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2022

STATE OF THE INDUSTRY REPORT

Challenged by the COVID-19 pandemic, electrical contractors voice their concerns about the business climate.

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Introduction

Due to the global COVID-19 pandemic, electrical contractors have reported struggling with material delays and labor shortages, according to the State of the Industry Report presented by *EC&M* in partnership with ABB.

“I find a great many people reacting out of fear in regard to COVID,” one respondent stated. “It has slowed everything down and affected the supply chain and prices greatly.”

To take a close look at how the COVID-19 pandemic and other factors are affecting electrical contractors in today’s business climate, Endeavor Business Media, parent company of *EC&M*, conducted a research study from Sept. 15 to Oct. 13, 2021.

When we asked the 344 respondents about how the COVID-19 pandemic has impacted their business operations, we received hundreds of write-in comments about everything from mask and vaccine mandates to social distancing and business disruptions.

For example, one individual, who is at a higher risk for infection due to pre-existing conditions, has not been able to work for a year during the pandemic. Another faced distress about working in the field while wearing a mask.

“I need to wear a mask while working in an attic or tight space, where breathing is harder to begin with,” the individual stated. “The masks hinder it further.”

Due to regulations surrounding the COVID-19 pandemic, electrical contractors



faced a disruption to their business operations due to facility shutdowns and an inability to access customer sites. The majority of the respondents, however, were most concerned about employee absenteeism and the mandatory quarantine period following COVID-19 exposure.

“There is a huge increase in residential work and not enough people to meet the need in a timely fashion,” one person commented.

The electrical contractors also said the COVID-19 pandemic has slowed down their business operations due to the cancellation or postponement of jobs. One respondent has been “burned on jobs during 2020,” while another says developers and owners hesitate to release funding to start projects. “They are waiting for this to end,” the person stated.

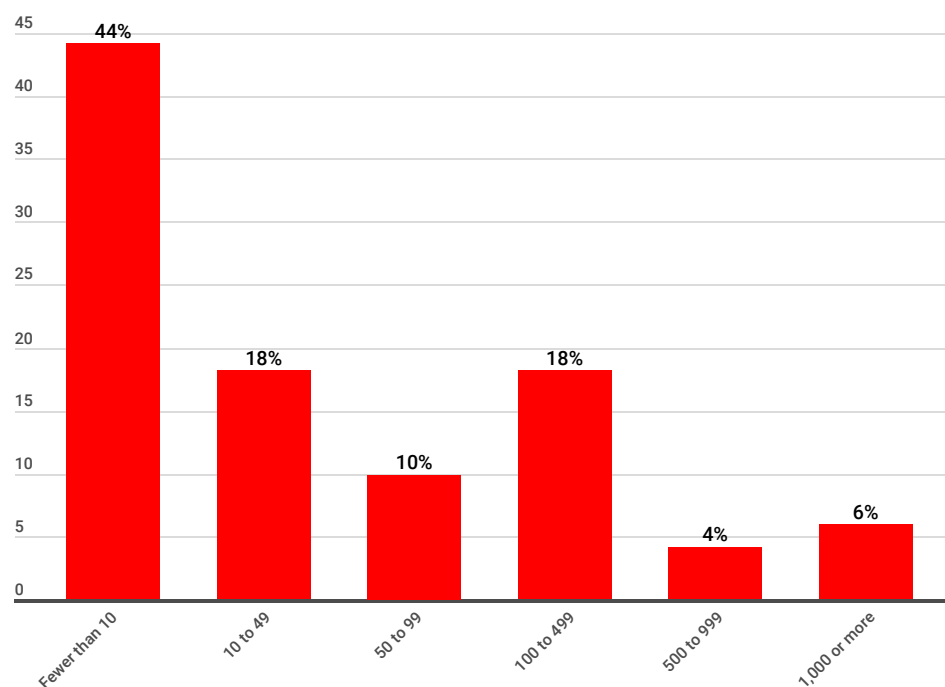
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Respondent Profile

EC&M and ABB, who have partnered on similar research reports in 2018 and 2020, explored five different areas in this year's study: factors impacting business growth, employee retention, training preferences, mobile device usage, and the impact of the COVID-19 pandemic. The following is an overview of the results from the research report.

