

In regard to budgets, I do not think you should ever determine your programs based on lower funding levels. If you react by making your programs smaller, you ultimately create a self-perpetuating cycle. With decreased programming there is less ability to get resources, bringing the need to cut the programs again.

This is a very nonproductive cycle. Instead, I believe we must focus on what the citizens of Iowa need, what we think are the best programs for them based on our expertise, and what impacts we wish to make. Then, quite frankly, it is my job to go out and get the resources so we can accomplish this mission. Honestly, I have never found this very hard to do if you make sure you have programs that will make an impact and connect directly to the needs of the people you serve.

When I was at the Department of Defense, I started in the Military Families area. What began with a meager budget of \$10 thousand ballooned to \$64 million over the course of a few years. There were a lot of people that helped us get to that point, but the key to this success was the focus on the purpose and impact of the program. Quickly I became a champion for a great number of people who were willing to support a compelling program and, thus, created a coalition. This is part of what I hope to do with extension. Instead of reacting to shrinking budgets, I want to get us in the mind-set of doing what is necessary and providing the right services. Then it is my responsibility to get us the necessary resources. I am quite convinced that this is possible.

Q How can extension better connect with companies?

A Extension needs to do better when connecting with companies. Part of what we need to do is stop having these silos. By that I mean if the issue is regarding the manufacturing side of a business, then we go to the CIRAS group; if it has something to do with youth, then that is the job of 4-H. We really need to work hard and impress upon our faculty and our staff that we need to connect no matter what the area is and then figure out how to direct them to the people who will provide them with the most assistance. Extension's regional directors and frontline staff really need to have a better understanding of all the programs we have and why they are best poised to offer solutions.

The other way we can connect with companies is to do some professional development with our county extension councils. In the past, the councils had a very specific focus and purpose. Now, as elected officials, they are responsible for the entire programmatic format in the county. Currently they have a responsibility that is much broader than simply the fair, 4-H programs, or production agriculture. They are responsible for access to education for their county.

I believe we may have failed them in that we had this transition and we then didn't put professional development opportunities in place to help our extension council members. They want to do good work for their county, and they want to expand the access to education for everyone in their county. My hope is that we can work to broaden professional development so that more of our council members understand the full portfolio of ISU Extension programs available to them.

Q Any final thoughts?

A I am very excited to be back in the state of Iowa and in this position with extension, because I am a walking product of Iowa's commitment to education. I believe in that commitment but truly took it for granted when I lived here. I thought every state had this same philosophy. After living in other states and working with educational systems all across the nation, I have become acutely aware of our difference. This is part of the unique character of the state of Iowa. I recognize that because of the current economic conditions, our dedication and commitment to education is a bit in jeopardy. This was one of the main motivators for me to come back to Iowa. I want to help convince Iowans that this is a unique part of our heritage and give them the forethought to recognize that our future depends on our commitment to education. I would like to see us continue to lead in this area. Extension and outreach has a role to play in keeping this level of quality in education, and I want to be a part of that.

IOWA STATE UNIVERSITY
Extension and Outreach

Healthy People. Environments. Economies.

Veteran-Owned Business Proves to Be Ahead of the Curve

By David Bogaczyk

Alan Sprinkle, president of Covenant Construction Services, LLC (Covenant), first learned in 2009 that the federal government was actively seeking well-qualified, veteran-owned small businesses to perform government contracts. Sprinkle, a 21-year Army veteran, decided to investigate whether or not there was an opportunity for his new general contracting business to enter this market.

As with any new business, there was no shortage of challenges, but Sprinkle applied an important lesson from his military background—to tackle the issues head on. “Lesson one was to surround yourself with the right people and advisers to make sure you are in a position to succeed,” says Sprinkle. After learning how CIRAS assists businesses with government contracting issues, he scheduled a meeting with CIRAS Program Director David Bogaczyk to help him understand the opportunities and challenges.

At that first meeting, one immediate opportunity identified was whether or not Covenant qualified as a Service Disabled Veteran-Owned Small Business (SDVOSB). This program is one of several small business initiatives that the federal government has created to promote opportunities for capturing federal work. Qualified companies may be eligible for sole source or “set-aside” contracts, which limit competition and increase the company’s chances for securing sales. CIRAS recommended that Covenant apply for verification as an SDVOSB, and the company received its official verification in 2010 from the Center for Veterans Enterprise.



