



Entrepreneurialism and Survival in the Global Market

By Joseph L. Arvin, President, Arrow Gear Company

For those who have manufactured products in the United States over the past 30 years, I'm sure the words "global competition" cause a very uneasy feeling in the pit of their stomachs—and with good reason. Since the late 1970s, American manufacturers have been pummeled with the low prices of one foreign source after another.

At Arrow Gear, where I have worked since 1972, we have seen this seemingly endless parade of foreign competition. I well remember losing our first customer to a Japanese supplier in 1979. After Japan, it was the general Pacific Rim, then Eastern Europe. Now with India and China just getting under way, I don't anticipate an end to the formidable forces of foreign manufacturers in the near future.

It's certainly no secret that numerous American companies have gone out of business in the face of foreign competition in the past two to three decades. On the other hand, many manufacturers have survived. In the case of Arrow Gear, we have been fortunate to not only survive, but to thrive. So, what is the difference between those organizations that made it and those that did not?

In 2006, I spoke at the Illinois Institute of Technology (IIT) in Chicago. As a member of IIT's Manufacturing Education Advisory Board, I was more than happy to share my thoughts and experiences with these students. The subject was entrepreneurialism in manufacturing and how to survive in the global market.

Entrepreneurialism Defined

In preparing for my presentation, I first asked myself the question, "What is an entrepreneur?" I've always assumed that this was someone like James J. Cervinka, one of the founders of Arrow Gear. He and his business partner Frank E. Pielsticker had the vision of starting a gear company. They took the risk of investing their money—and in the end, saw profits from their risk. Certainly, this must be the definition of an entrepreneur?

I turned to Webster's dictionary for the official definition—and was somewhat surprised by what I saw. According to Webster's, an entrepreneur is a person who "organizes, manages and assumes responsibility for a business or other enterprise."

By this definition, the term entrepreneur is expanded to

roles other than that of a company's founder. In fact, as an employee, I had been charged with the role of entrepreneur through my assignment of organizing, managing and assuming responsibly for the company's growth. Taking this even further, I can cite many others at my company—including supervisors and managers—that fit this definition. After all, the success of a company translates not only to benefits for the owners, but to each individual that earns a living there.

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Entrepreneurship within a company includes those activities required to identify and introduce major innovations. Innovations can involve product, production, business systems or social systems.

I found this connection between entrepreneurialism and the general employees of a company to be very interesting. But this realization led to other aspects in my analysis of the subject.

Life Cycles of a Company

In understanding the relationship between entrepreneurialism and the success of a company, it is essential to understand the life cycles of a company. Many authors have described these cycles, so I will paraphrase from several sources.

First is the vision phase. This is when the founders conceive the concept of the business. Next is the startup phase. Here the enterprise begins and risk is assumed, typically in the form of time and financial investment. Following this is the success phase. This is when systems and people are in place and delegation becomes more prevalent.

However, the next phase—bureaucracy—is critical. In this phase, systems are becoming inefficient, and the company runs the risk of becoming a lumbering giant—unable to react effectively to changing markets and trends. Since a company cannot remain stagnant for long, the bureaucracy phase is followed either by further decay and decline or by the return

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to the vision phase as a way to continue building on the successes that have been accomplished thus far.

The field of American manufacturing has seen the toppling of many industry giants through a mix of changes of competition and the inability to respond by returning successfully to the vision phase. One of these giants was the Ohio-based machine tool manufacturer Warner and Swasey.

I visited Warner & Swasey in the late 70s and found that they were building new CNC machine tools with 50-year-old equipment. In 1981, I visited two major machine tool builders in Japan—Mazak and Toyoda. By sharp contrast, they were producing CNC machine tools using the latest state-of-the-art CNC equipment. Notably, Warner & Swasey, which was a clear leader in machine tool production, closed its doors in the late 1980s.

On the other hand, there are many examples of manufacturing giants that began to see their market share slip to foreign competition, yet they were able to return to the vision phase and effectively reinvent their operation and products in order to survive.

When I came to Arrow Gear, the company was about to enter the bureaucracy phase. The company owners recruited

me as plant manager to assist with the company's next phase of growth. They understood that there was a need to return to the vision phase. As James J. Cervinka has said on many occasions, "Dormancy is actually the first step toward decline."

Returning to the Vision Phase

Through the early years of Arrow's history, the company was well known for expertise in spiral bevel gears. While this expertise remains today, Arrow has continually added new capabilities and product focus through a long-standing tradition of reinventing itself.

In the mid 1970s, Arrow began investing heavily in new equipment and the latest manufacturing technologies. This philosophy has continued through the present day.

As for product offering, the next phase of change also came in the mid-1970s with the addition of spur and helical products. In the early 1980s came expansion of the aerospace customer base, and by the mid-1980s, Arrow began pursuing the European market. By the mid-1990s, one third of Arrow's products were being shipped to Europe.

And by the late 1980s, Arrow saw the opportunity to move into complete gearboxes for the aerospace market and began



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A key aspect of Arrow's success has been the high degree of technology in our production facility. In the early 1990s, we introduced the world's first fully integrated closed-loop system for design, manufacturing and inspection. This involved the direct linking of design computers with machine tools and inspection systems. The increase in efficiency and productivity was dramatic.

