IOWA STATE UNIVERSITY

University Extension

IOWA STATE UNIVERSITY

College of Engineering



www.ciras.iastate.edu

INSIDE

PTAP opens new markets for former lowa State basketball coach Wayne Morgan

Page 3

ISO certification helps Softronics win a record-breaking contract

Page 4

IPRT assistance keeps Metalcraft on the leading edge of RFID

Page 6

lowa State economist Dave Swenson sees some light at the end of lowa's recessionary tunnel

Page 8

How companies can smooth the way for our National Guard troops

Page 10

Managing Tough Times

Director's Letter

How CIRAS is Responding to the Recession

By Ronald A. Cox

Arccession is a focusing event. And at CIRAS, our new focus is on how to help Iowa companies weather the downturn and emerge stronger than before.

A big part of that effort involves our own operations. Our goal is to maintain a sense of urgency at all times. That means taking the broad areas we've traditionally focused on and rapidly fine-tuning them so that they can better assist companies in the short term.

During the months ahead, CIRAS will introduce new services aimed at helping ever-larger numbers of Iowa businesses. The first of these has already debuted. We just held a workshop on strategic thinking in a recession economy. The simple take-away from that course was that there are two things companies want to do

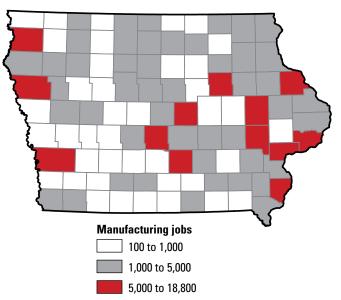
during hard times: cut costs and increase sales.

CIRAS is well positioned to show companies how they can do both. For instance, we have

how they can do both. For instance, we have long been known for programs that help cut costs, namely by raising productivity. Kaizen lean management, value-stream mapping, and Six Sigma are just a few of the programs we offer Iowa companies.

We are also helping companies develop new sales channels. Toward that end, we have been awarded increased funding from the Defense Logistics Agency, a unit of the U.S. Department of Defense, and have expanded our government procurement area. As government increases spending in a recession, there are probably some

230,000 Manufacturing Jobs



lowa's manufacturing companies are spread broadly throughout the state.

opportunities for companies to gain access to government contracts and possibly increase sales.

Toward better days

Good companies recognize that this recession won't last forever. And management at those companies is already examining ways they can position themselves to emerge from the recession stronger than before.

Helping companies devise those strategies is one of the most important services we at CIRAS can provide. If there is one thing the recession has taught us, it is that companies cannot do the



Center for Industrial Research and Service 2272 Howe Hall, Suite 2620 Iowa State University Ames, Iowa 50011-2272

CIRAS Web site: www.ciras.iastate.edu

515-294-3420 / Fax 515-294-4925

CIRAS Mission Statement

Improve the quality of life in Iowa by enhancing the performance of industry through research, education, and technology-based services.

CIRAS

Ames

Ronald Cox, PhD—CIRAS Director

515-294-9592 • rcox@iastate.edu

Jim Black, CLM, CSSBB, Jonah

Lean Manufacturing; Kaizen Implementation; Strategic Planning 515-290-4070 • jimblack@iastate.edu

JoAnn Miller

CIRAS Business Manager

515-294-4449 • jvmiller@iastate.edu

Jeff Mohr. PE. Jonah

Lean Manufacturing; Noise Control; Training Within Industry 515-294-8534 • jeffmohr@iastate.edu

Melissa T. Montalbo-Lomboy

Biobased Products 515-294-3420 • melissam@extension.iastate.edu

Michael R. O'Donnell

Operations/Production Management; Supply Chain/Distribution Management 515-294-1588 • modonnll@iastate.edu

Mark Reinig

College of Engineering Economic Development 515-294-7883 • mreinig@iastate.edu

Jessica Riedl

BioPreferred Program 515-294-5416 • jesriedl@iastate.edu

John Roberts, PE

Finite Element Analysis (FEA); Product Testing 515-294-0932 • jarobert@iastate.edu

John Van Engelenhoven

Cranes/Monorails; Plant Layout Simulation; Product Testing 515-294-4475 • jve@iastate.edu

Ankeny

David M. Bogaczyk

Bid Preparation Assistance; CCR and ORCA; Electronic Commerce; Market Research; Post Award Assistance; RFID 515-422-6313 • bogaczyk@iastate.edu

Jennifer K. Holm

Government Contracting 515-290-2724 • jholm@iastate.edu

Joseph Papp, PE, CPIM

South Central and Northeast Iowa Account Manager 515-231-1452 • jpapp@iastate.edu

Bettendorf

Rodney M. White

Government Contracting 563-370-2166 • rodneyw@iastate.edu

Boone

Dorok I Thompson

North Central Iowa Account Manager 515-419-2163 • thompson@iastate.edu

Dubuque

Rudy Pruszko

Baldrige Quality Award; Biodiesel; Feasibility Studies 563-557-8271, ext. 251 • rpruszko@iastate.edu