First floor renovation of the Iowa City Department of Veterans Affairs by Covenant Construction Services (hallway pictured)

One compliance challenge experienced by Covenant was a new Internet-based system called E-Verify, which requires federal contractors to check a worker’s employment eligibility status. CIRAS conducted workshops across the state to advise companies of the new requirements even before they took effect. Covenant attended this training, which was soon put to good use when one potential employee was processed through the system. Covenant received results that a potential new hire was not eligible for employment according to the E-Verify system, so it presented the information to the individual and he simply stood up and walked out of the office. The system worked, and Covenant was protected from hiring an undocumented worker and facing potential penalties, according to Sprinkle.

Covenant’s success with government contracting started in 2009 with its first award from the U.S. Army Corps

of Engineers. Over the next two years, Covenant expanded its capabilities and customer portfolio, which now includes the U.S. Department of Veteran Affairs and other Department of Defense agencies. Projects awarded by federal agencies have also increased in size from the first contract of approximately \$68,000 to contracts now worth more than \$3,000,000.

Normally CIRAS advises companies that are entering the government market that it may take an average of 12–18 months to secure their first contract. The time frame may be even longer for start-up companies, as they may not have secured a project portfolio or some of the technical prerequisites such as bonding in the construction sector. There are always exceptions, however, such as Covenant, which developed a plan, sought appropriate advice, and relentlessly executed its business development efforts to capture a new market.

➤ For more information, please contact David Bogaczyk at 515-422-6313 or bogaczyk@iastate.edu.

CIRAS and ABI Partner to Provide Services, Support, and Solutions for Iowa Businesses

In order to tailor customized solutions that enhance the performance of Iowa companies, CIRAS combines its in-house expertise with the extensive knowledge base found within their partner organizations. The Iowa Association of Business and Industry (ABI) is a prime example of a CIRAS partner that exemplifies this mission.

The Iowa Association of Business and Industry is a broad-based organization of Iowa businesses working together to promote Iowa commerce. The philosophy behind this expanded organization is the simple message that there is strength in numbers. By uniting around the key issues, which all businesses have in common, each member is given a strong collective voice for change and progress in Iowa.

Originally formed as the Iowa Association of Manufacturers in 1903, ABI has brought Iowa business leaders together to introduce them to one another and to help them grow. The scale on which the economy operates has changed dramatically since 1903; however, the need for linkages between business leaders, innovation assets, and resulting growth is now more important than ever.

The partnership between ABI and CIRAS builds on ABI's long heritage as the largest business association in the state of Iowa and the demonstrated success of CIRAS as a provider of the latest education, research, and technical assistance to enhance the performance of Iowa industry.

"The Center for Industrial Research and Service at Iowa State University is one of ABI's most valued partners and is a terrific resource for all business owners in Iowa," explains Mike Ralston, president of ABI. "ABI members have benefited from the services CIRAS provides, which include procurement counsel, research, technical assistance, industry expertise, and process improvement support."

The Iowa Association of Business and Industry is the largest and the oldest

business network in the state, with more than 1,400 business members that employ more than 300,000 Iowans. Membership represents a diverse group of businesses, including manufacturers, processors, retailers, insurance companies, financial institutions, publishers and printers, transportation services, and the professions. "However, contrary to popular belief, this is not an organization just for large businesses," states Ralston. "In fact, 75 percent of ABI's members employ fewer than 100 individuals."

Ralston is proud to share that recent economic challenges have not had a negative impact on ABI. "We have experienced a steady increase in our membership over the last ten quarters," says Ralston.

