

# Safety, simplicity and productivity provide the value needed in plant operations

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In today's manufacturing environment, process automation professionals must choose from a multitude of widgets and innovations to help their plants run more smoothly. This raises questions as to what makes a new technology or widget useful and not just another PowerPoint™ slide detailing features and benefits.

When researching the universe of process automation technologies, it is easy to get excited about something new and innovative. However, investing in new technology for the plant environment is much harder than upgrading to the newest smartphone. Many different aspects and effects of proposed improvements must be considered, including compatibility with existing systems, ease-of-use, cost/benefit ratio and other factors.

Before deciding to install the newest widget in the market, it is important to evaluate the everyday work and demands of the process automation professionals who are the end users of the equipment. How can this new technology make their lives easier, and why should they care about this new tool? While the reasoning may change depending on who in the plant one is talking to, simplicity, safety and productivity are interconnected points that provide a solid basis for evaluating new technologies. This sentiment is shown in the following examples.

## Improving instrument commissioning and operation with smart instrumentation

Smartphone apps are a relatively new tool in the industrial arena, although they have been in use for over a decade





**Figure 1** When Bluetooth connectivity is combined with onboard monitoring and verification software, technicians can see process data and diagnostics in real time.

in the consumer and commercial sectors. Many process plants experience problems with instrument commissioning and with ongoing operations due to a lack of readily available diagnostics.

Existing tools – ranging from pen and paper to frequent field visits – are not up to the task. To address these and other issues, some instrument vendors have introduced smartphone apps, allowing plant personnel to interact with process instruments via Bluetooth. The following details how this new technology can be used to improve safety, simplicity and productivity.

**Instrument apps make interactions with instruments safer**

With smart instruments, technicians do not need to open electrical panels or instrument housing to establish the connectivity required for commissioning and diagnostics. Commissioning wizards can walk a technician through the entire startup process, while ensuring that no steps are skipped. This is especially important for startup and verification of safety systems, where completing every step is essential for devices to function as intended (Figure 1).

Bluetooth provides connectivity up to 30 ft., eliminating the need for a lift in certain cases, while decreasing fall risks and job-site accidents. When combined with onboard monitoring and verification software, technicians can see process data and diagnostics in real time. This empowers them to make predictive maintenance decisions on the spot, further

decreasing the possibility of job site accidents due to equipment failure or product contamination. An often-overlooked aspect of safety is cybersecurity, which should be provided along with any Bluetooth app intended for use in industrial applications.

Features to look for include:

- Connectivity with a security level rating of at least “High” from an independent security specialist [e.g., the Fraunhofer Institute for Applied and Integrated Safety (AISEC)], which provides a level of security just below that of passports and credit cards.
- Passwords are never stored on the app or the instrument.
- Instruments can only be accessed wirelessly using the app.

Once paired with a handheld device, basic information – such as tag number, PV and instrument status – are visible to the technician without the need for a password (Figure 2). This provides visibility to basic information but with no ability to alter settings without the password.

**Smartphone apps make instrument interactions simpler**

Bluetooth communication eliminates the need for handheld communicators, which may require periodic updates. Guided commissioning ensures all bases are covered, converting a complex set of steps to a simple procedure. The ability to access the reports generated by verification and monitoring software makes documentation much simpler, as well. Rather than manually filling out a report each time a setting is changed or when an instrument is checked, technicians can

generate an “As Found” file before and an “As Left” file after assessing the instrument. This eliminates any questions about who made the adjustment or why it was made, which provides homogeneity among technicians.

### The right software improves productivity

Imagine walking all the way across a plant to the instrument shop, grabbing a communicator if there is one available, walking back to the other side of the plant and then climbing up the side of a tank only to discover that the handheld does not have the proper EDD or DTM file loaded to communicate with the instrument requiring service. This problem becomes even more pronounced in petrochemical plants and refineries because they are often spread out over wide areas and require a lot of time to traverse from one side to the other.

Once the technician has gone back to the instrument shop—either updated the drivers or grabbed a different handheld that has them preloaded—and trekked back to the instrument, diagnostic information can be accessed from the device. However, even after the diagnostic code(s) has been retrieved, another trip to the instrument shop may be needed to look up the diagnostic information unless the technician makes a habit of carrying around all the manuals required for each instrument. Once a decision is made about what to do with the instrument, it may require a part replacement or a call to technical support, forcing another trip back to the instrument shop.

Loading all the information contained in a manual into an app that is easily accessed and updated keeps technicians from having to go back and forth, increasing productivity and reducing frustration. The ability to access all technical information, manuals and diagnostic codes for specific devices through an app allows technicians to handle everything in a single trip to the instrument, as well as provides them the ability to retrieve any part number(s) or technical support they may need right then and there.

As shown in Figure 2, verification and monitoring software provides homogenous report generation, so technicians can document issues without having to type or open a separate laptop or other device. Everything is at their fingertips, quite literally. One single problem that may have lasted the entire workday now can be solved in a fraction of the time. New instruments should be assessed for their intrinsic value

While a smartphone app, along with verification and monitoring software, were used in this example, the guidelines of safety, simplicity and productivity can be used to evaluate any new instrument or innovation. Implementing the latest widget or tool in the market only matters if it provides intrinsic value to plant personnel. Investment in new products requires a specific need to be met, along with justification for changing standard operating procedures that may have been in place for decades. When all the above criteria are satisfied, enhancements are much more likely to provide expected improvements in productivity.



**Figure 2:** Today's smart instrumentation helps plants accomplish these tasks through built-in verification techniques traceable to known metrology standards.

### About the Author



Ashley David is a Product Marketing Manager for Endress+Hauser. She is currently focused on providing strategic vision, leadership and marketing direction of Endress+Hauser's level and pressure products, as well as leading and managing the development of business portfolio concepts and marketing plans. Previously, Ashley served as a Regional Business Driver

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