Another benefit of this proactive, state-of-the-art approach to manufacturing was that Arrow could now offer advanced capabilities for design and development—a capability that even now is offered by only a select handful of gear companies. Our decision to implement this technology was based on our observations of the industry. In the late 1980s, we saw that aerospace OEMs were getting away from doing their own gear design. As this trend became more widespread, Arrow was positioned to provide this valuable service to our customers, and this capability continues to be one of Arrow's major competitive strengths.

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Finally, in the 2000s, we started going after overhaul and repair work and spare and replacement parts for military and commercial aircraft.

In all, Arrow Gear today is very different than it was in the early 1970s. I am convinced that had Arrow not made these changes, we too would have closed our doors many years ago. This ongoing reinventing of ourselves has been instrumental in our ability to survive the onslaught of foreign competition. The success of this approach is clearly demonstrated by Arrow's survival and growth during a period when the overall U.S. gear industry has shrunk by two thirds.

Understanding the Competition

In today's gear industry, there are primarily two basic types of work—high-volume/low-quality and low-volume/high-quality. Early on, we saw that the work going offshore was high-volume/low-quality. After all, this type of work is not as dependent on skilled labor and was more easily sent offshore. This is exactly what happened—first with Japan, then the Pacific Rim, then Eastern Europe, and more recently China and India.

Arrow saw this trend early on only because of our return to the vision phase, when the current market was assessed and the question was posed, "How do we change in order to

compete within a changing global market?"

How long can this parade of foreign competition last? Will there come a time when there is no longer a region of the world with significantly lower labor costs? Unfortunately, this dynamic will probably remain as the status quo for quite some time.

To explain this, we need to look at the first serious foreign competitor, which was Japan in the 1970s. Japan had a much lower labor rate than the United States. In fact, on a tour of Japanese manufacturing facilities in 1981, I was told that the average labor rate at that time was \$3.25 per hour (in U.S. dollars), while Arrow was paying \$12.75. But eventually, the standard of living rose in Japan, and increased labor rates followed. By 1997, the labor rates in these Japanese facilities had climbed to \$18.00, which was the same as Arrow Gear. This process took approximately 16 years—and it was a very difficult playing field during that time.

But as competition with Japan began to level, the cycle started all over again with manufacturers throughout the general Pacific Rim. As with Japan, the standard of living and labor rates in these areas are increasing to a more level playing field with U.S. labor.

Now, we face fierce competition with China, which obviously has a low labor rate. I was in China in the fall of 2006. At that time, the average wage for a factory worker was \$1.25 per hour (in U.S. dollars); the engineers and supervisors were paid \$2.25 per hour, about \$5,000 a year. But how long will it take for China to catch up with U.S. labor rates, leading to a more level playing field? Unfortunately, the answer most likely lies in the volume of the population.

Japan's population during the period of 1970 through 2000 was an average of around 115 million. As stated before, it took 16 years for the increased manufacturing revenue to impact the standard of living for 115 million citizens.

By contrast, with its 1.3 billion citizens, China has more than 10 times the population of Japan. The question is, if it took Japan 16 years, how long it will take China's labor rates to rise to levels comparable with the United States? I believe it will take much longer than 16 years. This means that American manufactures will have serious competition well into the future.

The Life Cycle and Leadership

As it is most certain that foreign competition will not fade in the near future, it is essential that American manufacturers take carefully planned steps to remain competitive.

Foremost among these measures is the avoidance of succumbing to the bureaucracy phase. Instead, it is essential to continually return to the vision phase. This is easier said than done, however, and a key part of this process is leadership. To

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avoid the gap between senior management and the frontline workers, leadership requires effective communication skills in guiding the organization's return to the vision phase. It requires successful promotion of the entrepreneurial spirit throughout the company.

The old "Theory X" management style was to dictate your directions to subordinates and make sure they did what they were told. While this might work to some degree, more often, it will merely create a company of drones that only do what they're told. If all managers were omnipotent geniuses, this approach would be effective. But since managers don't always possess these qualities, it is essential to rely on the resources of people in the organization.

A company that can successfully return to the vision phase will have a roster of employees who are active resources with the ability to organize, manage and be responsible. The key to this is communication, empowerment and accountability.

When a manager is faced with a challenge that requires directing people, it is important for that manager to first provide the people with a background on the issue and specify the objective. Then the manager can proceed with presenting the plan—being mindful to allow for discussion on how the

objectives can be met. This environment will promote good ideas and buy-in.

There are many tools for this type of communication, including meetings, presentations and printed documents. The company includes many people that all want the enterprise to work. After all, if the company is not successful, the paychecks will eventually stop for managers and employees alike.

I've seen many times where the front-line worker has ideas and information that the top level managers don't have. Always remember that a successful manager cannot ignore this valuable resource.

Conclusion

The bottom line is this: Foreign competition will be with us for many years to come. To survive in this environment requires that all members of an organization embrace the concepts of entrepreneurialism, understand the lifecycles of a company and continually be aware of how the organization can offer services that the competition cannot. The low labor rate of foreign competition is a significant variable of the formula. But it's not the only variable, and it can be overcome. ○

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