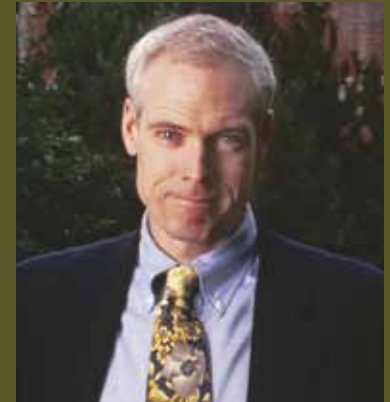
The strength of the organization is due to the many services provided to its members. In addition to the important public policy and advocacy work that strives to keep Iowa as a good place to start, locate, and operate a business, ABI provides a platform for Iowa business leaders to learn new best business practices and to conduct business with one another.

"Over the past year we have hosted weekly educational webinars and events across the state with topics ranging from workers' compensation to taxation, social media for business growth, and business succession planning," explains Ralston.





SAVE THE DATE



Keynote Speaker
Jim Collins

The Iowa Association of Business and Industry develops programming with the input of members to provide solutions to common questions in Iowa's business communities and to identify best practices in effectively addressing them. The photos on the left and above show the educational and networking opportunities at ABI's 108th Annual Convention in June 2011.

One of the highlights of the year is the ABI Annual Convention (Iowa's Taking Care of Business Conference). The 109th Annual ABI Convention will be held in Des Moines on June 13 to 15. "The conference is shaping up to be a spectacular meeting offering the very best business networking opportunity for members," says Ralston. "We are also pleased to announce keynote speaker Jim Collins, the author of *Good to Great*."

Another facet of ABI is the ABI Foundation, established in 1984 to help develop Iowa's workforce and leaders through statewide programs such as Business Horizons, Leadership Iowa University, Young Professionals of Iowa,

Leadership Iowa, and various workforce development initiatives.

"Not only is it important to have a solid business foundation in Iowa," explains Ralston, "it is equally important to educate and inspire adults to take leadership roles and encourage their involvement in local communities and the state to create a better future for all Iowans."



**IOWA ASSOCIATION OF
BUSINESS AND INDUSTRY**

The Voice of Iowa Business Since 1903.

"The conference is shaping up to be a spectacular meeting offering the very best business networking opportunity for members. We are also pleased to announce keynote speaker Jim Collins, the author of *Good to Great*."

—Mike Ralston, ABI President

109th Annual ABI Convention

Iowa's Taking Care of Business Conference

June 13–15, 2012

**Veterans Memorial Auditorium
Des Moines, Iowa**

Fantastic venues, exciting speakers, terrific events, and Iowa's best business networking will highlight the 109th Annual ABI Convention.

Contact Holly Mueggenberg, member programs coordinator at ABI, for more information

at 515-235-0572 or

hmueggenberg@iowaabi.org.

➤ **For more information about ABI, please contact Mike Ralston at 515-280-8000 or mralston@iowaabi.org.**

Senior Capstone Design Program a Win-Win Opportunity for Students and Industry Partners

Each semester, CIRAS matches students in the Senior Capstone Design Program with sponsoring companies and real-world projects. The capstone experience successfully prepares future engineers by bridging the gap between classroom and industry.

Students are required to use their knowledge and skills to complete an engineering design project equivalent to the assignments they will soon receive as professional engineers. Students perform the projects in groups, encouraging them to develop the skills necessary to succeed in diverse industry design teams.

While exposure to real-world engineering is an essential part of helping students make it through the first few years of engineering courses, it is also a critical part of preparing seniors for the transition into the workplace.

Through their relationship with CIRAS, both Brown Medical Industries and Fisher Controls recently worked with groups of Iowa State University engineering students on product design and testing projects through the Mechanical Engineering Capstone Program.

Brown Medical, in Spirit Lake, Iowa, participated in Iowa State's capstone program for the first time last year. The project required the students to design an automated solution to packaging. A solution was needed because of a shift in supply chain for the company, and improvements were necessary to enhance packaging efficiency. One of the teams took a look at the big picture and decided to focus on work cell redesign rather than automation.



The Senior Capstone Design Program is the culmination of engineering education for Iowa State students. Each semester, CIRAS matches students in the program with sponsoring companies and real-world projects.

"The capstone project is a cost-effective and manpower-efficient way to conduct research and development work," explains Terry Kounkel, vice president of operations at Brown Medical. "We were able to conduct research with a specific goal without having to dedicate our own personnel and facilities for extended periods."

