

Global Manufacturing

The World Has Changed, But the Fundamentals of Success Have Not

By Andrew N. Liveris

FOR MANUFACTURERS IN GENERAL AND THE CHEMICAL INDUSTRY IN PARTICULAR, FOUR IMPORTANT TRENDS ARE DRIVING THE WAY WE LOOK AT THE WORLD AND HOW WE RUN OUR COMPANIES.

The first is globalization, which is something that has been going on for a while. What is new, however, is its accelerating pace. In the 1990s, we witnessed the fall of the Soviet Union (and centralized planning), and the subsequent rush to free markets, including the elimination of many barriers to trade. Today, we think of the world as one huge single market, rather than an aggregation of regions and blocs.

The implications of a single world market – which is unique in human history – are enormous. In general, globalization is very good news because it means more trade, better utilization of capital and labor and, ultimately, a higher standard of living for hundreds of millions of people whose economic systems have precluded them from the large scale wealth creation that free markets have long ago proven effective at generating.

Tougher Competitors and More Demanding Customers

But globalization has also been something of a shock for two reasons (trends numbers two and three).

One is the competition it has spawned. In a single world market, companies from every corner of the world are competing with one another. Rapidly disap-

pearing are the days when weak companies can hide behind trade barriers and other forms of protection. This is bad news for companies that are not competitive. Even for the strong, the competition is daunting. In every industry – whether in the manufacturing sector or the service sector – there are competitors out there who are finding ways to make and do things better, faster and more efficiently.

The third trend has to do with the advantage customers have gained. A more competitive world means that customers have more choices. They demand – and get – the best products at the lowest possible price. In this, they are greatly aided by the information explosion, which has largely taken the mystery out of the price-quality equation. Just as automobile buyers can surf the Internet for the best price on the car of their choice, so can the industrial buyer of plastics, chemicals, steel and other commodities – as well as the finished products that consumers find in the “big box” retailers like Wal-Mart and Costco. The power of the buyer has never been greater.

High energy costs

The fourth and final trend is the price of energy, which affects all manufacturers, but particularly the chemical industry, because we use natural gas and oil not only to power our plants but as raw materials to make our products. Almost since the beginning of their widespread use in the early part of the 20th century, the price of oil and natural gas has ebbed and flowed. That has changed. We believe that for a variety of reasons, including greater demand from emerging economies like China and India, the

price of oil and gas will remain at a permanently high range until some alternative form of energy is found that is economical, widely available and easily useable. That development is somewhere over the horizon.

To get a sense of the impact of high energy prices, consider the fact that in 2002, energy accounted for 29 percent of Dow Chemical’s overall costs; in 2005 that number was 50 percent. The problem is particularly egregious with natural gas in the United States, where prices have risen dramatically, particularly as compared to the rest of the world. Dow spends \$12 billion a year in energy costs in the U.S. If we moved our U.S. plants to Germany, we would spend \$7 billion a year. If we moved them all to the Middle East, we would pay \$1.5 billion a year. Fortunately, for our company, we have plants throughout the world and can therefore take advantage of low-cost manufacturing in various regions. And we have also improved our company’s energy efficiency by 42 percent since 1990.

Sad to say, the high price of energy in the U.S. is not a resource problem; it is a public policy problem, largely brought on by government’s having encouraged the use of natural gas where other fuels could be used more efficiently, while at the same time discouraging efforts to increase the supply of natural gas, such as responsibly drilling in the outer continental shelf, where there is enough gas to meet U.S. energy needs for 20 years. Energy is a problem that is eminently solvable: through greater exploration, more conservation and greater use of other fuels. It is a problem that government created and that government must solve.



None of this is to say that U.S. industry cannot compete – and win – in the world economy. History tells us that no country has been more successful economically than the U.S. This country is, in fact, a model for the rest of the world in that its businesses have always been good at the things that count: innovation, productivity and rewarding the people and organizations who are the best at competing. In a single world market, these things are more important than ever and they are all generated by the people who work in our companies, in our universities and in our government. When all is said and done, the quality of our workforce is the one true lasting source of competitive advantage.

The Role of Manufacturing

Where does manufacturing fit into all of this? Too often, it seems to me, we think of economic activity as being divided into two parts: the manufacturing economy (those of us who “make stuff”) and the service economy (those of us who “think and do stuff”).

This line of thinking inevitably leads to the observation that developed economies, such as those of Europe and the United States, are increasingly more service oriented while developing economies are “taking over” manufacturing. China, for example, is often referred to as the new “shop floor of the world.”

When taken to the extreme, this viewpoint misses an essential fact: that the manufacturing and service sectors are so closely integrated that separating them is something of an academic exercise... in other words, “thinking about stuff, making stuff and doing stuff” are inextricably linked.

To get a sense of the linkage between

manufacturing and service, consider the fact that a dollar of manufactured products generates about \$1.40 in other economic activities, mostly services, which translates to jobs. The U.S. chemical industry, for example, employs about one million people directly and another five million indirectly – those involved in everything from transporting our products to supplying the software in both our plants and offices.

Manufacturers are also the source of two thirds of all privately-funded research and development in the United States, which benefits all parts of the economy, not just the manufacturing part of it. While most people associate R&D with new product development, new process development is of equal importance, which explains why over the past two decades the increase in manufacturing productivity has been double that of the service sector, increasing this country’s ability to compete globally and to finance higher salaries and wages for employees.

It’s Still About Science


When you think about it, R&D is nothing more than the application of science.

For example, those of us who have spent our careers in the chemical industry are reminded on a daily basis of the benefits society derives from chemistry. Chemistry is directly responsible for the successful production of food that sustains an ever growing population. It is largely because of chemistry that Malthusian predictions of population growth outstripping the capacity to feed the world have proven wrong.

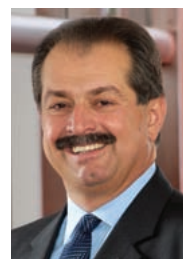
And we also play a major role in the sanitation and purity of food and water.

The chemical industry is likewise a key player in such diverse activities as developing better medicines... creating lighter, stronger materials that make cars more energy efficient and computers smarter and better. In fact, it is hard not to encounter hundreds of our products in the course of an ordinary day: from the ink on our morning paper, to the carpet beneath our feet, the roof over our heads, the parts that make our cars run and the detergents and machines that clean our clothes.

Now our industry is pursuing the exciting possibilities of biotechnology, which may well usher in a whole new scientific and economic age, similar to the influence of the industrial age of the last century and computerization in the post-war era.

As we enter this new era, we need to occasionally remind ourselves – and the public – that chemistry as a science and chemicals as an industry are integral to our way of life, and most importantly, essential to advancing living standards throughout the world. In a very literal sense, neither life as we know it, nor life itself, would be possible without chemistry. 

ABOUT THE AUTHOR



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