

- lean thinking
  - e-business
  - total assessments
  - ISO/QS
  - continuous improvement
  - facility planning
  - product design/testing
  - business strategies
  - financial management
- ...and funding to support  
your needs*



**IOWA MANUFACTURING  
EXTENSION PARTNERSHIP**

***Your Resource for Success!***



## Case Studies

### Link Manufacturing Ltd., Sioux Center

While employing more than 100 people, Link maintains small company flexibility. It manufactures four main products, selling its cab air suspension systems and tire pressure visual gauges primarily to firms in the trucking sector. Product demand for the Cat's Eye tire pressure system has risen sharply in recent years. At the same time, unemployment in the area is extremely low and entry of a large manufacturer promises to further tighten the employee market.

### Challenge

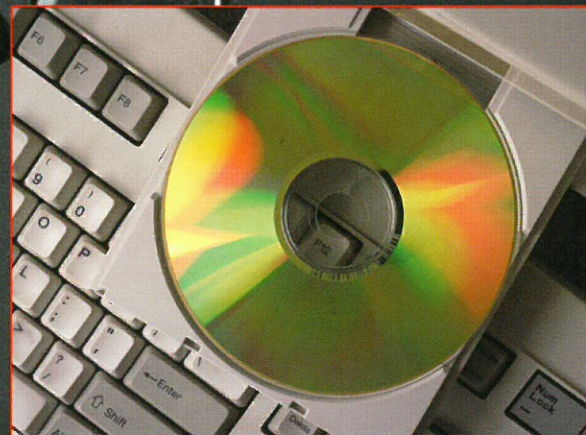
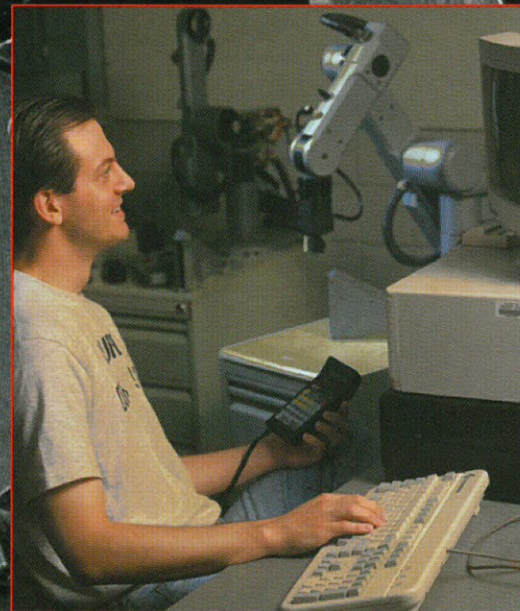
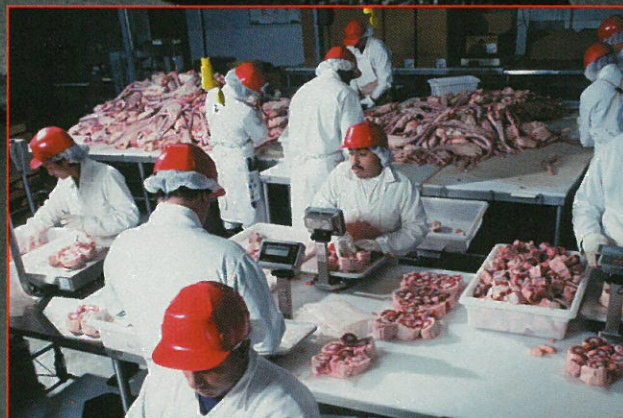
While wishing to apply lean manufacturing principals throughout the company, initial focus fell on Cat's Eye. Tom Noteboom, IMEP Account Manager, steered the company toward process improvement by initiating a visit to a larger company to observe efficiencies. IMEP then brought in two employees from the larger firm to observe the Cat's Eye production process and offer suggestions. Link hired a manufacturing specialist to further implement changes in the Cat's Eye process and address efficiency and process improvement elsewhere in the company.

### Solutions

Improvements were immediate. The new manager worked with employee teams at Link. Assembly area was redesigned and some transportation, process, inventory, space, motion and wasted time was eliminated. A "pull" system was implemented to minimize inventory investment, shorten production lead-time and give better reaction and quality capabilities.

### Results

The company estimates labor cost reduction of 15 percent. Efficiencies created through the process improvement have allowed Link to meet increased production while maintaining the same level of employment. The company also estimates more than 20 percent in potential production improvement for the Cat's Eye process.





