

Inside Yokogawa's shift from optimized to adaptive automation

By Len Vermillion

For most of the last half-century, industrial automation focused on one question: how efficiently can a plant run when conditions behave as expected? At YNOW2026, Yokogawa's Flagship Users Conference & Exhibition in New Orleans, Sundee Saraf posed a different question, which he believes will define the next 50 years instead.

"How effectively can I continue operating and creating value when conditions change?"

As Head of Global Sales & Marketing, Yokogawa Products HQ, Saraf sits at the intersection of Yokogawa's field instrumentation, connectivity and edge-computing strategy. He's close enough to customers to see where their pain lives, yet close enough to engineering to

shape what gets built in response. In a wide-ranging conversation, he laid out a philosophy that reframes what "performance" means in industry; a philosophy that factors in the harmonization of people and progress.

"Efficiency will remain fundamental," Saraf said, "but the next era of industrial automation will increasingly be defined by adaptability—the ability to continuously create value as resources, operating conditions and the environment around the business change."

It's a philosophy built around measuring accurately, understanding continuously, adapting intelligently and creating collaboratively. In sequence, they describe a plant that no longer simply runs, but rather responds.

Convergence of pressures

Saraf believes what is driving Yokogawa's product roadmap today isn't a single technology, but a collision of demands hitting customers simultaneously.

"We are seeing several challenges converge at the same time," he explained. "Customers are being asked to improve reliability and productivity, reduce energy and resource consumption and manage increasingly complex operations—all while experienced personnel are retiring and specialized technical knowledge is becoming more difficult to replace."

That convergence, he argues, has quietly changed what customers want from a supplier. "Customers do not simply need another measurement point; they need greater confidence in their operations," Saraf said. "For Yokogawa, that means innovation increasingly centers around three things: trusted

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measurement, greater intelligence at the field and edge and making that intelligence easier for people to use.”

Zoom out further, and Saraf sees three structural forces reshaping the operating environment: resource constraint, deepening interconnection across systems and suppliers, and sheer informational complexity. “Industrial organizations are generating more information than any individual operator or engineer can interpret manually,” he said, while noting that more automated decision-making raises the stakes on trust.

“The more decisions we delegate to analytics and automation, the more important it becomes to know that the information those systems are using is accurate, reliable and understandable.”

Trusted measurement is the foundation

Automation and artificial intelligence don’t make measurement confidence less important. They make it existential.

Customers increasingly want information that helps them understand whether measurements can be trusted and whether something in the process, equipment or instrument is beginning to change, according to Saraf.

That means device diagnostics, verification, secondary variables and condition trends layered on top of the raw signal. Analytics and AI are only as reliable as the information being provided to them. “We increasingly think beyond simply generating data and building measurement confidence,” he noted.

Yokogawa’s newest pressure-transmitter platform, the EJX S Series, is offered as the clearest expression of that idea in hardware. EJX S is a good example of how Yokogawa is combining what customers have historically valued with what they will need in the future, according to Saraf. Accuracy and long-term stability remain non-negotiable, but “as operations become more autonomous, that measurement confidence becomes even more important. When analytics and higher-level systems are increasingly consuming field information directly, the quality and health of the measurement become part of the automation architecture itself.”

And he’s insistent that the value isn’t in the spec sheet. “Customers ultimately do not invest in a specification. They invest in an operating outcome,” he believes. “The question becomes not simply, ‘How do we improve the instrument?’ It becomes, ‘How can this instrument reduce the customer’s operational burden and help create a more resilient operation throughout its lifecycle?’”

Data collection to continuous understanding

The evolution from periodic inspection to always-on condition monitoring is one of the clearest proof points of adaptive operations already at work. Yokogawa’s Sushi Sensor and broader Industrial Internet of Things (IIoT) portfolio are examples.

“Many facilities still rely heavily on scheduled inspections,” he said. “Those inspections remain important, but equipment does not necessarily begin to degrade when someone happens to be standing next to it.”