Fig 1. Company Size, Number of Employees



Base: All respondents (n=344).



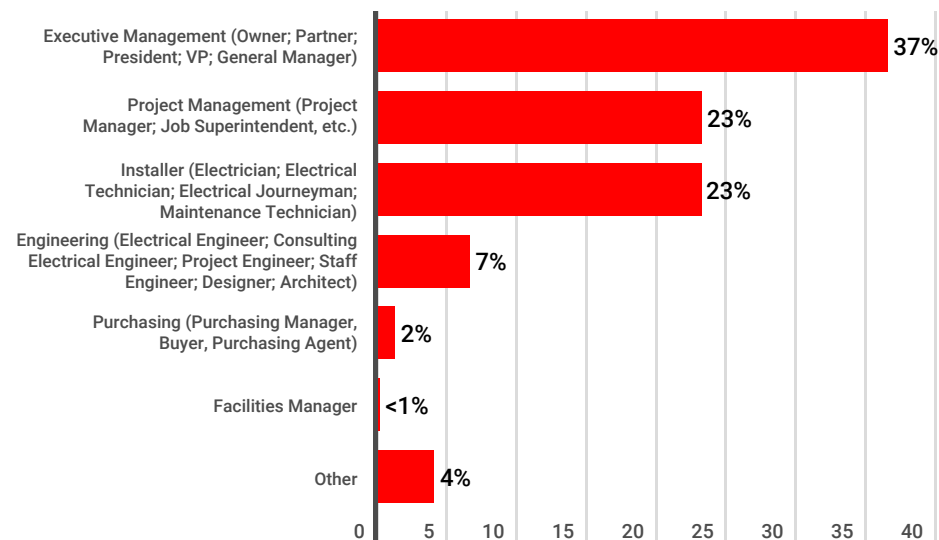
In addition to asking the electrical contractors about their views on the pandemic, we also asked them about their company's size and key markets. For the report on the needs and preferences of electrical contractors, the respondents who completed the survey tended to come from smaller companies. One in 10 respondents worked for a company with 500 or more employees while 44% worked for companies with fewer than 10 employees (**Fig 1**).

In terms of a primary job function, the largest percentage had executive management roles including owner, partner, president, vice president or general manager. Both the project management and installer categories captured 23% of the respondents (**Fig 2**). Job functions ranged from accountants to electrical inspectors to safety directors and instructors.

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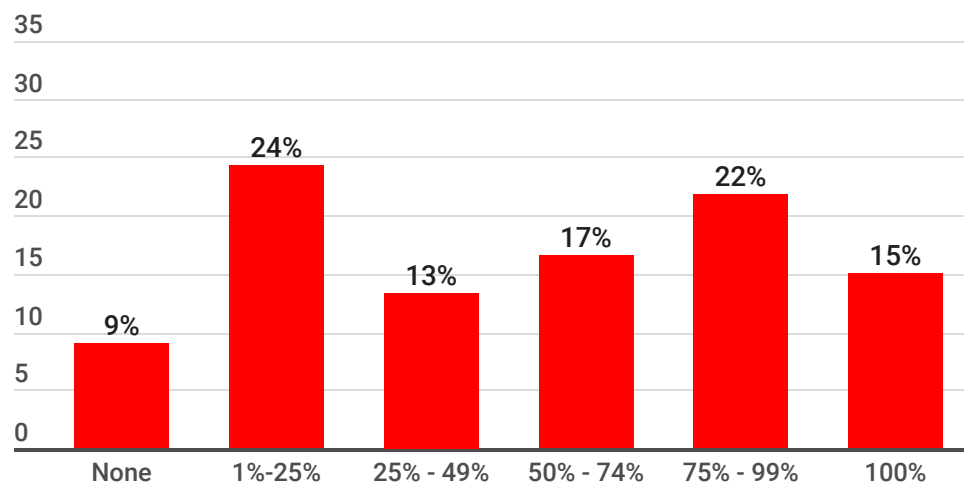


Fig 2. Primary Job Function



Base: All respondents (n=344).

