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*John Berra began working in 1969 as an instrument engineer for Monsanto. He recently retired after a distinguished career that included championing industry standards such as HART and FOUNDATION fieldbus and serving as president of Emerson Process Management.*

As part of the automation industry for 41 years, I have seen significant changes in technologies and applications. One of the biggest has been the direct impact of automation on overall plant maintenance.

Forty years ago, the automation system controlled the process, and that was it. There was no direct connection to maintenance. But as digital technology brought new capabilities to field instruments as well as automation systems, people started asking, "What else can we do with this?"

The result is today's embedded diagnostics and predictive intelligence. Now we can use the intelligence built into our instruments, pumps, motors and other equipment to shape our maintenance strategy. We can use predictive intelligence to detect when something's going wrong and fix the problem before it grows. We can identify frequent offenders and focus our efforts where they will do the most good. We can even eliminate unnecessary maintenance—*in cluding the ever-popular "no fault found" maintenance trip.*

Another big change has been in the knowledge required of maintenance engineers and technicians coupled with the scarcity of people who have that knowledge. Maintaining yesterday's pneumatic controls took mostly mechanical skills. Today's maintenance worker, though, also has to know electronics, networking, software and more.

At the same time, a lot of people my age are exiting the workforce. We've built up a lot of knowledge and experience that newer workers don't have yet.

One way to fill these experience and expertise gaps is through knowledge management—*not*

*just documenting best practices, but using technology to leverage the experts we do have, wherever they are*
. These days, it's not unusual for a compressor expert in London to troubleshoot a compressor in Indonesia.

Wireless technology also makes it easier for workers to get the information they need. For example, technicians can temporarily instrument a unit to gather troubleshooting data, then easily move the wireless instruments to the next place they're needed.

Maybe the most important maintenance tool of the future will be a wireless tablet—*something along the lines of an "industrial iPad."*
It will give workers an instant view of what's happening in the plant and the ability to "talk" to a piece of equipment to see what's working right and what's not. They can use it to access drawings and instructions, check with the OEM for recommended practices, even order parts, all from the plant floor.

Technologies like these can be especially important for plants in developing markets, where it's hard to find experienced maintenance personnel. However, even mature-market plants built decades ago can leverage these types of new tools and methods to get the most out of their dwindling staffs and aging assets—*and compete with all those brand-new plants!*

I'm glad to see more and more companies view maintenance as part of an overall strategy for competing in a global marketplace. Maintenance can no longer be just what you do when something breaks, as it often was when I started my career. Now it is how you improve reliability, safety and production to gain a competitive advantage.

Looking back is fun, but looking forward is better. Someone once said that the best way to predict the future is to invent it. I'm confident that the innovators will continue to invent a better future for all of us. **MT**

***The opinions expressed in this Viewpoint section are those of the author, and don't necessarily reflect those of the staff and management of Maintenance Technology magazine.***

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