## Your Resource for Success...

*"The Iowa Manufacturing Extension Partnership (IMEP) is the most comprehensive source of help for Iowa's manufacturing community. IMEP will continue to expand its access to information and resources at the federal, state and local levels and serve as a conduit for manufacturers to use these sources to gain competitive advantages and increase their companies' sales and profits. Through our partnership we are able to bring resources and solutions for virtually any of the many challenges Iowa's manufacturers face today and will face in the future. We help our clients be proactive with new knowledge, anticipate new trends and visualize how they can use those trends to their advantage."*



Willem Bakker,  
Director

## Our Goal

IMEP's objective is to be the "go-to" resource of Iowa's manufacturers and, in particular, the small- and mid-sized ones desiring assistance to become stronger. IMEP is an aggregation of the best support available from your state's higher educational institutions. Add to this the best of a federally supported network of more than 75 centers – like your IMEP – located across the nation, as well as the extensive support available from your state government chartered departments. In addition, IMEP has special relationships established to bring the capacities and resources of the private sector to you to support and help solve the challenges you face.

Your IMEP account manager can quickly and smoothly connect you with the best resources to help you with your operation. This capacity is constantly being enhanced and strengthened so that we can make all of Iowa's manufacturers more competitive and profitable.

## Your IMEP

IMEP has assumed the posture of a "virtual" organization. In fact, IMEP minimizes the "organization" in order to maximize delivery of services to you. Many functions frequently associated with a service agency (and with many other state Manufacturing Extension Partnerships), are handled on a contract basis, very much like the manner in which we find resources for you. Only key management functions are met by full-time central IMEP staff. This allows IMEP to do three things: 1) keep down the level of overhead; 2) focus instead on defining and meeting your needs; and 3) emphasize the growing inter-relationships among partners, resources and manufacturers.

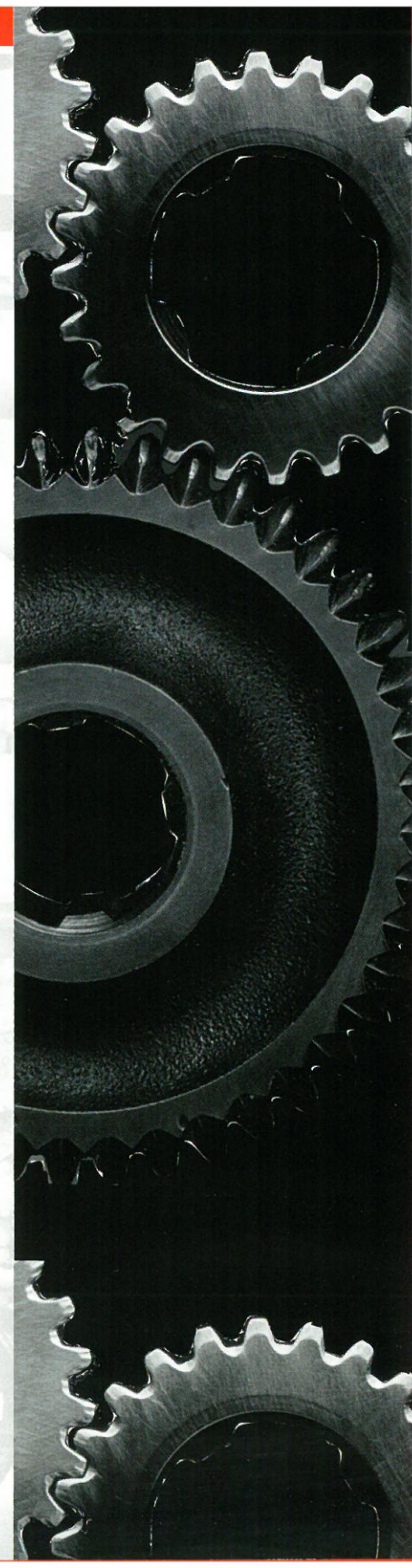
Keeping us in further touch with manufacturers, like you, is our active Industry Advisory Council. It is made up of manufacturers representing the 15 service regions of IMEP in the state. Council members meet regularly to address questions of what the pressing needs in industry are and how IMEP can best meet those needs.

