

Major Automation Companies—The Good, The Bad and The Ugly

Introduction by John Berra

I have spent the last 34 years working in the process automation industry, first as an end user and then as a supplier. During that time, the face of automation has changed many times, and it will change even more in the future. The automation companies that stand in the leadership position today have arrived there through a series of twists and turns that no strategic planner could have anticipated. It is a history that is equal parts fascinating and frightening. There are stories of growth and success, and stories that go in the other direction. Throughout this time, there have been some trends that have shaped the environment in which the major automation companies now find themselves. Some of the companies have adapted to these trends, and actually have exploited them to gain market position. Others have not been able to adjust. Here are some of the trends that have shaped the automation world.

- Acquisitions and Consolidations
- Globalization
- Migration to Commercial Technologies
- Solutions
- Bottom Line Pressure

Let's look at each of them.

Acquisitions and Consolidations

There is no doubt that one of the most powerful changes in the last couple of decades is the consolidation of end-user companies. Mergers have dominated the landscape in the oil & gas, refining, chemical, pulp & paper, and pharmaceutical industries. Even electric power has seen major consolidations.

The impact of all of this consolidation has been profound. First, there has been a lot of capacity taken out of the system. Plants have closed for good. Engineering staffs have been reduced. Merged companies have used their new-found purchasing power to exploit their volume and put price pressure on their suppliers. The need to get a return from these consolidations has unleashed major restructuring and has forced companies to demand an eco-

conomic return from their automation investment. Automation companies can no longer focus on their technology alone—everything must translate into an economic benefit for the customer.

Consolidation in the automation market mirrors the consolidation of the end users. Emerson Process Management is the result of a merger of Fisher and Rosemount under Emerson, along with many other companies. ABB combines Elsag Bailey, Hartmann & Braun, Fischer & Porter, and Asea, as well as many others. Consolidation is not easy. Many of the automation companies are still dealing with the multiple cultures and management styles. Some companies have quickly killed the brands that they have acquired; others keep them going. The mating dance of elephants has never been very graceful.

Globalization

This term is overused today. Everyone presents themselves as global. However, there is no doubt that success in automation means doing business in a consistent way anywhere in the world. The consolidation of the end users mentioned above resulted in mega-companies who build and operate plants around the world. They want to deal with an automation supplier who can mirror their deployment, country by country. They want to deal with an automation supplier who can offer them a consistent experience.

Globalization has also meant the steady movement of new investment outside of North America and Western Europe. The major automation companies are true global players. They manufacture products, write software, engineer solutions, and invoice customers everywhere in the world. The challenge has been to make consistent profits while expanding the base of business to all world areas. The challenge has also been to sustain a company's beliefs and values in all locations, yet still adapt to the customer needs of the local market. The German way does not work in the U.S., just as the U.S. way doesn't work in Germany. Neither way works in China.

Migration to Commercial Technologies

Some time in the early 1980s, I was given a tour of the Exxon Baytown Olefins control room. It was the state of the art. Large circular consoles made of stainless steel housed countless CRT's. A closer look would have revealed that those CRT's were responding to a custom keyboard with dedicated function buttons. Behind those CRT's were proprietary controllers on proprietary highways communicating in proprietary protocols to proprietary I/O. The software inside had a proprietary operating system. Life was good for the DCS supplier. The supplier controlled all facets of the system. In most cases, the supplier even made the circuit boards in his own plant.

If we fast-forward to today, the approach in that '80s control room looks like big iron. Today's automation systems operate more and more on com-

mercial platforms using commercially available components and standardized protocols. The big iron approach was doomed on several fronts. First, the explosion of information technology created commercial components, which really weren't all that different in functionality from the proprietary products of the past. Second, the commercial volumes drove costs down to the point where a proprietary approach just could not compete.

The result of all this is that major automation companies are really not manufacturers anymore. They are integrators. The differentiation comes from the software and architecture, as well as the services and applications.

Solutions

In the good old days, a control system engineer had a set of trusty ISA specification sheets. These were four-column sheets, which enabled the complete specification of four differential pressure transmitters, for example. ISA had a complete set covering controllers, recorders, instruments, and valves. Automation engineers really dug into the differences among suppliers and competitively bid out each type of product. The major oil and chemical companies also had large staffs of people who could attend to the control strategies and applications. For the most part, an automation supplier supplied products.