Grundy Center

Ruth Wilcox

Program Manager 515-290-1134 • rwilcox@iastate.edu

Marion

Paul A. Gormley

Growth Services
319-721-5357 • gormley@iastate.edu

Pella

Steven Devlin

BioPreferred Program 641-613-3297 • sdevlin@iastate.edu

Sioux City

Robert R. Coacher

Western Iowa Account Manager 515-419-2162 • coacher@iastate.edu

Merle Pochop

BQ-9000; Compliance Audits; Baldrige Quality Award; Customer Satisfaction; Failure Mode Effects Analysis (FMEA); ISO 9001:2000; Root Cause Analysis 712-274-0048 • pochop@iastate.edu

Vinton

Sean Galleger

Southeast Iowa Account Manager 515-290-0181 • galleger@iastate.edu

Waterloo

Michael Willett

Operations/Production Management; Plant Layout Simulation; Theory of Constraints 319-433-1286 • mwillett@iastate.edu

Engineering Distance Education

www.ede.iastate.edu

Paul Jewell

515-294-1827 • pjewell@iastate.edu

The Center for Industrial Research and Service (CIRAS) provides education, research, and technical assistance to Iowa industry through partnerships with Iowa's universities, community colleges and government agencies. Assistance is supported in part by the DoC/NIST Manufacturing Extension Partnership, the DoD/DLA Procurement Technical Assistance Program, and the DoC/EDA University Center Program.

And justice for all... Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender identity, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Diversity, 3680 Beardshear Hall, 515 294-7612. ECM 09528

Delivering Cable to lowa Inmates

When established customer growth slows, look to alternative markets.

Mid-Iowa Satellite is like a lot of small companies operating in Iowa these days—income typically flows in more or less predictable amounts. In Mid-Iowa's case, that income comes from retail customers who hire the firm to set up and maintain their satellite TV service.

But starting a few months ago, the recession began to affect the company's bottom line. "We've had customers that have come in and asked to reduce their packages," says Wayne Morgan, owner and founder. If Morgan's name sounds familiar, that's because he served as head coach of the Iowa State University men's basketball team, compiling a 55-39 record between 2003 and 2006 before he left the university. Morgan launched the satellite TV business in August of 2007, enjoying the final months of a stillhealthy economy. With dire economic news mounting, Morgan realized he needed a plan to sustain his business. That thinking eventually led to a meeting with David Bogaczyk, who heads up a CIRAS program called PTAP (Procurement Technical Assistance Program, see sidebar), which helps companies sell their products and services to government agencies.

"Mr. Morgan's story is pretty similar to many other clients we've worked with," Bogaczyk says. "They've been out there, searching the Internet, trying to get started in government contracting. Eventually, they make their way to our program. And at that point, we're able to expedite their ability to capture contracts much faster."

In this case, the contract Bogaczyk steered Morgan toward was from the state of Iowa, and it called for installing and maintaining digital TV systems in correctional facilities at Fort Dodge and Newton. Iowa law allows prisoners to receive a limited number of channels, which they pay for themselves from the institutions' small stores.

CIRAS helped Morgan sift through the requirements for selling to the state. But when it came to pitching his service to state prison officials, Morgan relied on his own leadership skills, honed through years of coaching sports teams.

"The presentation I gave to prison officials said I could help them make the changeover from analog to digital," Morgan says, "that I could do it perhaps cheaper than anyone else and that I was located close enough to each facility to quickly fix any problems that might come up."

The effort paid off. Morgan received a fee of around \$13,000 to install the system, plus roughly \$60 per month from both prisons to maintain the service. He also proved to future potential customers that his firm could install and maintain complex systems. "We'd like to get to the point where we do commercial work," Morgan says. "For example, if you're opening a sports bar and you want to have five TVs, we can do the work for you."



Wayne Morgan (right) with Dave Bogaczyk.

Ask David Bogaczyk

The head of PTAP at CIRAS explains the ins and outs of selling to the government

What is PTAP? It's an acronym for the Procurement Technical Assistance Program, which is run by the Defense Logistics Agency for the U.S. Department of Defense. PTAP centers, such as the one CIRAS manages in Iowa, help companies market their products and services to the federal, state, and local governments.

Who do you serve? We serve businesses of all sizes, including profit and nonprofit. The only requirement is that you must be an Iowa business or organization.

In general, what does the government buy? The federal government is the largest customer in the world. It buys everything; you just have to find the appropriate agency.

Are there any products or services that the government is most likely to be interested in, given the stimulus funds recently made available? The hottest industries right now are construction, IT, and manufacturing.

How long does it usually take for the government to become a customer? It depends on a company's size and its resources, which is why we provide a customized assessment for each company we work with. Typically, it will take 3–12 months before a company receives any government contracts if it has never done that kind of work before.

Besides the added revenue, are there any other benefits to selling to our government? Government contracts are more stable, so they can act as a foundation for a company. They also tend to be long-term contracts, which help smooth out the cycles, especially during tough times.

Contact Dave Bogaczyk at 515-422-6313; bogaczyk@ iastate.edu. The service is often free to Iowa companies and nonprofits.

