

# Goldstein's Paradox

—AND WHAT WE'RE DOING ABOUT IT

I just got off the phone with an associate of mine at a large gear manufacturing company. I was congratulating him on being awarded a new contract when he told me that they had just experienced a substantial downsizing.

As we went through the list of *Gear Technology* subscribers at his plant, I had to remove almost half the names, including a fair number of high-level engineering and management titles, because they were no longer there.

I shouldn't be surprised at the layoff, though. The shrinking of the manufacturing sector has been well publicized. For example, according to a recent *Business Week* article, manufacturing industries cut an average of 26,000 workers per month through the first 10 months of 1999.

Despite this shrinkage of the workforce, manufacturing continues to grow in terms of sales volume and actual output. This is as true in the gear industry as in other manufacturing sectors. In its September/October newsletter, the American Gear Manufacturers Association published numbers from the 1997 U.S. Economic Census. These numbers indicate that open gear manufacturers employed just over 16,000 workers in 1997, compared to more than 25,000 in 1977. However, over the same time period, the value of annual product shipments rose from \$2 billion to \$2.4 billion (in 1997 dollars).

One set of numbers makes it look like the gear industry is doomed to fade away, while the other demonstrates its continued health. That's Goldstein's Paradox, Part I.

The explanation is really quite simple: We've gotten much more productive. I liken the situation to that of agriculture in our country's early history. With today's modern farming equipment, one worker produces far more wheat, corn or rutabagas than his predecessor of a century ago. What used to take the manual labor of many—ploughing, digging, planting and harvesting—is now accomplished by a few using equipment and technology.

Now we're seeing the same thing in our own industry. It wasn't so long ago that every gear machine had an operator standing by it. Today, because of increased automation, better tools and CNC controls, a single operator can run several machines. In addition, today's rigid machines and carbide tools are capable of cutting much faster than earlier models. We've become more efficient off the shop floor as well. Years of investment in computers, software and processes for CAD/CAM, just-in-time inventory control, order processing and business management have resulted in huge gains in productivity, and the Internet will likely provide even greater productivity in the years to come. The result is that we can produce far more gears with far fewer people.

However, the demand for skilled gear industry workers is still very high. You'd think that with layoffs like those my associate on the phone described, there should be a lot of skilled gear people available for hire. But one of the biggest complaints I hear from gear companies is that finding skilled people is becoming harder and harder. That's Goldstein's Paradox, Part II.

One explanation for this paradox is that changes in technology make it a constant job just to keep up. Gear manufacturing companies are forced to continually train and retrain their employees. Education is important, but *continuing* education is crucial.

A couple of weeks ago, I visited the AGMA Training School for Gear Manufacturing, where I was not surprised to learn that demand for gear training is as high as ever. The classes are held at the campus of Richard J. Daley College in Chicago, where instructors teach machinists, engineers and others the basics of gear manufacturing in a hands-on machine shop setting. Other gear-related semi-

nars and classes on our technical calendar each issue seem to indicate that these types of programs are going strong as well.

Although the changing technology explains part of the paradox, another factor also plays a role. Although it seems logical that layoffs in the gear industry and a continual contraction of the workforce should provide for extra workers, unemployment in our country is at an all-time low. Most of those gear people are being absorbed by other industries.

It seems to me that our industry should do all it can to keep the skilled employees it already has. How does someone who's been downsized find a new job that takes advantage of his skills? How does a gear company know where to find the plant managers, gear engineers, operators, quality assurance people, sales engineers and others it needs? If we had some central place where the talent and the companies looking for it could communicate, we might be able to solve some of that problem.

That's why I've decided to announce something new being offered for free through *The Gear Industry Home Page™*. We've created an online service wherein qualified gear industry people who are out of work can post their qualifications and contact information at [www.geartechnology.com](http://www.geartechnology.com) at no cost. Managers at gear companies can locate the skilled workers they need, and employees who become the victims of downsizing or corporate restructuring can find employment that takes full advantage of the skills they've acquired.

This service is only for gear industry employees who have been laid off or have been given notice. A job seeker who wants to take advantage of our site must post the name of his previous employer and supervisor. We're not trying to create a situation where employees begin querying their companies' competitors for positions. We're trying to help recycle talent back into the industry.

This service can also be a benefit to the companies that are forced to cut staff. Very often, employees who get laid off are excellent, productive workers, who under other circumstances would still have their jobs. It's our hope that the managers or human resource departments of these companies will be able to help these workers find new jobs in the gear industry by making them aware of our free service and helping them post their information online.

Improving communications between employers and potential candidates will help solve part of the problem. By embracing the tools of the information age, we can help the gear industry build on the strength it already has.



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