Fig 3. During a typical week, how much of your work is conducted in the field?



Base: All respondents (n=344).

While 9% of the respondents don't spend any time in the field, the average time spent in the field decreased from 59% a year ago to 53% this year. (**Fig 3**).

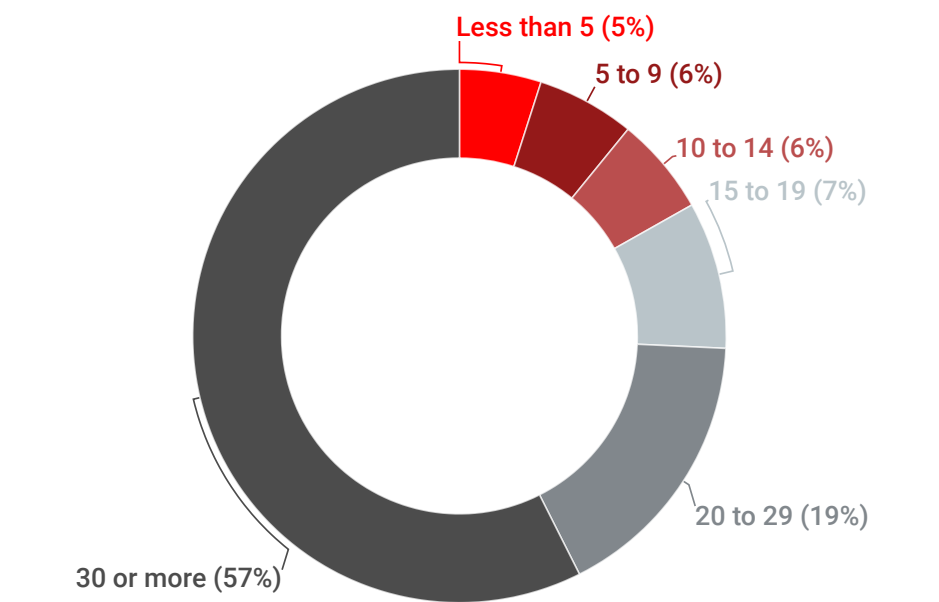
The respondents to the 2021 survey have invested a significant amount of time in the electrical industry. In fact, 57% have 30 or more years of experience. Like in the past report, only 5% reported having less than five years in the industry. Nearly one-third of respondents fell in the 55- to 64-year-old age group, with 76% at least 45 years old and 9% younger than 35 years old. (**Fig 4 & 5**).



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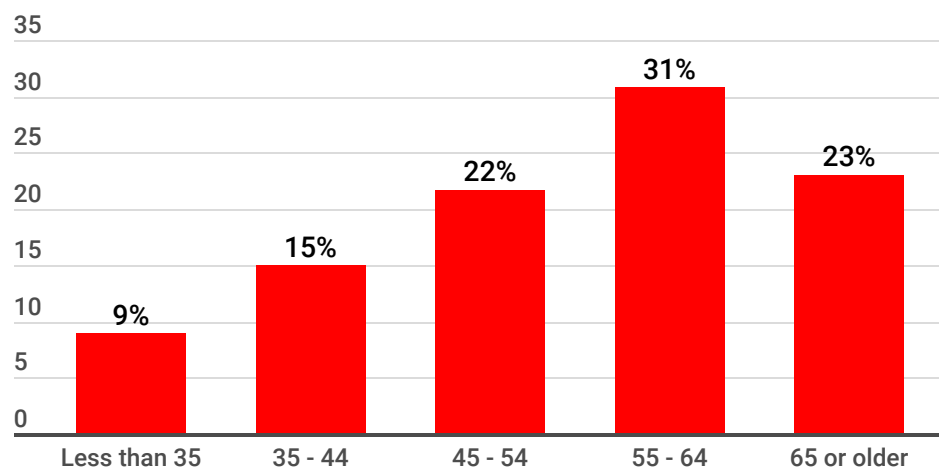


Fig 4. Years in the Electrical Industry



Base: All respondents (n=312).