Turning a Hobby into a Multi-Million-Dollar Business

Companies can grow by showing customers how good they are.

ven in a recession, companies can experience dramatic growth. For proof, just look to Softronics Ltd. The Marion-based contract-engineering firm, with fewer than 20 full- and part-time employees, is charted toward expansive growth this year. All this is due to talented and highly experienced management, plus a commitment to work with CIRAS and pursue the long and sometimes arduous ISO certification process.

ISO stands for International Organization for Standardization. Headquartered in Geneva, Switzerland, the group seeks to apply uniform procedures and quality measures throughout the world. Becoming ISO certified helps companies, or any organization for that matter, get a firm handle on the procedures they require in their operations—everything from accounting for parts and testing products to dealing with outside suppliers. Devising and adhering to measurable procedures also helps companies achieve a more efficient, safer workplace, while boosting the quality of their products and services.

Like Softronics, most companies also discover there's one more very important benefit to ISO certification. In a word: credibility. As Tony Nurre, Softronics' director of operations, explains, "We were losing business because we weren't ISO certified. We just looked like a bunch of guys in a garage designing radios."

In fact, nothing could be further from the truth. Many of Softronics' employees, including founder Robert H. Sternowski, had years of experience at defense and aerospace giant Rockwell Collins, located in nearby Cedar Rapids. Despite its small size, Softronics had successfully

developed three healthy product lines, each centered around radio technology; namely, antenna systems for cell-phone towers, miniature receivers used by the intelligence community, and what Norre calls Softronics' legacy business, which is designing updated transmitters and receivers for customers at Rockwell and ATT.

Just like a fast-paced Silicon Valley startup, Softronics operates largely as a virtual company. Softronics' engineers dabble in amateur radio the way West Coast computer programmers make video games in their spare time. Many Softronics employees also work at home and keep their own schedules. "Our software engineers are kind of the pizza and Mountain Dew type people," says

Nurre. "They come in at two or three in the afternoon and work till one or two in the morning. Our philosophy is work where and when you're most productive."

The road to certification

You might think the procedure-dominated ISO certification process would quash Softronics' laissez-faire culture. In fact, Softronics crunched through the entire



Robert H. Sternowski

process without holding a single all-staff meeting, Nurre proudly notes, adding, "We did it all through e-mail. All we had to do is tell everyone at the company what quality procedures were set up and where to find them."

As work toward certification progressed, Nurre and Softronics' quality assurance manager Claudia Wiles continued to document the procedures the company used and map out the additional ones that would be needed in order to be certified. CIRAS' ISO expert Verl Anders (now retired) along with Lesa Vold, director of management systems at Validus Services LLC, a business-process auditing

firm and CIRAS partner in Urbandale, provided guidance along the way. The two also grilled Nurre and Wiles with questions similar to those they would later experience when going through an actual ISO audit. (See sidebar, "CIRAS' BioPreferred earns ISO 9001:2000 certification," for more details on the ISO process.)

The benefits of the process were immediate: "A lot of things we came up with were helpful. We implemented a part-numbering system and a more extensive system for backing up data. All in all, Nurre estimates the actual process cost Softronics \$8,000, with an additional \$22,000 charged to company staff time.

Realization of the true benefit of ISO certification occurred some months later when the company received an order from Rockwell to produce 250 radios destined for airport control towers throughout the world. "We won the business because our radios are customizable," Nurre says. Each country wanted slightly different options, so drawing upon the workflow procedures spelled out during the ISO certification process, Softronics devised a modular

Drawing upon the workflow procedures spelled out during the ISO certification process, Softronics devised a modular design for its radios that can be readily adapted to each client's needs. By contrast, Softronics

competitors proposed a onesize-fits-all strategy.

design that can be readily adapted to each client's needs. By contrast, Softronics competitors proposed a one-size-fits-all strategy.

The next rung of the supply chain

Eventually, Nurre expects Softronics will produce upward of 10,000 radios. That may make the entire Rockwell deal worth \$200 million over the coming decade and inevitably bring further changes to the company. "Softronics has to move from small batch orders to large-scale manufacturing," says CIRAS account manager Sean Galleger.

CIRAS project manager Michael Willett has already stepped in to advise Softronics on how to set up the necessary workflow procedures. Meanwhile, Softronics' work for Rockwell should allow company founder

Sternowski to look for new areas of business that incorporate his love of radio, including medicine and space communications. As Galleger says of Sternowski, "You've got to hand it to a guy who retired once and turns a hobby into a multi-million-dollar business."

LEARN MORE

CIRAS specialists have guided more than 300 Iowa firms through the ISO certification process. To learn how ISO certification could benefit your company, contact Robert Coacher at 515-419-2162; coacher@iastate.edu, or Merle Pochop at 712-274-0048; pochop@iastate.edu.

CIRAS' BioPreferred earns ISO 9001:2000 certification

Managed by CIRAS,

BioPreferred is a nationwide

program established by

the U.S. Department of

Agriculture. Its purpose is

to help federal agencies

give preference to biobased

products when purchasing

needed supplies.