### Industry Advisory Council

James Aipperspach,, Iowa ABI, Des Moines  
Roger Behrens, The Hon Company, Muscatine  
Ivan Brown, Brown Medical Industries, Spirit Lake  
Roxi Downing, Qualis, Inc., Des Moines  
Richard Henry, Interwest Services, Red Oak

Stan Johnson, Iowa State University Extension, Ames  
Jose Laracuenta, DMI Computer Technologies, Ankeny  
Raun Lohry, Nutra-Flo Co., Sioux City  
David Melhus, Vermeer Mfg. Co., Pella

Dennis Michels, Maintainer Corp. of Iowa, Sheldon  
David Roederer, Stratavizon, Des Moines  
Bill Stoyles, Stoyles Graphic, Mason City  
Bob Wolf, Astoria of Iowa, Chariton





### Groschopp, Inc., Sioux Center

Groschopp manufactures electric motors and motor shafts on which fan hubs with blades are placed. The company employs about 200 people.

#### Challenge

In January 1998, four employees attended a workshop sponsored by IMEP at Northwest Iowa Community College. The workshop introduced area companies to a multi-variable testing tool called Design of Experiments (DOE), a statistical tool that prescribes various methods of applying measurement and fact to analyze and quantify impact of variables on processes. The Groschopp team members began to immediately identify uses for DOE at the plant, beginning with a process called knurling, where the ends of shafts manufactured are raised in small, sharp points to hold plastic fan hubs. The hubs are secure when torque (radial force) and pull (axial) pressure are placed on them and they do not give way at the hub/shaft point until a specified pressure measurement is reached. The process is time consuming and creates sharp metal slivers that frequently cut workers. Slivers also can damage fan hubs.

#### Solutions

Three variables were developed for the DOE experiment. An initial experiment demonstrated effects of the variables. A second run of experiments provided input on a test of methods and set a measurement goal. The team then projected an outcome. A third test confirmed the group had reached its goal for improving the process.

#### Results

Results showed both time and money were saved. Also, workers are no longer being cut by sharp slivers from the old knurling process. Direct cost for the DOE experiments, external to staff time, was \$200. Staff members have a new sense of confidence in their ability to control problems that arise in the quality engineering department. A new set of product specifications has been developed and a new, more intentionally designed fan hub has been added to the product line.

## Targeted Programs

### Total Assessment Audit

The Total Assessment Audit (TAA) is an energetic tool that puts you on the road to better processes and practices, improved competitiveness and, yes, increased profits. For the TAA, IMEP forms a team of multi-disciplinary professionals as well as top managers from your own firm. The team combs through your operations in a systematic way to identify factors that will contribute to greater success and point out factors that hinder it. You receive a roadmap to greater performance. From that point on, IMEP will be your partner in productivity, energy, and waste management improvement. We connect you with the experienced resources that can assist you.

### E-commerce

Working with state and federal partners, IMEP is strengthening its efforts to bring you the knowledge and technical assistance necessary to advance your efforts in conducting business electronically, or through e-commerce. It is how much business is carried out across the world, and it is moving ahead at a rapid pace. You will solicit new clients, exchange information and conduct future business via the Internet – if you wish to move on to greater success. The learning curve is high for most smaller manufacturers. IMEP will help you make it happen.

### Lean Manufacturing

Lean manufacturing will improve throughput, reduce inventory and can substantially improve productivity. By inviting your IMEP Account Manager to sit down and review your current production practices, you will set in motion changes that improve use of resources and output. Lean manufacturing involves a tried and tested approach to potentially dramatic improvement. Account Managers are trained to help you spot the many Lean opportunities.

## Mainstream Programs

### Management Assistance

- Cost Accounting
- Strategic Plans
- Business Plans
- Market Development and Research
- Strategic Positioning
- Export Trade Development
- Human Resources
- Customer Services

### Training

- ISO 9000
- Exporting
- Language Skills
- Management Training
- Skills Training
- Marketing
- Computer Integrated Technology
- Just In Time Manufacturing
- Regulatory Compliance
- Strategic and Business Planning
- Total Quality Management
- Workforce Development
- Cost Management

***"The IMEP provides Iowa's manufacturers with a one-stop source for the combined technical resources of Iowa's universities, community colleges and many national resources as well. Your local IMEP***

***Account Manager is a person to know."*** Dennis Michels, President, Maintainer Corp. of Iowa, Sheldon



## Celebrating the Small Manufacturer

1999 was heralded as The Year of The Small Manufacturer. Recognition of your contributions was long overdue. There are more than 385,000 small manufacturers (those with fewer than 500 employees) in the United States. Their contributions are significant in terms of jobs, wages and products. Overall in the U.S., small manufacturers' employee wages are about 12 percent higher than those in service industries and 58 percent higher than in the retail sector. These businesses make up more than 98 percent of all U.S. manufacturers and contribute more than 50 percent of value of all manufactured goods. Every \$1 in manufacturing output on a national scale stimulates \$2.30 of additional economic activity.

