

Users sound off on industrial networking needs

Feeling ill-prepared for the demands of Industry 4.0, plants and factories are on the look-out for infrastructure technologies that can give business performance a boost

Out of sight, out of mind.

It's easy to imagine that much like a typical homeowner's benign neglect of the wiring, plumbing and HVAC systems that make modern life possible, industry's engineering and operations teams don't pay much attention to the industrial networking infrastructure that powers modern manufacturing. That is, until something goes wrong.

And while it's likely true that production problems due to network performance issues are quickly escalated for troubleshooting, the majority of industry users are proactively on the lookout for new networking infrastructure technologies that can boost business performance. Such are the conclusions to be drawn from a just-completed survey of *Control* and *Smart Industry* readers on their attitudes toward—and adoption of—industrial networking infrastructure technologies.

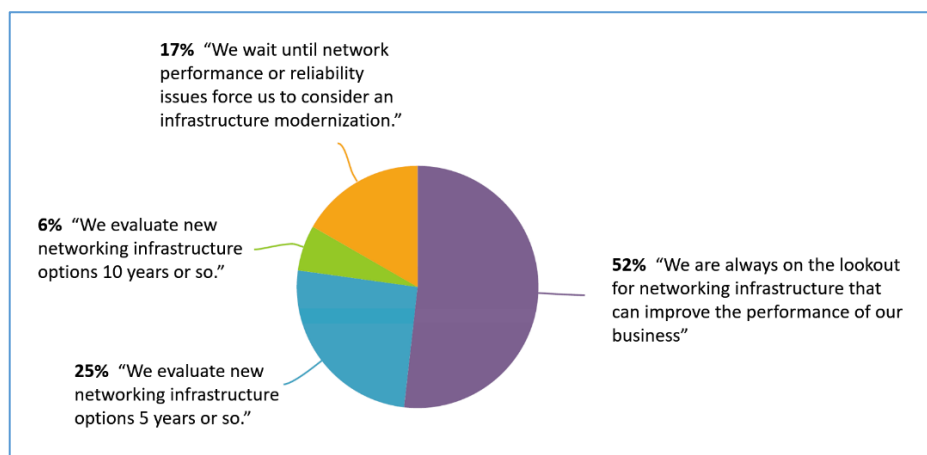


Figure 1. Which of the following statements best characterizes your organization's planning horizon for new plant-floor networking infrastructure technology?

As indicated in Figure 1, a full 52% of survey respondents indicate they are "always on the lookout" for networking infrastructure technologies that can improve the performance of their business. Another 31% of survey respondents say that they periodically evaluate their network infrastructure options every 5 or 10 years (25% and 6%, respectively). On the other end of the

spectrum, 17% of respondents are strictly reactive, waiting for network performance or reliability issues to force them to consider an infrastructure modernization.

Meanwhile, those surveyed universally agreed that reliability and performance are far and away the most important considerations when selecting a network infrastructure solution for use in manufacturing/production areas (Figure 2). Conformance with open standards and ongoing support services were the next most important criteria, followed by cost and turnkey implementation.

	<u>Critically important</u>	<u>Somewhat important</u>	<u>Not important</u>
1. Reliability	92%	8%	-
2. Performance	82%	18%	-
3. Conformance with open standards	51%	42%	7%
4. Ongoing support services	42%	50%	8%
5. Cost	29%	67%	4%
6. Turnkey implementation	19%	60%	21%

Figure 2. How important are the following considerations when selecting a network infrastructure solution for use in manufacturing/production areas?

We also asked a series of questions specifically about wireless networking infrastructure in production environments, starting with current technology usage (Figure 3) and the use cases driving the deployment of wireless. Not surprisingly, Wi-Fi was the most commonly used (84%) followed by commercial 4G/LTE (37%) and WirelessHART (29%). Private 4G/LTE and DAS, or distributed antennae systems, were reported in use by 21% and 14% of respondents, respectively.

	<u>Yes</u>	<u>No</u>	<u>Unsure</u>
1. Wi-Fi (wireless LAN)	84%	13%	4%
2. Commercial mobile (4G/LTE)	35%	54%	11%
3. WirelessHART (low-power mesh)	29%	60%	10%
4. Private mobile (4G/LTE)	21%	67%	12%
5. DAS (distributed antenna systems)	14%	75%	12%

Figure 3. If wireless networking is used in your facilities' production areas, which of the following technologies are in use?

