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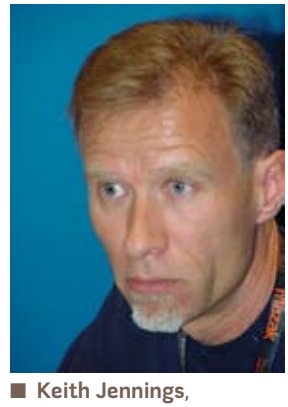
Critical Issues

Cutting Tool Engineering sponsored a manufacturing roundtable on Sept. 9 at IMTS 2008 in Chicago. We invited six manufacturing professionals to discuss the economics of metalworking in the U.S., the industry's ability to compete in a global marketplace, and how the industry can best recruit and train skilled workers. The roundtable was moderated by Alan Rooks, CTE's editorial director.

[*Editor's Note: This discussion took place prior to the global financial crisis in October.*]

The roundtable participants:

■ **Steve Stokey,** executive vice president, Allied Machine & Engineering Corp., Dover, Ohio.



■ **Keith Jennings,** president, Crow Corp., Tomball, Texas

■ **Chris Kaiser,** president, BIG Kaiser Precision Tooling Inc., Elk Grove Village, Ill.

■ **Marlow Knabach,** vice president, Mori Seiki University, Rolling Meadows, Ill.

■ **Bernie McConnell,** vice president, global marketing, manufacturing systems and services group, Kennametal Inc., Latrobe, Pa.

■ **Andrew Benson,** vice president, business development and Southeast division manager, Iscar Metals Inc., Charlotte, N.C.

Rooks: The U.S. metalworking industry seems to have weathered rough economic conditions fairly well, through continued growth in key industries such as aerospace, medical and energy and a strong export market aided by the weak dollar. Can you confirm this trend and if so, do you expect this situation to continue? What sectors will drive metalworking growth in the U.S.?

Knabach: On the machine tool side, the market remains strong despite some bad economic news. It seems that manufacturing is flying under the radar, and maybe that's a good thing. The majority of our customers' markets continue to be strong. We've seen a lot of capital investment in manufacturing facilities. Alternative energy—specifically wind energy—is growing rapidly. Medical and aerospace remain strong, and as autos get lighter for fuel economy, they need new [machining] technologies. Also, many job shops have remained strong because they are not dependent on one specific market.

McConnell: Similar to Marlow, we see a strong focus on energy, including everything from wind power generation to down-hole drilling. From a Kennametal perspective, we've focused on developing products for specific industry segments. We've found that customers are

looking for more than tooling solutions for one application—they're looking for a more comprehensive solution. Having a broad product portfolio has helped us in our segment orientation.

Jennings: Our business has definitely been strong. From 2002 through 2004, things were slow and we were operating very lean. Things started picking up again in 2005 because of the industries in our area. We've upgraded our equipment and invested to improve our capabilities. I expect this to continue. Aside from the previously mentioned areas, we've found that construction, mass transportation, military equipment, heavy equipment and pump and valve components for drilling and offshore exploration have been very strong. About 50 percent of our work is related to energy.

Kaiser: Aerospace has been a key driver for the past 3 years for us, as has defense and energy. One positive trend is that production of many big parts is staying in the U.S. due to logistics. The lower dollar has helped the U.S. manufacturing industry. We are finally showing the rest of the world how we can manufacture products. A lot of jobs are coming to the U.S. from Europe, particularly regarding Airbus contracts. We've also done well in the mining industry. On the negative side, the delay of the Boeing Dreamliner jet has hurt certain areas. On the energy side, there will be more offshore drilling and that will keep things moving in Texas. Some of those machine shops are sold out for the next 3 to 4 years.

Some people say that manufacturing is dying because there are fewer jobs, but that's not the case. Machine tool and part making processes are becoming more automated, and that's one of the main reasons there are fewer jobs in manufacturing.