With vibration, temperature and pressure data trending continuously, the operative question shifts. “Instead of asking only, ‘Is this asset operating today?’, customers can begin by asking, ‘Is its behavior changing, and should we investigate before that change becomes a failure?’”

That shift matters most, he adds, when maintenance headcount is the scarce resource. If equipment condition can be understood continuously, maintenance resources do not have to be deployed solely according to a fixed calendar. They can increasingly be directed toward the assets that show evidence that attention is required. Saraf calls it a textbook case of adaptive operations.

Two layers, one objective

Saraf is direct about how information should move once it’s trustworthy. He draws a clear line between the permanent backbone of a connected plant and the tools used to service it.

“We see Ethernet-APL as an important foundation for extending Ethernet deeper into process automation,” he said, alongside OPC UA’s role in standardizing access to information as “operational and enterprise environments become more connected.” That combination is Yokogawa’s long-term direction to secure, scalable and interoperable Ethernet-based connectivity.

Saraf also points out that secure Bluetooth plays a different and complementary role—not a competitor to the plant-wide network, but a tool for the

technician standing in front of the device.

“Bluetooth can provide significant value for local commissioning, configuration, diagnostics, and maintenance,” he added, enabling technicians “to interact more efficiently with equipment while remaining complementary to the permanent communication architecture of the facility.”

New frontiers: water and data centers

Two markets serve as proving grounds for Yokogawa’s philosophy: water infrastructure and data centers. They are where the stakes of getting measurement wrong are rising fast.

On water, expansion of Yokogawa’s flow portfolio through the Adept line of flowmeters is more than a product line extension. “Water is a particularly important market because measurement has a very direct relationship with resource efficiency,” according to Saraf.

The bigger opportunity sits beyond the flowmeter itself. By combining reliable measurement with connectivity, verification, analytics and asset-health information, operators can move from simply measuring water toward understanding how efficiently and reliably the entire water infrastructure is performing.

The infrastructure supporting computing at data centers is becoming an industrial process. Saraf points to the collision of massive electrical load, liquid cooling and rapidly shifting operating conditions driven by AI compute demand. In many respects, these facilities

are beginning to combine characteristics we traditionally associate with a power plant and a semiconductor or advanced manufacturing facility—often without the decades of process-instrumentation expertise that traditional industrial operators have on staff.

That gap, Saraf said, reframes the central question facing data center operators. “The question becomes not simply, ‘How much data can we collect?’ It becomes, ‘Which data can we trust?’ Or ‘What has changed?’ Or ‘What requires human attention?’ And what complexity

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can the system safely manage itself?”

Innovation without abandoning the installed base

Given Yokogawa’s reputation for ruggedness and reliability, how does an industrial supplier move at software speed without breaking the trust built over generations of installed hardware? Saraf states that the answer is architectural, not philosophical.

“Consumer technology can sometimes operate with a philosophy of introducing something quickly and improving it afterward. Industrial environments are different. So, innovation cannot come at the expense of trust.”

The solution is to decouple the layers with a highly reliable measurement and control foundation, while creating communications, software and edge layers that can evolve more rapidly. “Customers need a bridge to the future, not a requirement to replace everything they already trust.”

Outlook

Saraf described a convergence over the next five years that includes deeper field-level connectivity through Ethernet-APL, instrumentation that reports on its own health as readily as it reports a process variable, edge computing pulling analytics closer to the equipment, and AI helping preserve expertise as the workforce turns over.

“The future is not simply about producing more data,” he explained. “Industry already has enormous amounts of data. The challenge is creating trusted, contextualized and actionable information.”

What defines the near future for industry? Saraf doesn’t hesitate to say, “I believe the next era will increasingly be defined by adaptability—the ability to continuously create value as resources, operating conditions, and the environment surrounding the business change.”

Trusted measurement provides the foundation. Connectivity makes it accessible. Condition monitoring and analytics build understanding. Edge intelligence brings that understanding closer to the process. Meanwhile, increasingly intelligent automation closes the loop and helps organizations not just withstand change but respond to it.

That’s the rhythm Yokogawa is now building toward. It’s as direct as “measure, understand, adapt, create.” ∞