In terms of the use cases driving the deployment of wireless infrastructure, mobile worker connectivity and the ability to easily add sensors for previously unmeasured parameters were most often cited (Figure 4). Mobile equipment communications (as for automatic guided vehicles, or AGVs, and forklifts), traceability of tools and other equipment, and personnel tracking for safety purposes all made the list of important use cases for more than 30% of respondents.

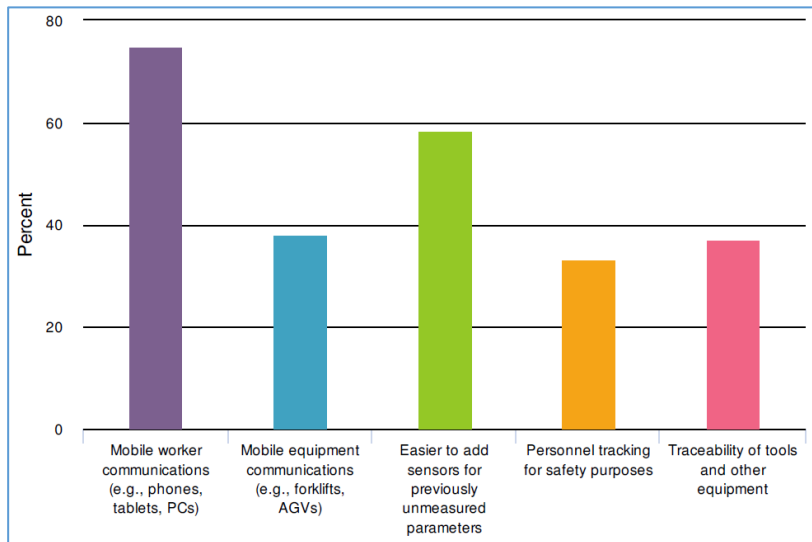


Figure 4. Which of the following factors are driving the need for wireless communications in your production environments? (Check all that apply.)

Interestingly, when it comes to decision-making on the use of wireless in production areas, it's most often up to engineering leadership, but IT and operations also carry sway in some organizations (Figure 5).

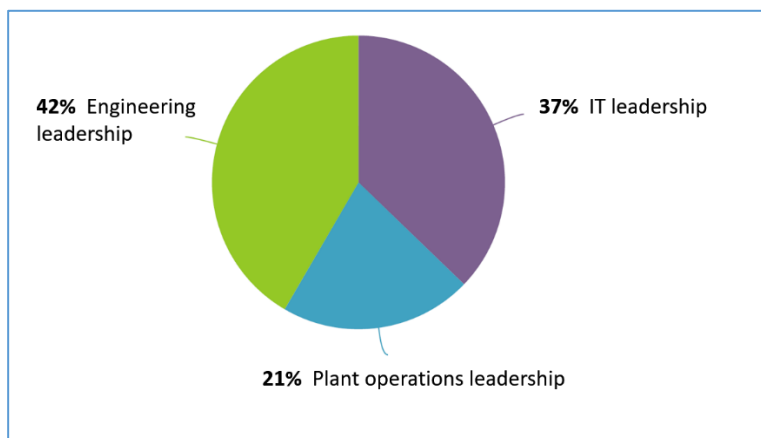


Figure 5. Within your organization, who is the key decision-maker on the use of wireless networking technology in production environments?

The final pair of questions in our survey focused on the evaluation and pursuit of key *emerging* wireless networking technologies, including 5G and the recently completed Wi-Fi 6 specification. While both of these options are under evaluation by about a third of survey respondents’ organizations, implementation of Wi-Fi 6 is being actively pursued by nearly twice as many—albeit still relatively few—respondents’ organizations as 5G (Figure 6).

	Not <u>considering</u>	Under <u>evaluation</u>	Pursuing <u>implementation</u>	<u>Unsure</u>
Wi-Fi 6	31%	29%	7%	33%
5G commercial	38%	29%	4%	29%
5G private	42%	23%	1%	33%
Citizens Broadband Radio Service (CBRS)	52%	11%	3%	34%

Figure 6. To what extent has your organization pursued the following emerging network technologies?

