

If Only We Had a Crystal Ball ...

Insiders Weigh In on the Present and Future of Gear Manufacturing

Matthew Jaster, Associate Editor

Before we get into projections and prognostications about the future, let's take a minute to review 2012. For many in the gear industry, the year was better than expected. Some manufacturers had a very successful year leading up to an even more successful manufacturing trade show (IMTS 2012). Others were searching for more business, hoping that the general state of the economy wouldn't make things worse. In some cases, it did.

Some companies invested a great deal in manufacturing education and training while small job shops tried to hang on to what's left of their skilled workforce. There was optimism, pessimism and perpetual talk of fiscal cliffs, economic uncertainty and political turmoil. 2012—for all intents and purposes—can be summed up in one word: polarizing. You'll see this in the quotes from gear manufacturers throughout this magazine as well as data collected for our 2012 State of the Gear Industry Survey (*Ed's note: See survey results starting on page 32*).

But like other segments of manufacturing, the gear industry endures, simply because it has to. North America remains one of the largest manufacturing sectors in the world, producing more than 20 percent of the world's manufactured products. Whether business was slow and steady, fast and furious or underwhelming in 2012, there's work to do in 2013. Plan accordingly.

The Gear Market Today

In our 2011 State of the Gear Industry survey, respondents reported that the significant challenges to their business included lack of skilled labor, material costs, the overall economy and supply chain issues. These continue to be prevalent one year later.

"Growth of the world's major economies stalled in 2012 after beginning to recover from the recession," says Joe Franklin, AGMA president. "China and Europe are suffering more than North America, but orders from most end-markets turned down this summer. The United States had a good run from 2010 to the middle of 2012, but seems to have stalled. Additionally, coping with the volatile, uncertain political environments here in the United States (taxation, health care, fiscal issues, etc.) and the related uncertainty makes mid-to long-term planning difficult."

"We've been very pleased with overall sales in 2012, though we noticed customers

pulling back in the summer,” says Fred Young, owner and operator of Forest City Gear in Roscoe, Illinois. “I expect it to pick back up again at the end of the year.”

“There is a lot of uncertainty,” adds John Walter, president and CEO of Precipart Corporation, located in Farmingdale, New York. “We saw a lot of programs pushed out as our customers waited for the outcome of the election. Some programs may disappear entirely. Budget cuts and deficit reduction will come into play no matter who is in office. Meanwhile, we remain in touch with our customers in order to react to changing demands.”

“I think there will be a slight contraction in 2013, compared to 2012,” says Dylan Smith, president of Vancouver Gear Works, located in Richmond, British Columbia. “The economy has leveled off or slightly declined after the initial strong recovery.”

Joseph L. Arvin, president of Arrow Gear, located in Downers Grove, Illinois, believes things look OK today for Arrow’s gear business, but it could change overnight. “Not knowing what is going to happen with the sequestration and its \$109.3 billion cut per year could be devastating, because 35 percent of my work is in government defense.”

Arrow Gear’s challenges include the banks’ unwillingness to loan money, finding skilled help and the state of taxes and EPA regulations. “I wish the banks would give us more money for the latest equipment and the U.S. government would help manufacturing like other countries who realize it’s the backbone of economic growth and prosperity for the middle class,” Arvin says.

“The general economy is affecting us, particularly the work we do in business jets,” Walter at Precipart says. “The cost, quality and lead-time issues related to supply chain led us to bring in some secondary operation capability in-house, which will help us control processes and ultimately keep us highly competitive.”

“We had a lot of management turnover in 2012, which is both a challenge and an opportunity,” Vancouver’s Smith says. “It was difficult to find skilled workers in 2012, but the workforce we have now should carry us through 2013.”

But much like *Gear Technology’s* survey respondents, the skilled labor shortage remains the *greatest* challenge. “Machinists are a dying breed and this shortage of skilled labor



Fred Young,
Forest City Gear



Joseph L. Arvin,
Arrow Gear

will be a major drag on business performance unless companies employ strategies to overcome hiring difficulties,” Walter says.

“Some AGMA members are looking for a couple of people, but a number of companies are looking to hire 10 to 20 today. End markets are not being fully served,” Franklin says.

AGMA’s Education Advisory Council and the Board of Trustees are doing their part by developing a Skills Assessment document that will allow manufacturers to evaluate the current and needed skills for a variety of production and engineering positions, including machine operators, gear technicians, engineers, maintenance workers and managers.

“One of the most expedient ways to help younger engineers or those new to a technical topic is to get them involved with the industry’s technical community. AGMA’s 25 technical committees continue to develop standards on focused topics, including the analysis of micropitting and gear failure from sub-case crack initiation. There’s no better way for an engineer to learn a subject in great detail than working side-by-side with the industry’s top subject matter experts,” Franklin says.