Companies thinking of completing the ISO certification process can look to CIRAS' own BioPreferred program for clues about the work that's required. Last July BioPreferred received ISO 9001:2000 certification with the help of CIRAS in-house ISO experts, making it just the second Iowa State University unit to complete the process.

BioPreferred is a U.S. Department of Agriculture program established to help federal agencies give preference to biobased products when purchasing needed supplies. CIRAS' role as manager of the program is to identify qualifying industries, solicit manufacturing participants, coordinate laboratory testing, populate the database with information, manage the Web site, and maintain the BioPreferred catalog.

ISO certification gave BioPreferred's quality management system its universally recognized seal of approval, which can provide welcome assurance to customers and USDA overseers. "The

overarching purpose of ISO 9001 is to do what we call process control so we can standardize the operation, doing things right as a way of managing all parts of the operation effectively," says Merle Pochop, CIRAS ISO specialist. Pochop has helped more than 50 companies through the certification process.

Obtaining certification is a months-long process. Jessica Riedl, CIRAS program coordinator, began in April of 2007 by participating in internal auditor and management representative training to learn what she needed to do to prepare BioPreferred to go through the process.

In December of 2007, Pochop met with Riedl to conduct a preliminary assessment of documents. "The challenge was for us to get more organized," explains Riedl. "We needed to take the institutional knowledge and experiences stored in our heads and put them down on paper as procedures and processes that could

be passed on to the next staff member."

Once all of the procedures were written, the next step was to train the staff in using them. Staff training along with organization and documentation of records are particularly critical for an organization like BioPreferred that performs a service rather than

produces a product.

In February 2008, pre-audit training was conducted with staff. One of the emphases with ISO is that everyone in the company, from top management to the people on the floor, must participate. The pre-audit training ensures that the staff understands what the process is and what they are expected to know.

In spring of 2008, BioPreferred brought in Lesa Vold, director of management systems for Validus Services LLC in Urbandale, Iowa, to assist in conducting an internal audit, which is one of the ISO standard requirements. The purpose is to

examine the company's procedures and records to make sure it follows them. After any necessary corrective actions are taken, the ISO registrar audit is scheduled.

The registrar first does a documentation review and then the registration audit to determine if the company has met its requirements. BioPreferred passed in June and was officially certified in July of 2008.

However, the process doesn't entirely end there. BioPreferred must conduct periodic internal audits and management reviews and commit itself to continuous improvement. Periodically, the ISO registrar will conduct surveillance audits to verify that the organization is maintaining the ISO standards.

BioPreferred^{ss}

Keeping Pace With Product Advances

When companies understand their core business, it's easy for them to evolve as that business changes.

By Robert Mills

Since 1950, Metalcraft has devised innovative solutions for its business customers' labeling needs. The Mason City company's first product was a customized set of adhesive labels for stapler maker Bostitch that displayed the names of Bostitch's own customers. Years later, when bar codes became popular, Metalcraft came out with a market-leading line of bar-coded tags. And more recently, when radio-frequency identification tags radically changed the labeling market, Metalcraft quickly embraced that technology as well.

RFID tags are attached to items for easy identification and tracking. Functioning a little like tiny computers, they often contain data about the object they're affixed to, while their big advantage is that they can be read wirelessly via radio signals, transferring their data automatically to an inventory management program. Compared to optical bar codes, RFID tags have a much longer reading range, they're reprogrammable, and they can store and communicate plenty of information about the object they're affixed to, including such things as origin and destination.

One hurdle to widespread acceptance of RFID tags, however, is the readability of tags attached to metal surfaces, such as the millions of shipping containers plying the world's oceans. Metal interferes with the radio signal, especially when the tags are read at longer distances. One solution is to use tags with a thick layer to separate them from the metal. But these tags stand off the surface and thus are susceptible to accidental removal.

Metalcraft leads again

John Henry, R&D and technical manager at the company, thought a new type of RFID tag might be required for the company to be a leader in tags applied to metal surfaces. He contacted Derek Thompson at CIRAS several years ago for help with the project. Thompson brought in IPRT Company Assistance for further help.

Lynne Mumm, manager of IPRT's technology commercialization group, helped set up a research project with the goal of developing a method to allow an RFID tag to work on metal. The major requirement was that it should be a low-cost, low-profile solution.

IPRT and Metalcraft funded the research, which was done by Robert Weber, the David C. Nicholas Professor of Electrical and Computer Engineering at Iowa State, and his graduate student, Sanyi Zhan.

The team divided their project into two steps. First they examined existing RFID tags that might be suitable for use on metal objects, and second they investigated new materials for the application. Two years of research culminated in prototypes for two new RFID antenna designs. The new antennae ensure that RFID tags work even when mounted on metal surfaces.

Access to knowledge

"One of the benefits of working with CIRAS and IPRT on this project has been the capability of accessing the knowledge and proficiency of Iowa State faculty members in an area that is related to our technology but is not our primary proficiency at Metalcraft," says Henry. "We certainly could not afford to hire someone for our staff who had this expertise. IPRT allows us to 'pick the brains' of people on campus who have good things to share with us."