Iowa has demonstrated extraordinary success in its manufacturing sector. Between 1990 and 1997 (the year of the latest figures), 17,300 jobs (7 percent) were added in manufacturing overall. Rural counties, where small- and mid-sized manufacturers abound, accounted for all of the increase. Among non-farm job categories (service, manufacturing, construction and mining) in 1997, manufacturing showed the highest average weekly wage. Manufacturing accounted for nearly 25 percent of Iowa's wages in 1997, while it provided approximately 14 percent of employment.

(Sources: U.S. Bureau of Economic Analysis; Iowa Workforce Development; U.S. Department of Commerce.)

This requires innovation and a strong push toward new knowledge, improved technology and processes, and sound business practices.

*"An IMEP Account Manager is the one who makes the call on a company, finds out what the company needs and then puts the manufacturer in contact with the people who can provide the necessary services. It can be something about equipment or information on a process that a small manufacturer doesn't know how to find. IMEP has national or even international connections for resources. IMEP has the capability to bring people together with solutions."* Richard Henry, President, Interwest Services, Red Oak

### Frog Legs, Inc., Vinton

Frog legs, Inc., designs, manufactures and sells front casters for wheelchairs. The casters use a shock-absorbing polymer to reduce impact on the wheelchair and the user.

#### Challenge

The company requested assistance from Iowa MEP and its partner, Center for Industrial Research and Service (CIRAS), to determine limits of the polymer and overall caster design in order to assess the design and establish benchmarks for design changes. The company also needed assistance in building a data system that would allow it to continue testing on its own and verify quality of polymer cylinders it purchased.

#### Solutions

The IMEP Account Manager, with combined expertise and assistance from CIRAS and the Department of Aerospace Engineering, Engineering Mechanics, the Iowa Companies Assistance Program (ICAP) and the Center for Non-destructive Evaluation (CNDE), also at Iowa State, brought about elaborate testing efforts for components of the casters and the assembled casters. A primary goal of testing was to determine if polyurethane cylinders used in the casters were breaking down during prolonged use. A tumbling device and tensile/compression data acquisition system was built to cycle and retrieve data from the caster assemblies. Data was plotted to determine the slope, which is the materials spring constant. The fully reassembled caster was cycle tested in 10,000 cycle intervals, with continual inspection of components and comparison of slope of the polyurethane material. The lower fork section of the caster was modeled using Finite Element Analysis (FEA) software to examine the structural integrity and indicate high stress locations.

#### Results

The project was completed in 1999. After various elaborate testing processes were carried out and systems were established for the company to do future tests on its own, Frog Legs is able to say it manufactures the safest, most advanced designed product available on the market.



## Guttenberg Industry, Guttenberg

Guttenberg Industry supplies injected molded plastic parts to the automotive, medical, electronics, water filtration/dispensing and agriculture markets throughout the U.S. The company was established in 1974 and employs 115 people.

## Challenge

Guttenberg Industry began its production in a 5,000-square-foot facility with two molding presses. The company has expanded into two facilities with 62,000 square feet and 25 presses. During the rapid growth, not enough attention was paid to documenting processes and procedures. The company decided to implement a new quality system based on ISO 9002 standards to correct the problem. An IMEP Account Manager's visit to the company prompted the request for assistance with implementing the new quality system.

## Solutions

IMEP Account Managers conducted a gap analysis to determine areas of focus, then developed a training and assistance program tied to meeting the ISO 9002 standards. IMEP arranged for a quality expert from an outside consulting group to analyze the results of the gap analysis and oversee the final steps of implementation of the quality system.

## Results

In June 1997, the company passed its ISO registration audit and became certified to the 1994 ISO 9002 quality standards.

## IMEP Works for Your Success

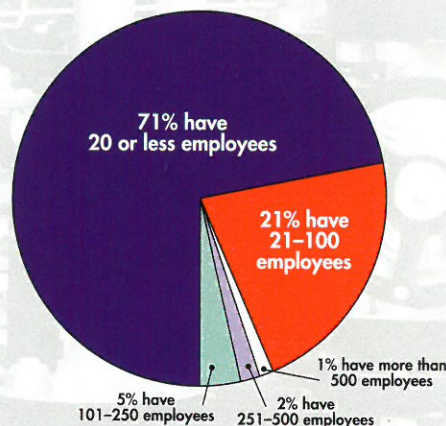
Iowa's industrial strength is found in its large number of small- to mid-sized manufacturing and technology-based firms. These number about 6,200 and are the primary focus of IMEP. Customer satisfaction with IMEP services runs high, with about 90 percent of firms receiving IMEP services indicating they have been "satisfied" or "very satisfied."