Fig 5. Respondent Age



Base: All respondents (n=344).

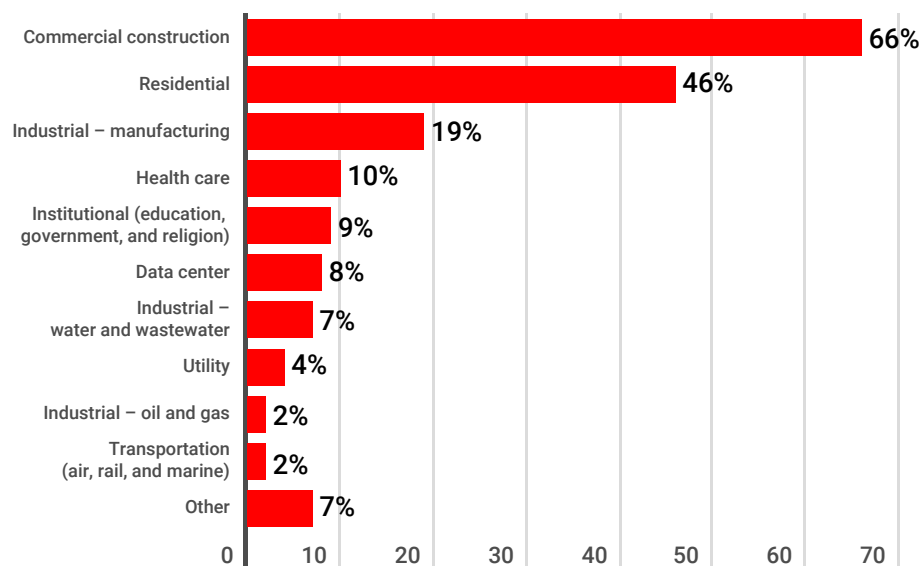


Business Opportunities and Obstacles

Electrical contractors serve diverse markets from commercial construction to industrial and transportation. This year, *EC&M* and ABB added a new business operations category—residential—and 46% of the respondents reported working in this segment. Two-thirds of the respondents are engaged in commercial construction. (**Fig 6**).

Respondents named such markets as agriculture, service work, commercial service and repair, industrial construction, utility-scale photovoltaics, and wireless/cell towers as their most common applications.

Fig 6. Common Applications

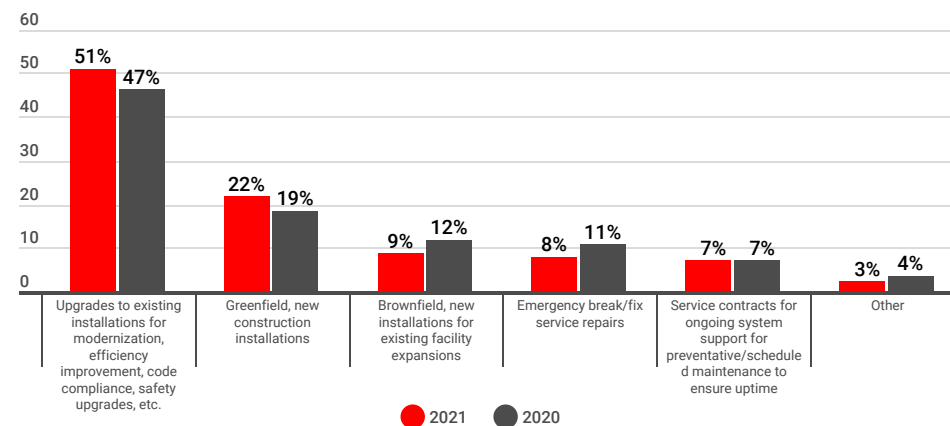


Base: All respondents (n=344). Up to two answers allowed. Analyst note: This question was modified from the 2020 study to the 2021 study and the responses are not comparable.