IPRT's Mumm played a crucial role according to Henry. "The people at CIRAS and IPRT, in particular Lynne Mumm, were very helpful in getting us in contact with the people on campus that could best solve the issues," Henry says. Iowa State's Weber agrees about the value of IPRT and Mumm. "Not only did IPRT supply the matching funding to enable the project, Lynne Mumm kept the project on track," he says.

Henry and Weber also explain that the project is a great example of technology transfer at work. "Dr. Weber provided a good combination of industrial experience and theoretical knowledge to keep the research on track, using inexpensive and practical materials," Henry explains. "Also, Zhan was enthusiastic and very helpful in refining the design for our particular application." Weber adds, "This project encompassed not only basic research but

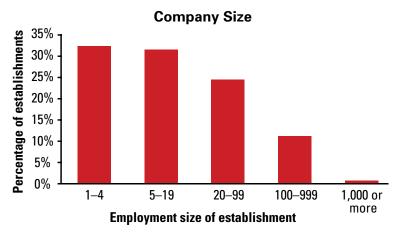
an integration of research results into an engineering prototype that could be taken by Metalcraft and made into a production item."

Metalcraft signed a license with the Iowa
State University Research Foundation to license the new intellectual property in December 2008. Patent applications are also pending. "We plan to commercialize

the technology this year," Henry says. He adds that the project also led to additional funding through the Iowa Department of Economic Development, which is assisting with the practical commercialization.

Robert Mills is a communications specialist with IPRT. Contact us at 515-294-3420; ciras. info@iastate.edu for more information on working with IPRT and other CIRAS partner organizations.

Mock-up of Metalcraft's groundbreaking RFID tag.



Small shops dominate lowa's manufacturing landscape.

same things they did 10-20 years ago and think they're going to survive. Our global competitors will continue to threaten jobs in America. And many of the 22,000 Iowa manufacturing jobs lost so far in this recession won't return unless we strategically grow our industries. That

Good companies recognize

that this recession won't last forever. And management at those companies is already examining ways they can position themselves to emerge from the recession stronger than before.

will require companies to truly become innovative and find new products, new services, and new markets.

These tasks mesh well with CIRAS' traditional focus areas of research, education, and technical assistance. We're studying industry trends and we're providing education, through workshops and mentoring. And we're providing technical assistance and access to the labs on campus. The recession has caused us to reevaluate the services we offer Iowa companies and to maintain a sense of urgency in delivering these services to more businesses in our state. Despite all of the change, our core mission remains the

same: to improve the performance of industry in Iowa.

For more information, please contact Ron Cox, CIRAS director, at 515-294-9592; rcox@iastate.edu, or contact a CIRAS account manager: www.ciras.iastate.edu, 515-294-3420.

Can we help?

What companies should expect when they work with CIRAS

Whenever we work with companies, perhaps the most important first step is to define the problem. That seems simple. But many organizations fail to understand the root cause behind the issue they're trying to address. Once CIRAS, working closely with a client, is able to identify

the issues at stake, we jointly devise methods to address them. For example, if a company wants to build revenues, we can help determine the best combination of strategies to apply, whether that entails developing new products, entering new markets, or

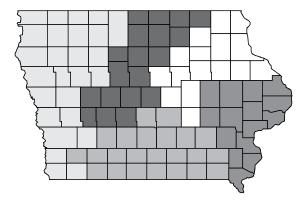


CIRAS Director

boosting quality. Understanding your competitors is also crucial. What are the things about your competitors that you like? In what ways do you wish to be more like your competitors? Answering questions like these can help define management's vision and spell out where a company stands now and where it wants to be. Based on that understanding, we can then start talking about the best course to take.

Account territories

Account managers provide initial manufacturing needs assessments and also explore and match resources to client needs. The state of Iowa has been divided into five account managers' territories. Their contact information follows.



North Central Derek Thompson, thompson@iastate.edu, 515-419-2163 South Central Derek Thompson, thompson@iastate.edu, 515-419-2163* Southeast Sean Galleger, galleger@iastate.edu, 515-290-0181 Northeast Joseph Papp, jpapp@iastate.edu, 515-231-1452 Western 🗆 Bob Coacher, coacher@iastate.edu, 515-419-2162

* Interim

7 Winter/Spring 2009

Tough Talk about Tough Times

Iowa State economist David Swenson gives a candid view of the recession's effect on Iowa.

EDITOR'S NOTE: If anyone has a handle on the Iowa economy in these turbulent times, it's David Swenson. An associate scientist and lecturer at Iowa State's Department of Economics in the College of Agriculture, Swenson has been monitoring the state's economic ups and downs for more than two decades.

Swenson's findings and his views don't always make him friends. In late February, for example, he and a colleague told state lawmakers that raising Iowa's gas tax by roughly 10 cents per gallon would be the fairest way to pay for nearly \$5 billion in road repairs, a politically unpopular move, especially in the midst of a recession. Swenson argued the gas tax hike would cost an average Iowan about \$59



Dave Swenson

per year. But it would also create needed jobs, while encouraging state residents to buy fuel-efficient vehicles ahead of the next gasoline price spike.