The dramatic downsizing of end user engineering staffs, along with the rapid change of technology, has created the need for automation suppliers to go beyond their products. End users today want what's called a "main automation contractor". This means the automation supplier takes full responsibility for the front-end engineering, control strategies, equipment and software selection, installation, and start-up. This trend has been a big change, and some of the automation suppliers have moved with it. In addition, independent system integrators have flourished. Many of these are made up of the former employees of a downsized company. It is ironic that Chemical Company XYZ would lay off its engineers only to find that several of them banded together to form a company, which in turn contracts with the very company that let them go in the first place.

Bottom Line Pressure

Certainly, there is nothing new about this. All businesses face this every day. But the convergence of the forces listed above has put tremendous pressure on the automation suppliers. Operating profits for many of these companies are in the low single digits. The mergers and management changes have really made it tough to deliver consistent profits. This pressure has resulted in many of the companies cutting their technology spending, as well as streamlining in other areas. The cutback in technology spending has not been good for the industry. At a time when the end users are demanding a stronger financial return from automation, many automation suppliers have very little in the way of new things to offer. Some are

employing a re-naming strategy to create the aura of something new.

So, where is all of this heading? I'm sure Jim Pinto will have some good observations from his vantage point as an industry veteran. Here are some of my thoughts on the future.

The Strong Get Stronger

In the next 5-10 years, some companies will either go by the wayside or be acquired. The global business does not seem to be big enough to sustain all of the current suppliers. There will always be room for small, specialty suppliers. It's the mid-size companies that will have trouble. The safest bet is that companies that have a consistent record of strong performance are likely to get stronger.

Industry Focus

Most automation companies have some form of industry focus today. Even though they are broad, each company has a sweet spot in, let's say, the refining industry or the pharmaceutical industry. Future survival will mean even more of this. Companies will narrow their focus by industry.

Advanced Control Really Scores

In the near future, advances in software and modeling will finally bring advanced control to the masses. If you think about it, we have relied on the venerable PID control algorithm for too long. There are a host of other techniques that can work better. The problem has been that these techniques have required really knowledgeable people to set them up and keep them running. Sophisticated software will diminish the need for these experts. The user friendly advanced control will deliver solid economic benefits to end-user companies at a time when they really need them.

Remote Monitoring

Today, the major supermarket chains have monitoring equipment on their refrigeration cases that sends data over the Internet to a monitoring center. They know if the hamburger is getting too warm, even if the store is closed. Yet, most process companies today can't see what's going on in a plant from outside the plant. This will change. Companies cannot afford to have experts everywhere, so they will opt for remote monitoring capability, so that their experts, or third-party experts, can see exactly what's going on and help troubleshoot, even from a hotel room across the globe.

I strongly believe we are at the beginning of what will be a crucial five years for the automation world. Automation holds the key to improved productivity, better safety, lower costs, and greater competitiveness. Yet there is reluctance to try anything new. In the next five years, automation end users and automation suppliers will need to work together to justify the benefits of what they do. In addition, end users must recognize that, in the last

analysis, automation is the best investment they can make. No other investment can deliver so much for so little. Finally, both end users and suppliers need to get back to valuing innovation. The innovation factor has gone down in our industry. This is one of the reasons why ISA attendance has gone down, and the number of people entering the automation profession has diminished. There is so much more that can be done.

About John Berra

John M. Berra is President, Emerson Process Management and Executive Vice President, Emerson. He previously was Executive VP of Emerson Electric Process Group and President of Fisher Rosemount, responsible for this industrial automation leader for over a decade. Berra initially joined Rosemount in 1976 as marketing manager, after beginning his career as an end-user at Monsanto. He has played a major role in the development of three major manufacturing communications protocols—HART, Foundation Fieldbus, and OPC. He is currently Chairman of the Board of the Fieldbus Foundation and was Chairman of the Measurement, Control, & Automation Association (1988-90). At ISA 2002, he received ISA's "Life Achievement Award" in recognition of long-term dedication and contributions to the instrumentation, systems, and automation community. First given in 1981, as of 2001, only seven people had received the honor.