Knabach: What Chris said regarding the job market is true. Manufacturers can be thriving without offering the same number of jobs—that's how we can remain competitive in the U.S. The media tends to focus only on jobs, and what we really need to focus on is the overall financial health of manufacturing companies.

Benson: We see the same basic trends. In addition, we also see growth in heavy industries, logistics-related industries—anything that applies to infrastructure for developing countries. Companies like Caterpillar and John Deere have been doing very well for the past 5 years. In 2001, the U.S. dollar was at its peak, and we were at a big disadvantage in the world market. In August, the dollar was at its all-time weak point. The weak dollar has spurred reinvestment in the U.S. manufacturing base. Even the auto industry, which is facing very difficult times, continues to invest here. For example, BMW recently brought additional production over to a facility in South Carolina. Volkswagen is building a plant in Tennessee, which is good news for industrial suppliers in the area. Hyundai and Kia are building capacity in Georgia and Alabama. Unfortunately, The Big Three were caught with the wrong product mix at a time of rising fuel prices. GM, Ford and Chrysler will need to change their model mix and this will be a good opportunity for our industry because they're going to have to retool.

'It seems that manufacturing is flying under the radar, and maybe that's a good thing. The majority of our customers' markets continue to be strong.'

—Marlow Knabach

Stokey: Our company has focused on foreign markets, and we're trying to grow those markets because of the weak dollar. Still, there are barriers. I attended a forecast meeting a couple weeks ago, and I asked the economist to talk about China floating its currency, which we don't hear much about anymore. He said the western countries pressed China to do more to float its currency, they said no, and everybody said OK and went back to business as usual. It will be interesting to see how that plays out.

There are definitely growth opportunities in metalworking, but one of the problems is that a lot of big machining equipment has left the country. If we have a need to make big parts, do we have the big equipment to do it? Are we going to get stuck with this growth phase of trying to get all this big equipment built and installed? Is our government going to create a competitive tax policy that allows business to confidently make these investments? Or are they going to mess with the tax structure and make us noncompetitive after we go ahead and make that investment?

Rooks: How is the U.S. metalworking industry positioned for global competition? Can U.S. parts manufacturers, both large and small, compete on a global scale? What are the U.S. industry's biggest advantages and its biggest challenges?

Stokey: If you look at tort litigation costs, regulatory costs and the overall tax burden, the U.S. is the second-highest taxed country in the world behind Japan. There was talk in the presidential campaign about reducing corporate taxes and raising them on personal income, but what about the percentage of companies that are S corporations that are getting taxed at personal income rates? If you look at the backbone of the country, it is small businesses and many of them will be taxed at a higher income rate. That can be a crushing blow to small businesses.

Also, our legislators are sending us mixed signals. Businesses plan long term, and tax policies that expire introduce uncertainty. I continue to tell our legislators that their job is to create the environment for business to succeed and then get out of the way. They can't create success or failure, but they continue to think that they can.

Benson: Steve covered taxes very well. This is an election year and there is a lot of uncertainty about tax credits that may run out at the end of the year.

Another issue is that direct material costs and labor costs are going up. It's creating an environment where you must increase productivity to get more parts out the door in a shorter amount of time. Also, suppliers have to respond quicker to their customers' changing production needs. That's really where the big challenges are now. For example, automobiles have shorter product life cycles and manufacturers have to retool quickly.

Kaiser: The exchange rate is still a big issue—it has brought more work here to the U.S. from overseas. If we build on this advantage by automating and improving our operations, we'll be better positioned to retain this work down the road when the dollar is at a higher exchange rate.

Steve's point about having enough large machine tools is a good one. Some of those machines have been sold to China and other countries, and there are delivery times of 2 to 3 years on new machines. Several companies are rebuilding big machines with 60-taper spindles and CNCs because new machines are not readily available. The ways may have to be rescraped but the iron is only getting better with age.