Finally, we asked our survey respondents whether they felt their facilities’ current wireless networking infrastructure was up to the task for handling the growing demands of Industry 4.0. A slight majority of respondents ranked themselves a middling “somewhat confident” (Figure 7).

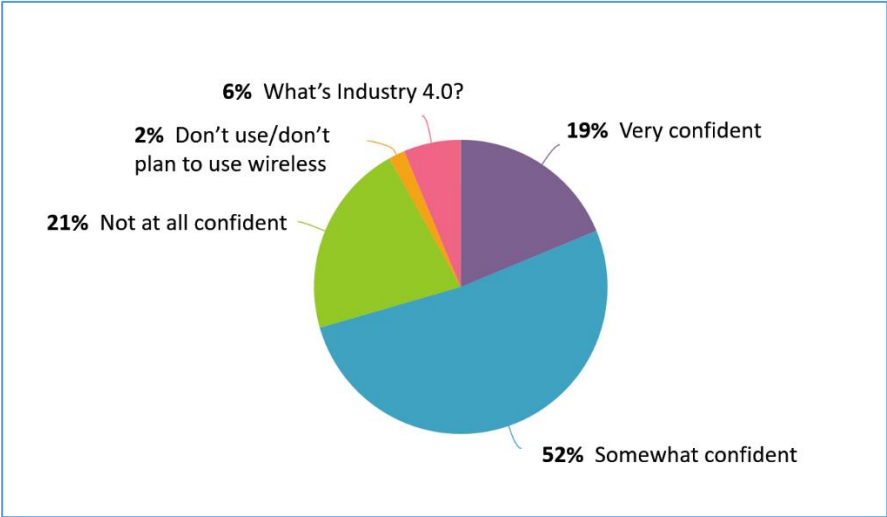


Figure 7. How confident are you that your organization’s current wireless infrastructure is capable of handling the demands of Industry 4.0?

Meanwhile, 1 in 5 were either “very confident” or “not confident at all.” Two percent reported their organizations have no intentions of using wireless, while 6%--presumably with tongue firmly in cheek—checked the box for “What’s Industry 4.0?”

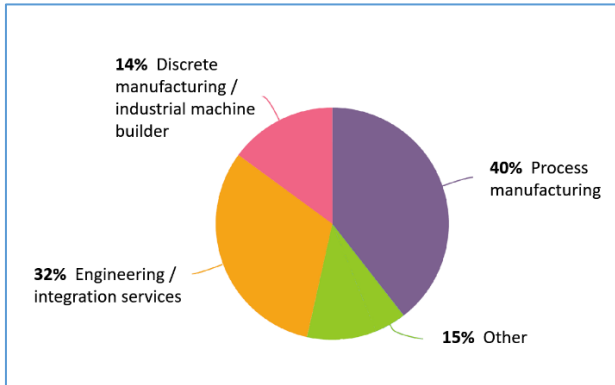
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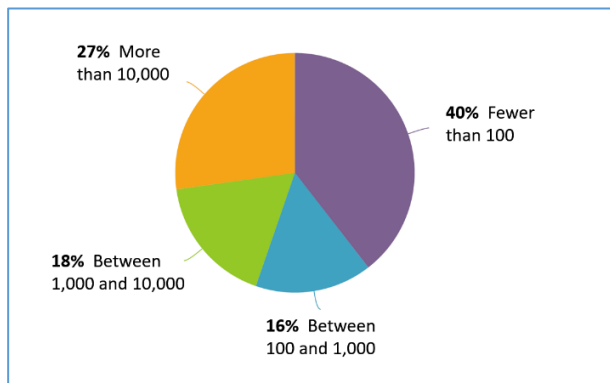
Survey Methodology & Respondent Demographics

In January and February of 2019, an email survey was sent to members of the *Control* and *Smart Industry* communities. A total of 114 survey responses were received, with industry, company size and job function demographics as follows.

BY INDUSTRY



BY NUMBER OF EMPLOYEES



BY JOB FUNCTION