The solution the team decided upon involved elements from six sigma, lean production, kaizen, and 5-S. This redesign solution was chosen because of the efficiency of the system and the negligible cost of the improvements.

This strategy resulted in both a process improvement and a satisfied workforce. The total weighted productivity increase amounted to 31%. This resulted in a time savings of 10.4 seconds per product. This adds up quickly when packaging nearly 15,000 products per month. These improvements coincided with the company winning a contract from a major retailer and the hiring of additional staff.

"The senior capstone class gave us the opportunity to work directly with the industry and actually make decisions that will affect how they operate," says student team member Amy Selvik. "We were able to visit Brown Medical to interact with production operators and plant engineers."

The students also appreciated the opportunity to identify the root cause of the problem and make changes accordingly. "It was rewarding to develop solutions and actually see the impact of our suggested solutions," says Selvik.

"We were very impressed with the high-caliber students who were involved with the Brown Medical capstone project," says Kounkel. "We will definitely consider working with Iowa State students in the future as project needs arise."

"Every year we try to bring new real-world problems for the senior capstone students to explore," says Emmanuel Agba, one of the instructors teaching the multidisciplinary engineering design course. "This team did a terrific job of taking on this project and making a real engineering contribution that improved productivity at Brown Medical."

Fisher Controls, a brand of Emerson Process Management located in Marshalltown, Iowa, designs and develops products

in the process control industry such as control valves, regulators, instrumentation, and performance services. They have sponsored several senior capstone design projects over the years, harnessing the creative mind power of the next generation of Iowa State engineering students.

Their most recent project involved the design of a flow valve, and they turned the matter over to the bright young minds of two senior design teams at Iowa State. It turned out to be a

“The greatest benefit, though, is that the students experience the rigor and structure of a full-cycle design including problem definition, benchmark studies, concept generation and feasibility study, engineering design analyses, and, in this case, prototype fabrication and testing.”

—Ross Schade, Fisher Controls

win-win decision, with Fisher Controls deciding to pursue the patent process on the final design.

Employers value graduates with capstone design experience because these students are given the opportunity to gain broad proficiency by applying their extensive knowledge base to solve complex engineering problems as a team.

“My observation as an employer is that graduates who have taken a capstone class have a better sense of the big picture when working on a project and are more comfortable with the long, collaborative design process,” says Ross Schade, design engineer at Fisher Controls.

“The greatest benefit, though, is that the students experience the rigor and structure of a full-cycle design including problem definition, benchmark studies, concept generation and feasibility study, engineering design analyses, and, in this case, prototype fabrication and testing,” explains Schade.

Echoing the sentiments of Kounkel at Brown Medical, Schade believes that a successful engineering program provides students with a solid foundation in the basics and prepares

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CIRAS CONNECTIONS



Jim Heise
Department of
Mechanical Engineering
Iowa State University

Jim Heise is a lecturer for undergraduate mechanical design courses with the mechanical engineering department at Iowa State's College of Engineering. He coordinates the mechanical engineering Senior Capstone Design Program, a program required for senior mechanical engineering students. He is also a technical consultant for CIRAS.

The senior capstone design courses utilize industry-level team projects and professional interaction to equip future engineers with important design, communication, and presentation experience. Capstone courses are the culmination of the Iowa State engineering experience, as seniors apply their four years of classroom knowledge to solve realistic engineering problems and learn more about the businesses they will be entering after graduation.

Heise has a strong interest in his students' development and believes the capstone program experience is a critical component of their curriculum. “The program has been fantastic and has many success stories,” says Heise. “Our students are better engineers and better managers when they complete the program.”

For the last five years, Heise has been coordinating projects in the Senior Capstone Design Program and working with industry to provide exceptional experiences for the students in mechanical engineering. In 2007, he began collaborating with CIRAS and engaging industry partners with senior mechanical engineering students. Since 2008, 42 capstone projects have been coordinated with the help of CIRAS—58 total projects when including those orchestrated through the Department of Mechanical Engineering.

them to effectively use this information in the workplace.