Swenson's penchant for telling people what they don't necessarily want to hear is one reason CIRAS has turned to his expertise in the past. Over the years, he has collaborated with CIRAS on a number of studies assessing the economic health in our state.

Recently, Swenson answered questions from CIRAS staffers on the full impact the recession will have on Iowa and the amount of relief we can expect from the federal stimulus package. The following Q&A offers a sampling of his views:

CIRAS: Let's cut right to the chase. Just how bad is the current recession?

Swenson: Pretty bad by historical standards. And its effects may take some Iowans by surprise. For a long time, the Iowa economy has been buffered by the state's strong manufacturing sector, especially because of strong exports. However, as U.S. and world demand slows, so will the state's manufacturing sector. Even now, some people have a sanguine view that we'll ride this recession out easily. They see that housing prices have held relatively firm compared to other parts of the country and that the unemployment rate is lower here than elsewhere in the nation, and they think Iowa must be okay. The fact is, the economy is heading down, and it will continue to do so. And the state's manufacturing base will feel a lot of that pain.

CIRAS: Why are you so concerned about manufacturing?

Swenson: Just look at the numbers. Manufacturing accounts for more than 20 percent of Iowa's GDP. But more importantly, manufacturing isn't just the largest sector of Iowa's economy, it's typically the sector that's affected most by a recession. Every time we enter a recession, manufacturing gets knocked back a little, and it never

quite recovers. I anticipate that the same will occur with this recession.

CIRAS: What about banking or insurance? Those industries are growing in lowa, right? Won't job growth there offset losses in manufacturing?

Swenson: First of all, finance and insurance jobs total out at 108,000. All manufacturing jobs are more than double that at over 234,000. Then you have to look at the trends. Growth in Iowa's banking sector really began in 1992–3 and continued to the early part of this decade. Since that time, it's leveled off. Something similar happened with the insurance industry. The growth occurred early on. It was very flat during the '90s and part of this decade. It's only been trending up recently.

CIRAS: Aren't there any areas where job growth is increasing rapidly?

Swenson: Yes. But it's not necessarily a good thing. Look at the jobs we gained over the period. Construction jobs: That's now contracting, thanks to the housing bust. Real estate: That's contracting for the same reason. The real job growth came in a category called nonfarm proprietors, almost 65,000 of them. The problem is that these are low-income jobs in comparison to national averages. Iowa's wage and salary rate is roughly 80 percent of the national average. Nonfarm proprietors' incomes are at about 63 percent, a decline from over 80 percent in 1990. There are counties in Iowa where nonfarm proprietor incomes stand at just 30 percent of the national average. It's important to note that these are nonfarm proprietors by necessity. They're people who are fixing cars or opening day-care centers to supplement their earnings.

CIRAS: How about ethanol production? Will that offset other job losses?

Swenson: In theory, yes. Iowa, like other Midwestern states, has tried to enliven its rural economy by adding value to locally produced farm commodities and livestock instead of simply exporting them and allowing some other region to perform the work. You add jobs that way and stabilize a region's production. That's all to the good. When you build an ethanol plant in Iowa, it certainly adds value to the corn being produced there. Unfortunately, if we look at the statistics, the impact of these plants has been less than some have expected so far. Total production in the state's chemical processing sector in Iowa—that's the category we place ethanol in—has been tracked by federal government statistics through 2005. Between 2000 and 2005, Iowa's chemical processing sector rose by 29 percent, which is better than the manufacturing sector's growth rate of 24

percent. However, over the same period, Iowa's total GDP increased 30 percent. In addition, the job creation value of an ethanol plant is somewhat meager. The average modern plant needs just 40 to 45 workers, yet processes all of the corn in two counties. Over this decade. ethanol plant employment has grown to about 1,200 workers. During that same period, the state has lost 7,500 farm proprietors. Rural jobs and rural populations continue to erode despite the biofuels boom.

CIRAS: What about the stimulus package? Will any of the jobs it's designed to create help boost manufacturing?

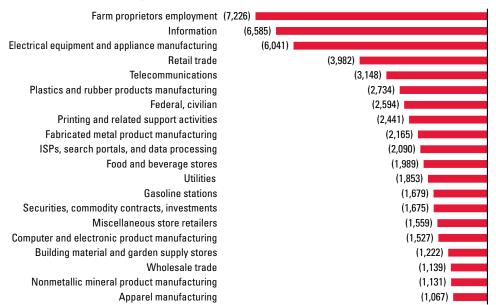
Swenson: Well there is some good news in that regard. When you first look at the stimulus package, it appears as if it's all geared to construction spending. But there is a relationship with manufacturing. By our econometric model's estimates, for every \$100 million spent on infrastructure-related improvements, we can expect to see \$9.92 million in boosted demand for Iowa-manufactured goods. Overall, the stimulus package allocates about \$46 billion to infrastructure. So do the math. The bottom line with the stimulus package is that it's good. But it's not enough.

CIRAS: How do you view the outlook for manufacturing over the long term?