Since the Center's inception, 65 percent of Iowa's 6,200 targeted manufacturers have received IMEP services. Of those, 57.7 percent indicated they have received financial benefit from those services.

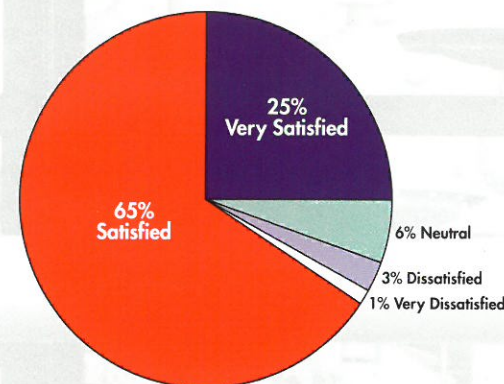
### In one year alone:

- Three companies reported labor savings of \$659,950 and 13 companies reported cost savings of \$419,700 after working with IMEP.
- 33 companies reported additional capital investments of \$2,885,200 as the result of IMEP assistance.
- 84 new jobs were created in 18 companies, and nine companies retained 27 jobs.

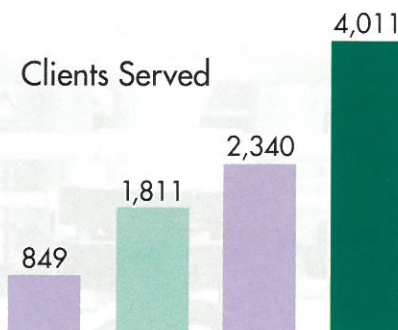
### Iowa manufacturers by number of employees:



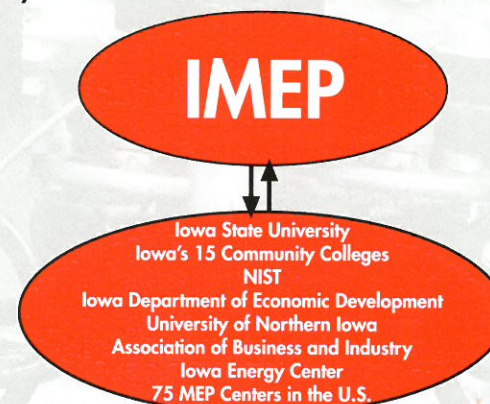
### Overall satisfaction with IMEP services:



Over a four-year period, clients increasingly have turned to IMEP for assistance.



IMEP meets the needs of Iowa's manufacturers by putting together the strengths found in a wide range of state and federal resources. We make it easy.





## IMEP Account Managers – *Your Connection to Improvements*

With a call to the IMEP Account Manager near you, you can receive a quick response to your inquiries and feel assured that the Account Manager will connect you to the resources that will best meet the needs and issues you face.

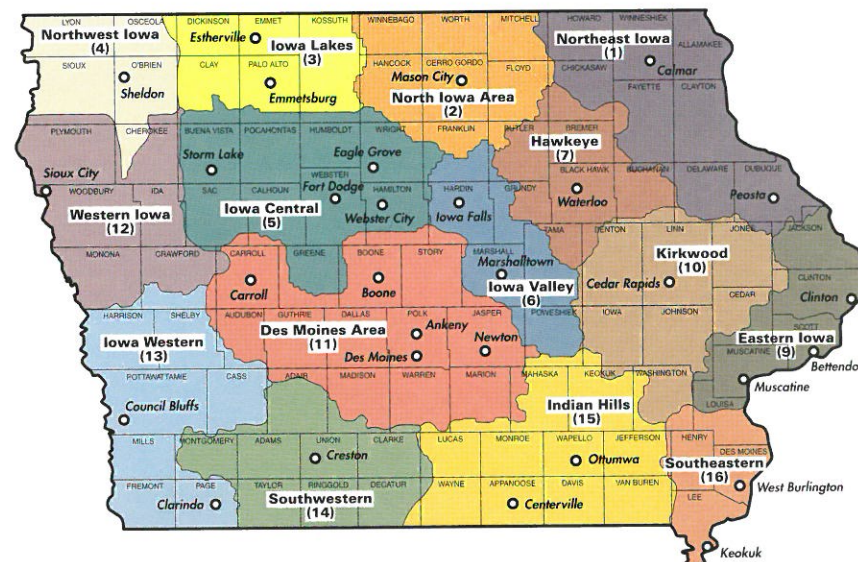
- 1 Bill Schwinke, Northeast Iowa Community College, Box 400, Calmar, IA 52132; 319.562.3263, ext. 308; 800.728.2256; bschwinke@imep.org
- 2 North Iowa Area Community College; 515.965.7125
- 3 Iowa Lakes Community College; 515.965.7125
- 4 Woody Grabenbauer, Northwest Iowa Community College, 603 West Park St., Sheldon, IA 51201; 712.324.5061, ext. 110; 800.352.4907; woody@imep.org
- 5 Deb Prendergast, Iowa Central Community College, 330 Avenue M, Fort Dodge, IA 50501; 515.576.0099; 800.362.2793, ext. 2338; dprender@imep.org
- 6 Iowa Valley Community College; 515.965.7125
- 7 Willie Brocka, Hawkeye's Center for Business and Industry, 5330 Nordic Dr., Cedar Falls, IA 50613; 319.277.2490; wbrocka@imep.org