The final design was the result of months of hard work and collaboration to optimize each component and bring them all together to devise an elaborate finished product. "It encompassed everything we learned over the years into one project, which was very appropriate," says Shane Johnson, a student member on one of the capstone teams and now employed as a product engineer at Fisher Controls.

Capstone Project Benefits Provided by CIRAS

CIRAS supports the engineering capstone projects by working with companies and capstone coordinators to define potential projects.

"The capstone projects involve a nonurgent problem that requires an engineering solution," says Jim Heise, a lecturer in the mechanical engineering department and coordinator of the capstone program.

Each student team devotes about 400 to 600 work hours over the course of a semester. Two teams are assigned to each project and receive the same parameters. "This competitive structure of the capstone projects results in a better end product," says Heise.

"We've had some really creative and interesting projects over the years," Heise says. "It's always exciting to see how the students use the engineering principles they've acquired to prepare for their engineering careers."

Opportunities to Participate in Capstone Program —Spring 2012

The College of Engineering, in partnership with CIRAS, offers opportunities for businesses to be part of the Senior Capstone Design Program through the sponsorship of student projects.

In this program, Iowa State College of Engineering seniors design and implement workable solutions to real-world engineering problems. The opportunity to synthesize and showcase technical, communication, leadership, and teamwork skills readies students for success as engineering professionals.

CIRAS is currently accepting projects from all engineering disciplines that

- Address a real industrial issue,
- Are not time critical,
- Can be reasonably completed by student teams in a 15-week time frame (~400 person-hours), and
- Do not require confidential, classified, proprietary, or similarly restricted information.

Benefits of sponsoring a project:

- Gaining a new perspective on difficult engineering problems facing your company
- Showcasing your business to students nearing graduation and evaluating potential new hires

We invite you to explore the Senior Capstone Design Program and consider sponsoring a team of Iowa State University students.

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

NOTEWORTHY

States Are Ranked on Manufacturing Climate

Information courtesy of Manufacturing & Technology News, June 30, 2011

Alaska, Hawaii, Nevada, and New Mexico earn "Fs" in their business climate for manufacturers, while Indiana, Iowa, Kansas, Michigan, and Ohio earn "As," according to the latest 2011 Manufacturing and Logistics Report Card compiled by Ball State University's Center for Business and Economic Research. Eleven states earn "Ds," while another 11 earn "Bs"; the remainder, including California and Texas, earn "Cs." The report is located at <http://cber.iweb.bsu.edu/research/conexus11/>.

4th Annual Veterans' Procurement Conference Scheduled November 30

The 4th Annual Veterans' Procurement Conference gives business owners the opportunity to grow and diversify with government contracting. This event, hosted by CIRAS, is designed to provide the most current information and techniques necessary to find and win government contracts. Business owners will also connect with government agencies and prime contractors interested in locating well-qualified suppliers and subcontractors to add to their teams.

The full-day conference, located at the Gateway Hotel and Conference Center in Ames, is filled with engaging speakers who will share training opportunities, best practices for increasing sales, and the resources needed to succeed in government contracting.

Conference session topics include the following:

- Current legislative veteran issues
- Business continuity planning
- Understanding the dynamics of working with the Department of Veterans Affairs
- Bid and project expectations—what a prime contractor wants from you
- Networking with government procurement/purchasing officers and prime contractors

All businesses, large and small, who seek to increase their sales with state and federal government agencies and prime contractors are encouraged to attend.

For additional information regarding attendee or exhibitor registration for the 4th Annual Veterans' Procurement Conference, please contact Julie Fagle at 319-310-8612 or jafagle@iastate.edu.

■ 4th Annual Veterans' Procurement Conference

November 30, 2011
8:00 a.m.–3:00 p.m.
Ames, Iowa

■ ABI—Connecting Statewide Leaders Reception

December 8, 2011
4:45 p.m.–6:30 p.m.
Iowa City, Iowa

■ Total Cost of Ownership

December 15, 2011
9:00 a.m.–11:00 a.m.
Fort Dodge, Iowa

■ Market Message Workshop

January 11, 2012
8:00 a.m.–5:00 p.m.
Bettendorf, Iowa

■ ABI—Legislative Briefing and Reception

January 11, 2012
4:30 p.m.–7:30 p.m.
Des Moines, Iowa

Iowa State University Foundation Gift/Pledge Form

CIRAS has been helping Iowa companies for nearly 50 years. A fund has been established to further assist CIRAS in supporting initiatives to enhance the Iowa economy. Please consider donating to the Center for Industrial Research and Service General Fund.