'From 2002 through 2004, things were slow and we were operating very lean. Things started picking up again in 2005 because of the industries in our area.'

—Keith Jennings

Jennings: Metalworking is not subsidized in the U.S. and that can present some challenges when we're competing with countries where it is. For small companies, there is only so much we can withstand. For example, one very controversial issue in Texas was a franchise tax that was drastically increased in 2007 to make up for revenue lost when the rate of increase in property taxes was reduced. No spending was cut—they just passed the tax burden on to business. If government continues to look at small, private-sector businesses as cash cows, we are going to have an issue competing globally. The politicians who increased our taxes in Texas have been getting an earful about this.

Stokey: We recently dodged a bullet in Ohio—the paid sick-leave act that was supposed to be on the ballot in November. Gov. Strickland negotiated with the service employees union, which was responsible for getting it on the ballot, to take it off. It would have mandated 7 paid sick days per year and it wasn't clear if they would carry over from year to year. The reason the governor negotiated to pull it off the ballot was that they want to go national with it. It was bad legislation for Ohio and would've killed our competitiveness against other states. It's something everyone should be aware of.

McConnell: We manufacture in 60 countries and as we've entered emerging markets like China and India, we haven't gone there to produce products and bring them back; we've gone there because that's where many new customers are. Our U.S. manufacturing operations are still robust, and we've done that through automation, lean techniques and process optimization, leveraging all the things that we preach to our customers. We make footprint decisions based on what's best for a geographic area, and if anything, the value of the dollar has shown that having manufacturing in the U.S. is an asset.

Knabach: Can U.S. manufacturers compete? Absolutely. Over the past decade, U.S. manufacturers have pursued cost-cutting initiatives both for quality and lean manufacturing, and that had given them a competitive advantage. Now, we must concentrate on a commitment to delivering consistent quality on time. As the supply chain

shrinks, the focus is on how to get high-quality parts to customers on a timely basis. As shipping costs rise, bringing parts production back to the U.S. makes more sense.

Rooks: Recruitment and retention of skilled workers, both at parts manufacturers and their tooling and machinery suppliers, is a growing challenge. How serious is this problem, and what is your company doing to help solve it?

Stokey: There is program from the Society of Manufacturing Engineers called Project Lead the Way that is introducing an engineering curriculum into middle and high schools to steer kids into engineering. We are heavily involved in that in our county. Of our nine school districts, five of them have launched a Project Lead the Way program. There are currently 1.3 million engineering positions open in the U.S. because baby boomers are retiring, and by 2020 there will be about 18 million open positions. We're only producing about 84,000 engineers a year in this country, so there is a huge gap.

In addition to the 4-year engineering degree programs, we need more 2-year technical programs that can educate future machinists. Our company has Allied University where we hire people out of high school with computer skills and communication skills, bring them into our company and train them. These kids can be from the college prep programs, not just the vocational programs. They are not using their hands anymore—they're using their minds, and that requires a different skill level. We have to grow more hometown talent. People aren't dying to move to Dover, but if we can grow those kids in our backyard that's good for our community. We've also added tuition reimbursement programs for all of our associates because they have to continue to be educated throughout their careers—not just when they graduate from high school.

Benson: We hear so much today about the service industry, but it's manufacturing that really adds the most value. It's our job to reach out to the education system and make them aware of our industry. Iscar works with the Tarrant County, Texas, school system because that's where we have our U.S. manufacturing base.

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—Steve Stokey

We have internships where we bring in high school students and familiarize them with engineering and machining. We hope that sparks their imagination as they go on to college and consider a career in industrial engineering.

Rooks: Do you find that customers are coming to you seeking help with engineering issues?

Benson: Sure. We are asked to provide training all the time, especially for new products and techniques. For many of the manufacturing plants we visit, the engineering group typically runs very lean on personnel. They are very busy just making production quotas so they look to the cutting tool companies and the machine tool companies to be that engineering knowledge base for them.