- 9 Ilene Deckert, Easter Iowa Community College District, 306 West River Dr., Davenport, IA 52801; 319.336.3317; ideckert@imep.org
- 10 Ken Nelson, Kirkwood Community College, 6301 Kirkwood Blvd. SW, Cedar Rapids, IA 52406; 319.398.5671; 800.332.2055, ext. 5671; knelson@imep.org
- 11 Brian Espeland, DMACC-EDG Dept., Bldg. 18, 2006 S. Ankeny Blvd., Ankeny IA 50021; 515.964.6344; btespeland@imep.org  
Jim Wamberg, DMACC-EDG Dept., Bldg. 18, 2006 S. Ankeny Blvd., Ankeny, IA 50021; 515.965.7131; jwamberg@imep.org
- 12 Joel Arends, Western Iowa Tech Community College, 4647 Stone Ave., P.O. Box 5199, Sioux City, IA 51106; 712.274.6400; 888.320.2249, ext. 2214; jarends@imep.org
- 13 Don Reiner, Iowa Western Community College, 2700 College Road, Box 4-C, Council Bluffs, IA 51502; 712.329.4741; 800.432.5852, ext. 741; dreiner@imep.org
- 14 Allan Higgins, Southwestern Community College, 1501 W. Townline, Creston, IA 50801; 641.782.1487; 800.247.4023 ext. 487; ahiggins@imep.org

- 15 Vicki Baum, Indian Hills Community College, 525 Grandview, Ottumwa, IA 52501; 641.683.5293; 800.726.2585, ext. 5293; vbaum@imep.org

- 16 Roger Farquhar, Southeaster Community College, 1015 South Gear Ave., West Burlington, IA 52655; 319.752.2731, ext. 8226; 800.828.7322; rfarquhar@imep.org

## Iowa Manufacturing Extension Partnership Account Manager Territories



Iowa Manufacturing Extension Partnership (IMEP)  
2006 S. Ankeny Blvd.  
Ankeny, IA 50021

[www.imep.org](http://www.imep.org)

Toll free 877.965.IMEP  
or 515.965.7125  
FAX: 515.965.7050



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## Partnerships

IMEP puts teeth in the word “partnerships.” We forge, for you, lasting partnerships with industry resources who can help you meet your current needs and will stay with you as you prosper and your needs change. We do this by maintaining strength in our own partnerships – throughout Iowa and across the nation. We leverage these partnerships for your benefit.

### IMEP Partner Organizations

#### Iowa State University

- Center for Industrial Research and Service (CIRAS)
- Institute for Physical Research & Technology (IPRT)
- Center for Advanced Technology Development (CATD)
- Iowa Procurement Outreach Center (IPOC)
- College of Engineering
- College of Business
- Small Business Development Center (SBDC)

#### Iowa's 15 Community Colleges

#### University of Northern Iowa (UNI)

- Iowa Waste Reduction Center (IWRC)
- Metal Casting Center

#### Iowa Association of Business & Industry (ABI)

#### Iowa Department of Economic Development (IDED)

#### Iowa Energy Center (IEC)

#### Graphic Arts Technology Center of Iowa (GATCI)

#### National Institute of Standards and Technology (NIST)



a NIST | Network  
MEP | Affiliate

National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership (MEP)

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