As in 2020, upgrades to existing installations for modernization, efficiency improvement, code compliance and safety upgrades came out on top as far as the sources of growth. Greenfield, new construction installations once again came in second place with a higher number of respondents—22%—reporting it as a source of growth (**Fig 7**).

Fig 7. Source of Growth

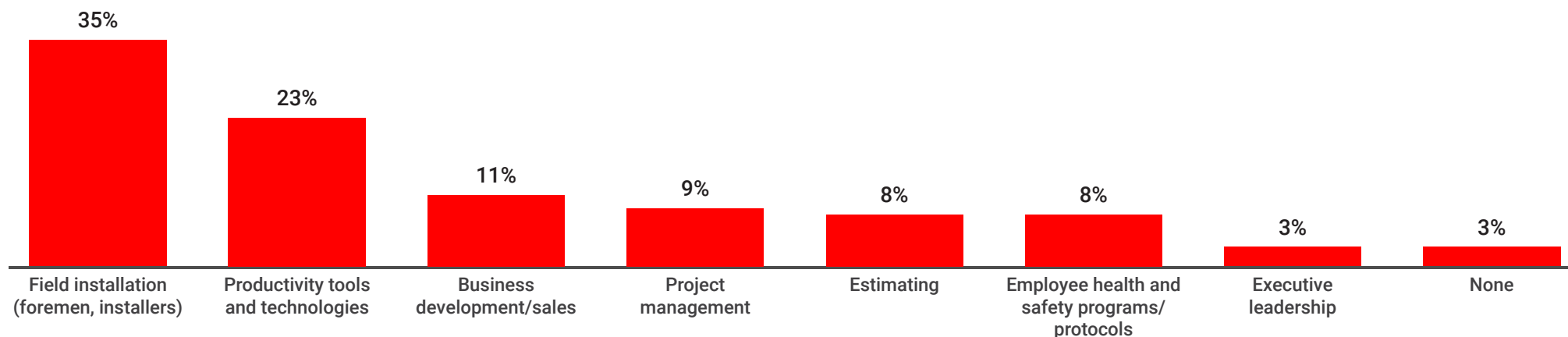


Base: All respondents (n=344 in 2021 and n=421 in 2020).

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Fig 8. Areas for Investment



Base: All respondents (n=344). Analyst note: This question was modified from the 2020 study to the 2021 study and the responses are not comparable.

Over the next one to two years, the respondents expect to see the strongest growth from 5G communication, alternative energy sources, EV chargers, and standby generators.

“I see a huge need to reclaim and rebuild our cities and infrastructure,” one respondent stated.

The research report not only asked the respondents about their main business focus and positive growth segments, but also about negative factors impacting growth. Only 1% of the respondents noted no negative impact from material shortages and lead times while 45% considered it to have a major negative impact.

In addition to material shortages, pricing is of concern to electrical contractors; 80% of the respondents considered material pricing to have a major or medium impact on their employees. Difficulty finding and retaining quality employees rounded out the top three with nearly 70% stating it has a major or medium negative impact.

The COVID-19 pandemic ranked fourth with more than half stating it had a major or medium impact. For example, respondents voiced concerns about the government response to COVID-19, particularly the vaccine mandates as well as pandemic-related lockdowns. In addition, the respondents listed the lack of electricians and skilled workers as also being top challenges.