Kaiser: Like Steve's company, we have been working on Project Lead the Way for the past two years. We've also sponsored Elk Grove High School students to come to IMTS. The funny part was we couldn't get a lot of parents

to sign the field trip form. We also help the Elk Grove High School shop program by providing tooling and materials for their shop program, which has been resurrected over the last few years. But what surprises me is that we have to almost push the teachers in the shop to take advantage of it. It's true that we could do a better job promoting the industry to counselors, teachers and parents. They still think machine shops are dirty, grimy and drafty. They don't know they're clean and full of CNCs.

Rooks: It seems that a lot of high schools really push everyone into college prep programs and don't really consider technical-vocational programs like machining.

Kaiser: There is a disconnect between high school and vocational schools—we don't have an in-between program such as apprenticeships like they do in Europe.

Jennings: We're doing some of the things that have been discussed, such as inviting students to visit our shop. Sometimes that happens based on my initiative, but people have also called us out of the blue. They always seem to get out a lot out of it. They seem interested and ask a lot of questions once they see it firsthand. We have hired several people who were made aware of us in that manner. Some kids really don't want to go to college. While I certainly would encourage any young person to go to college if the opportunity is there, we've found that some workers with no college education whatsoever do quite well and are making more money than their college counterparts. As Chris mentioned, there has been a misrepresentation of the industry and of the jobs it offers. Take the kids that are software savvy—there is a lot more they can do than just develop Web sites. We can take those people and train them to do CAD work.

McConnell: We're hitting the problem on two fronts. On the professional side, we work closely with universities recruiting young engineers and business professionals. On the manufacturing side, our plants are working with technical-vocational schools and high schools in their areas giving presentations and providing field trips. Also, the Kennametal Foundation sponsors technical and machining educational programs.

We also have our Kennametal Knowledge Center, where we host training programs online. But, like everybody else, there's a lot more we can do. The fundamental issue is we have to change the perception of our industry. That worker of tomorrow may be like my 9-year-old son who plays his PlayStation portable. Today, kids are plugged into hand-held devices and text message constantly. The attention spans and motivations for young people today are very different than ours. We have to make sure that we are reaching them. We're competing against industries like telecommunications and medical—some of the industries we sell to. As an industry, we need an awareness program that we can all rally behind.

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—Chris Kaiser

Knabach: I applaud each and every one of you for working with young students in your areas. It's true that there is an antiquated misconception about manufacturing today. The fact is almost every machine tool is equipped with a computer. To your point about Web sites, Keith, machine tools now have the capability to be connected through Ethernet and manage all the data on the shop floor. We need those Web-savvy kids

in our industry. We've lost an appreciation for trades in this country. Even 10 years ago, if somebody had not gone through an apprenticeship program they were at least working with someone who had been certified as a Level 1 or a Class A machinist. We need to go back to industry certification so that people have something to aspire to. We need to come together collectively and work locally with our schools.

Mori Seiki University came about to meet our own internal training needs so we could hire people with the right attitude and then teach them manufacturing. What we quickly learned is how closely this connects to our customers, as well. Obviously, as a machine tool builder we always offer training on how to use machine tools, but we discovered that we need to go beyond that and offer competency-based training so that people could acquire new skills and document them. Right now, there are multiple groups doing certification. We need to come together as a group with an accreditation program that can classify skills.

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—Bernie McConnell

Stokey: One thing that stunned me about tuition reimbursement at companies that offer it is that so few people take advantage of it—only 2 percent. People say college is too expensive, but when it's free, only two people out of a hundred take the time to go.

Kaiser: A lot of people don't want to invest their time. You almost have to go back to that apprenticeship where you have set hours during the day and go to school for 2 half days or a full day each week.

Benson: One thing that's encouraging is that there are shows on Discovery Channel and The Learning Channel about manufacturing, examining how things are made. It's good that people are seeing these programs; they could develop an interest in a manufacturing career. CTE