Name _____

Address _____

City/State/Zip _____

Gift Designation

I/We wish my/our gift to be designated to:

- Center for Industrial Research and Service General Fund
(2700413)
- Other _____

Corporate Matching Gifts

- My/My spouse's/My partner's company offers a match for charitable contributions.

Employer name(s) _____

Gift Amount \$ _____

- Pledge online at www.ciras.iastate.edu/giving.asp
- Check enclosed (make payable to ISU Foundation)
- Please bill my credit card (select one)
- MasterCard VISA Discover

Card number _____

Expiration date _____

Signature _____

Clip and send to Iowa State University Foundation • 2505 University Blvd. • Ames, IA 50010-2230

Thank you for your support.



Susan Clark—Project Manager

Susan Clark joins CIRAS with over 30 years of experience in training, coaching, and consulting with individuals and groups from various entities including manufacturing companies, private industry, academia, financial services, health care, government agencies, and nonprofit organizations. As a former project manager with Rhode Island Manufacturing Services, Clark collaborated with clients to develop and implement strategies that improved productivity. During her educational career, she earned a bachelor's degree in human development from the University of Rhode Island and a certificate of achievement in human resource management at Villanova University. Clark also received the designation of Certified Career Management Coach from the Career Coach Academy.



Jim Poe—Project Manager

Jim Poe joined CIRAS in July 2011 with over 40 years of experience in new product design and manufacturing in positions ranging from engineering manager to director of operations for sites in North America, Canada, and the United Kingdom. In these roles, Poe was involved in metals, wood, and fabric industries with special emphasis on overall performance, growth, and profitability through improved safety, quality, and productivity. His areas of expertise include safety, plant layout, product design, and lean manufacturing principles. Poe received a bachelor's degree from the University of Texas at Dallas.



Marc Schneider—Project Manager

Marc Schneider comes to CIRAS with over 20 years of experience in the management of multinational and local operating and professional workforces in North America, Australia, Southeast Asia, Hong Kong, Korea, and China. Schneider's extensive project management experience includes facility sale and leaseback, mergers and acquisitions, company integrations, systems deployments, facility start-up, and logistics programs. He earned a master's of business administration in global business practices from San Jose State University and a bachelor's of business administration with a major in transportation and logistics and a minor in economics from Iowa State University.



Shankar Srinivasan—Project Manager

Shankar Srinivasan joined CIRAS after earning his PhD in biorenewable resources and technology from Iowa State University in spring of 2011. Previously, Srinivasan worked in the textile manufacturing industry where he contributed to production, quality control, and process planning. He received master's degrees in materials science and engineering as well as industrial and agricultural technology from Iowa State and a bachelor's degree in textile technology from Shivaji University in India. Srinivasan's areas of expertise include bioplastics and polymer processing, testing, and characterization.



Beth White—Government Contracting Specialist

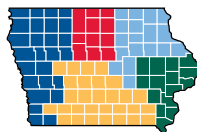
Prior to joining CIRAS, Beth White was employed for 13 years as a contract specialist for the Army, with TACOM (Tank-automotive and Armaments Command) and the Army Sustainment Command. White worked as the small business specialist for the Rock Island Arsenal Joint Manufacturing and Technology Center, managing the small business program and serving as an advocate for small businesses wishing to do business with the command. White earned a bachelor's degree in business administration and an MBA from St. Ambrose University. She provides government contracting assistance to Iowa businesses, including market research, investigation of opportunities, bid preparation, and contract compliance.

CONTACT INFORMATION



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 ciras.info@iastate.edu • www.ciras.iastate.edu

Account territories: Account managers conduct initial needs assessments and match resources to client needs. Contact information for your local account manager is listed below.