Joe Franklin,
AGMA

“One of the top priorities for Citizens for American Manufacturing (CAM) is to high-profile the need for entry level employees to have some basic machining skills which can be provided by high schools, trade schools and colleges,” Arvin says. “It’s also to educate parents, teachers and our politicians about the need for an educated and trained technical staff.”

“I think the most serious skill deficiency is with the new machinists,” Smith says. “It is very hard to find someone who is capable of working with modern equipment but also understands theory and practical aspects that a manual machinist would understand.”

The Promise of IMTS

In September 2012, IMTS in Chicago attracted more than 100,000 registered attendees for the first time in more than a decade. “The energy level among visitors and exhibitors was at an all-time high,” said Peter Eelman, IMTS vice president – exhibitions and communications in a press release. “The most exciting take-away from IMTS 2012 is what it says about the prospects for manufacturing over the next year. The overall activity and buzz indicates that we are entering a period of sustained growth that will fuel economic prosperity and job creation.”

The most telling sign of the future of U.S. manufacturing may be the emphasis on process integration displayed during the show. Large machine tool companies like DMG/Mori

Seiki and Mazak continue to release multifunctional machines that include a variety of gear operations. Additionally, the collaboration/partnerships between Gleason/Heller, Star SU and MAG and the recent acquisition of Höfler by Klingelnberg, support the theory that flexibility, productivity and quality will be addressed in single machine operations in the future.

“We’ve watched the industry consolidate for decades. Most of the combinations were between smaller and larger companies,” Franklin says. “Over the last few years, several mergers have been between larger companies. The demands of greater technological capability and a more global reach demand larger companies. Customers in developing markets want the same high quality as those in the most developed parts of the globe. Meeting these demands is complex and costly. Another factor supporting mergers gets back to the availability of management knowledge and skill. Some very fine manufacturers do not have a very deep management bench.”

On the gear manufacturing side, companies like Forest City Gear work frequently with others in the industry. “You don’t find many people who are as open with peers and competitors, but we regularly provide work for a number of our friends in the industry. Collaboration is becoming the norm,” Young says.

“It has been interesting to see this happen,” Smith adds. “It seems to be letting each company focus on their own expertise rather than trying to be everything to everyone. Mind you, the openness and cooperative spirit is something that has always uniquely characterized the gear industry in my mind.”

Making Progress

AGMA’s recent Fall Technical Meeting included topics on higher processing speeds, multitasking machine tools, advance heat treating capabilities, advanced gear design software and improved lubricants to enhance wear and efficiency. The technology is improving, here’s hoping there’s a stable market for it.

Regardless of economic forecasts, uncertainty has not stopped the gear community from investing in new equipment and their workforce. Downtime has always given organizations an opportunity to play “catch up” and prepare for the next business cycle.

“We’ve increased our workforce this year throughout the organization,” Walter says. “This increase is to prepare for forecasted ramp-ups in key aerospace and medical technology programs. New machinery is allowing us to hold tighter tolerances while increasing throughput.

“It’s not just the acquisition of more machines that operate faster and better that we need, but now more and different types of tooling



John Walter,
Precipart Corporation

and attachments are available to optimize productivity and the quality of parts produced.”

“We’ve spent \$3.5 million in new equipment over the last 18 months,” Arvin adds. “We have hired 60 people during the same period.”

“I’ve never met a gear machine I didn’t like,” quipped Young when discussing machine investments. “We’re constantly buying new equipment that enables us to provide rather unique capabilities in the size range and the types of gears we manufacture. There’s no plan to change the way we approach our business in the future.”

“I am investing in workforce training for our existing staff because I think it’s always important to improve your skills,” Smith says. “I will also be replacing/upgrading some of our aging equipment.”


Manufacturing technology orders are up, according to the AMT, and Washington D.C. has promised a renewed focus on clean energy and science and engineering education. So what needs to be done to keep gear manufacturing on the right track, moving forward?

“We must continue to grow our custom-engineered, value-added assemblies for customers in our core industries,” Walter says. “Additionally, we will utilize our continuous improvement team to find opportunities for us to operate leaner and more efficiently, while remaining focused on providing world-class customer service.”

“It is a relief to see that the public is viewing manufacturing as an important part of our economy. There has been a lot of talk about on-shoring or re-shoring this year, and consumers are starting to pay more attention to where things are made, and seeing that as an important factor in their purchasing decisions,” Smith says.

The image and realization that manufacturing is important *has* improved in the public eye, according to Arvin. Now it’s time for the manufacturers to validate this by continuing to produce the very best products.

Though no one knows what’s really in store for 2013, more substantial evidence should be collected by the time the industry regroups in Indianapolis for AGMA’s Gear Expo (September 17-19, Indiana Convention Center).

“Predicting the future is beyond my abilities, but I do believe that our industry has many very talented and clever individuals,” Franklin says. “The manufacturers of machine tools, tooling and related products will continue to push the envelope. Customers will continue to be demanding—as they should—which will drive our industry to bigger and better solutions.” 



Dylan Smith,
Vancouver Gear Works