Swenson: It is important for analysts and community

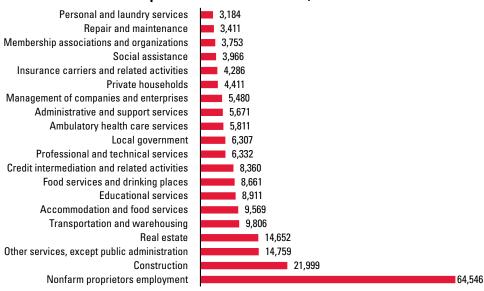
leaders to remember that there will always be a significant manufacturing presence in the United States. Stated simply, there are plenty of goods that will continue to be manufactured in this country. The majority of the food we produce, especially foods that are perishable, will always be produced and processed at home. Heavy machinery and machined goods along with any other heavy products will likely be manufactured here. Similarly, manufactured goods that have a regionally specific demand density—

Top 20 Industrial Job Declines, 2000 to 2006



Manufacturing jobs in lowa have shown steady declines in recent years, and the current downturn is almost certain to inflict a further toll.

Top 20 Industrial Job Gains, 2000 to 2006



Job gains aren't always a good thing. The huge rise in nonfarm proprietor jobs likely includes many persons who have launched their own businesses after being laid off. In some areas of lowa, salaries in the nonfarm proprietor category are just 30 percent of the national average for the same positions elsewhere.

farm machinery, horse trailers, or specialized livestock pens, for example—will likely remain.

CIRAS: We deliberately saved the most important question for last: How long before we're out of the woods?

Swenson: This recession will last awhile. No one can say for sure how deep it will be. But you can expect a continued decline well into this year before we see signs of a bottom.

Iowa Employers and Military Employees—It's a Team Effort

How companies can support the Iowa Guard

Employers know how tough it is when a key employee is absent from work, even for a day or two. But when that absence stretches over days, months, or even longer, filling the gap requires real employer commitment. Many Iowa employers make that commitment every day for their military employees.

More than 4,000 soldiers and airmen went on active duty in Iowa in support of flood relief operations in 2008. Many of those same National Guard members, plus members of the reserve armed services, have also been deployed to serve in Iraq, Afghanistan, and elsewhere in the world in defense of our country.

When Iowa's citizen-soldiers and airmen are activated, their employers are put into service, too. The Uniformed Services Employment and Re-employment Rights Act (USERRA) provides employment and re-employment protection for former, current, and future members of the uniformed services. While USERRA provides for job protection, that protection only exists if both employee and employer follow certain rules.

"This is a team effort in ways that many people don't realize," says Barry Spear, chairman of the Iowa Committee of Employer Support of the Guard and Reserve (ESGR).

The Employer Support of the Guard and Reserve is a Department of Defense agency established in 1972 with the mission to gain and maintain employer support for guard and reserve service by recognizing outstanding support, increasing awareness of the law, and resolving conflicts. ESGR provides a broad range of services to the employers of citizen-soldiers and airmen.

"Our goal is to get 'upstream' of situations through education and recognition so problems don't occur," says Spear. "In our experience, if employers and military employees are aware of the USERRA requirements, there is seldom a problem."

ESGR provides a wide range of free services to Iowa employers of military employees. One of those free services is educational materials and training on USERRA for human resources staff and employees.

Natalie Finger, service manager for Waterloo-based Radio Communications, accepts the lowa Freedom Award from Governor Chet Culver following the signing of a proclamation declaring the week of September 11, 2008, as Employer Support of the Guard and Reserve Week. Barry Spear (left), chairman of Iowa ESGR, and General Ron Dardis, adjutant general of the Iowa National Guard and Reserve, participated in the award presentation. Radio Communications received the award in the small employer category.

More ways to stand behind the lowa Guard

Besides ESGR, many other services are free to employers of military members. Among them:

- National recognition awards presented by the Department of Defense and the president of the United States
- Preferential treatment for state bids under a recently passed Iowa law (if company policies exceed USERRA and the company employs a guard or reserve member)
- The Department of Labor and ESGR provide consultation and mediation regarding USERRA for employees serving in the guard and reserve
- Certification credit for the Society of Human Resources Managers for select training sessions
- A link to your company Web site from the Iowa ESGR Web site: www.iowaesgr.org.

Learning sessions

ESGR partners with Iowa Workforce Development to provide "Lunch and Learn" sessions around the state. Speakers at these sessions include representatives of the Department of Labor and ESGR who discuss the details of USERRA and explain the services available. Each session also includes a military member who shares insights on how his employer supported him while he was deployed and eased his transition back into the workplace.

Employers can show their patriotism and support for their military employees by signing a Statement of Support, something hundreds have already done, says Spear.

"We are grateful for the service Iowa National Guard members provide to the state. But we also recognize and applaud the employers of Iowa National Guard members for the ready support they give their military employees," says Spear.

Learn more about ESGR services at: www.iowaesgr.org.



New People



New Pilot-Plant Manager at CCUR

Hui Wang joined Iowa State University's Center for Crops Utilization Research as the facility's pilot plant manager. Wang previously worked at Nestle, Ting Hsin International Group, and Goodman Fielder International.

Established in 1987, CCUR is a multidisciplinary research, development, and technology-transfer program focusing on new processes, products, and markets for corn, soybeans, and other Midwest crops. CCUR provides facilities and services for processing agricultural products.