				Account Manager	Bioindustry	Economic Development	Energy	Engineering	Government Contracting	Growth Strategies	Management Practices	Productivity	Quality Management	Safety	CIRAS Operations
Cox, Ronald • Director	515-294-9592	rcox@iastate.edu	Campus		●	●		●							●
Bangalore, Savitha	515-294-5240	savitha@iastate.edu	Campus												●
Barton, Leah	515-291-0733	bartonl@iastate.edu	Waterloo												●
Bogaczyk, David	515-422-6313	bogaczyk@iastate.edu	Ankeny						●						●
Bonnes, Gordon	712-308-2229	gbonnes@iastate.edu	Council Bluffs						●						
Christy, Colin	515-294-7883	colin@iastate.edu	Campus			●	●								
Clark, Susan	515-294-4475	skclark@iastate.edu	Campus									●			
Coacher, Robert	515-419-2162	coacher@iastate.edu	Sioux City	■											
Devlin, Steven	641-613-3298	sdevlin@iastate.edu	Pella		●										●
Fagle, Julie	319-310-8612	jafagle@iastate.edu	Marion						●						
Galleger, Sean	515-290-0181	galleger@iastate.edu	Vinton	■											
Gormley, Paul	319-721-5357	gormley@iastate.edu	Marion							●					
Li, Haiyan	515-294-1316	hli@iastate.edu	Campus												●
Martin, Brenda	515-570-5282	bkmartin@iastate.edu	Fort Dodge	■											
Miller, JoAnn	515-294-4449	jvmiller@iastate.edu	Campus												●
Mohr, Jeff	515-294-8534	jeffmohr@iastate.edu	Campus					●				●			
Montalbo-Lomboy, Melissa	515-294-5472	mmlomboy@iastate.edu	Campus		●										
Norton, Glenn	515-294-1035	nortong@iastate.edu	Campus		●										
O'Donnell, Michael	515-294-1588	modonnll@iastate.edu	Campus			●		●			●	●			●
Poe, Jim	515-294-1507	jrpo@iastate.edu	Campus					●				●		●	
Pruszko, Rudy	563-599-0645	rpruszko@iastate.edu	Dubuque		●										
Reinig, Mark	515-231-4150	mreinig@iastate.edu	Elkader			●									
Riedl, Jessica	515-294-5416	jesriedl@iastate.edu	Campus		●										
Roberts, John	515-294-0932	jarobert@iastate.edu	Campus					●							
Schneider, Marc	563-221-1596	maschn@iastate.edu	DeWitt								●	●			
Srinivasan, Shankar	515-290-6702	srigshan@iastate.edu	Campus					●							
Thach, Chris	515-294-7731	cthach@iastate.edu	Campus												●
Thompson, Derek	515-419-2163	thompson@iastate.edu	Boone	■											●
White, Beth	563-370-2166	whiteb@iastate.edu	Bettendorf						●						
Wilcox, Ruth	515-290-1134	rwilcox@iastate.edu	Grundy Center					●					●		●
Willett, Michael	319-234-6811	mwillett@iastate.edu	Waterloo									●			

CIRAS PARTNERS

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New CIRAS Safety Web Page

Safety is a core value among the best of Iowa's industries. A safe and healthy workforce is more productive, more engaged, and better retained, which in turn helps businesses thrive and grow. Safety is also a legal obligation, and a clear understanding of federal and state regulations helps industries respond to compliance procedures.

As CIRAS works with construction, education, information technology, manufacturing, and service industries throughout the state, safety is one of the key resources offered to help businesses improve profitability and productivity.

CIRAS announces a new Safety page on the CIRAS website (<http://safety.ciras.iastate.edu/>) that provides safety news and other helpful information. A partnership with the Environmental Health and Safety (EH&S) ExPERT Program at Iowa State University made this new resource possible.

The site houses a Frequently Asked Questions section that features Ask the ExPERT—a place for you to submit questions to safety specialists and gain answers to your inquiries, as well as find postings of previous questions and responses.

Another section identifies upcoming events, trainings, and educational opportunities related to safety and health in manufacturing, regulatory information, and other relevant topics.

This EH&S and CIRAS partnership provides companies helpful information to improve the safety and health of your business and the environment.