Wang earned his MS in food science at Tianjin University of Science and Technology, Tianjin, China, and a PhD in food science from Iowa State University, where he studied soy protein processing.

His long-term goal, Wang says, "is to build CCUR into a world-class platform where engineers, scientists, and entrepreneurs can work side by side to develop and commercialize new technologies, adding value to the bountiful harvests of Iowa and beyond."

CCUR recently formed a partnership with CIRAS to provide a range of services, expertise, and equipment.

If your company is interested in learning more about CCUR facilities and services, please contact us at 515-294-3420; ciras. info@iastate.edu.













Cynthia Danielson—New CIRAS Advisory Council Member: Cynthia Danielson serves as general manager of Hy-Capacity, Inc., a 125-employee agricultural manufacturing company in Humboldt, Iowa. She has facilitated more than 25 lean manufacturing teams and also served as facilitator of Hy-Capacity's "Green Team," which developed a recycling and waste reduction program that resulted in \$18,000 in annual savings for the company.

Jennifer Holm—Government Contracting: Prior to joining CIRAS in January, Jennifer Holm worked five years in the government procurement arena as a consultant. A graduate of William Penn University, she has also worked as a computer software trainer and as a business development consultant.

Mark Ingebretsen—Communications: Mark Ingebretsen, who also joined CIRAS in January, is the author of three books on business and finance. He served as a columnist for the Online Wall Street Journal and TheStreet.com. His articles have appeared in *Esquire*, *Sports Illustrated*, and *Chicago* magazine.

Melissa Montalbo-Lomboy—CIRAS
BioPreferred: Melissa Montalbo-Lomboy joined
the CIRAS BioPreferred unit after earning her
PhD in biorenewable resources and technology
from Iowa State University in 2008. A native of
the Philippines, she received a master's degree in
food engineering and bioprocess technology in
2004 from the Asian Institute of Technology in
Pathumthani, Thailand.

John Rhomberg—New CIRAS Advisory Council Member: John Rhomberg co-founded B4 Brands in 2002. The company provides biobased handhygiene products to government agencies, health care facilities, K–12 schools, and other institutional customers. Rhomberg also operates a consulting practice that assists companies with marketing and corporate brand development. Before founding B4 Brands, John was controller with Stayhealthy. com—a health technology company.

Rod White—Government Contracting: Rod White was born and raised in Davenport, Iowa, and graduated from Iowa State with a degree in landscape architecture and industrial engineering. He received an MBA from the University of Iowa and worked for the U.S. Army for 26 years as a general engineer in the Army Materiel Command Industrial Preparedness Program before leaving in 2007.

IOWA STATE UNIVERSITY University Extension

Center for Industrial Research and Service

2272 Howe Hall, Suite 2620 Ames, Iowa 50011-2272

INSIDE

Page 3 PTAP opens new markets for former lowa State basketball coach Wayne Morgan

Page 4 ISO certification helps Softronics win a record-breaking contract

Page 6 IPRT assistance keeps Metalcraft on the leading edge of RFID

Page 8 lowa State economist Dave Swenson sees some light at the end of lowa's recessionary tunnel

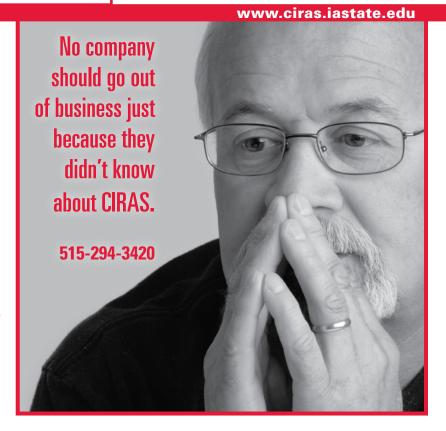
Page 10.. How companies can smooth the way for our National Guard troops





At CIRAS helping your company is our mission

The Center for Industrial Research and Service (CIRAS) works to enhance the performance of Iowa companies through research, education, and technical assistance. The Iowa State University-based organization develops numerous company assistance programs in areas such as biorenewables, engineering, government procurement, management practices, productivity, and quality systems. CIRAS account managers work with clients to assess their needs and then craft customized solutions that combine the expertise of in-house staff with services from Iowa State faculty, partner organizations, and outside consultants. Visit the CIRAS Web site at www.ciras.iastate.edu to learn more about how the experts at CIRAS can help your company. Or call your CIRAS account manager (see page 7) to set up an appointment.



CIRAS News is published quarterly by the Center for Industrial Research and Service and edited by the CIRAS publications team. Design and production is by Engineering Communications and Marketing, Iowa State University. Please send questions, comments, or address changes to ciras.news@iastate.edu.

Articles may be reprinted with the following credit line: "Reprinted from CIRAS News, Vol. 44, No. 2, Winter/Spring 2009, a publication of Iowa State University's Center for Industrial Research and Service." Please send a copy of the reprint to CIRAS News, 2272 Howe Hall, Suite 2620, Ames, IA 50011-2272.