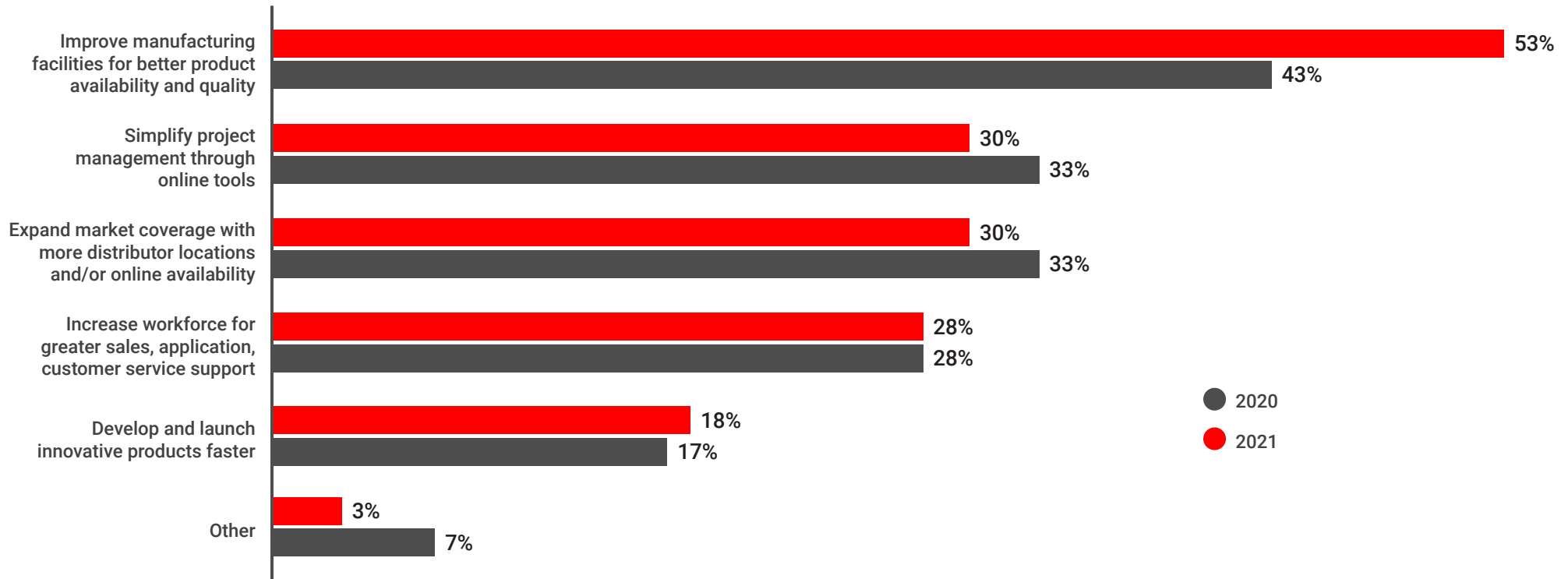
Electrical contractors were also asked about what area of investment they would most likely invest in, and the largest percentage—35%—selected field installation, followed by productivity tools and technologies with 23% and business development/sales with 11% (**Fig 8**). Specifically, the respondents plan to invest in such areas as coordination of software training and buy-in, marketing services, employee retention, and recruitment and inventory management.

To complete their jobs on time and within budget, however, electrical contractors are challenged with certain factors. Three years ago, contractors considered poor design and change orders as having the biggest impact on their business. The COVID-19 pandemic, however, slowed down the delivery of materials, making it the top choice for 64% of respondents compared with 31% in 2020.

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Fig 9. Top Investment Choices



Base: All respondents (n=317 in 2021 and n=400 in 2020). Up to two responses allowed.

In that same vein, 53% of electrical contractors preferred that manufacturers invest in improved facilities for better product availability and quality to benefit the respondents' businesses (**Fig 9**). The respondents are looking for better customer service. For example, one respondent advised manufacturers to "actually ship the product so we can have inventory in our warehouse," to "continue supplying printed paper catalogs and better website search engines," and have "quicker, better, accurate response to inquiries." One respondent put it this way: "stop material price fluctuation."

The labor shortage is also challenging electrical contractors as well as coordinating with other trades on the job and the general contractor. Respondents mentioned such obstacles as inconsistent code enforcement, scheduling conflicts or "customer regulations that look good on paper, but hinder everyone's ability to do the work."

The 2021 survey included a new question asking respondents about the impact of COVID-19 protocols—such as social distancing, hygiene, and travel restrictions—on their business, and 27% listed this as a top factor impacting their business.

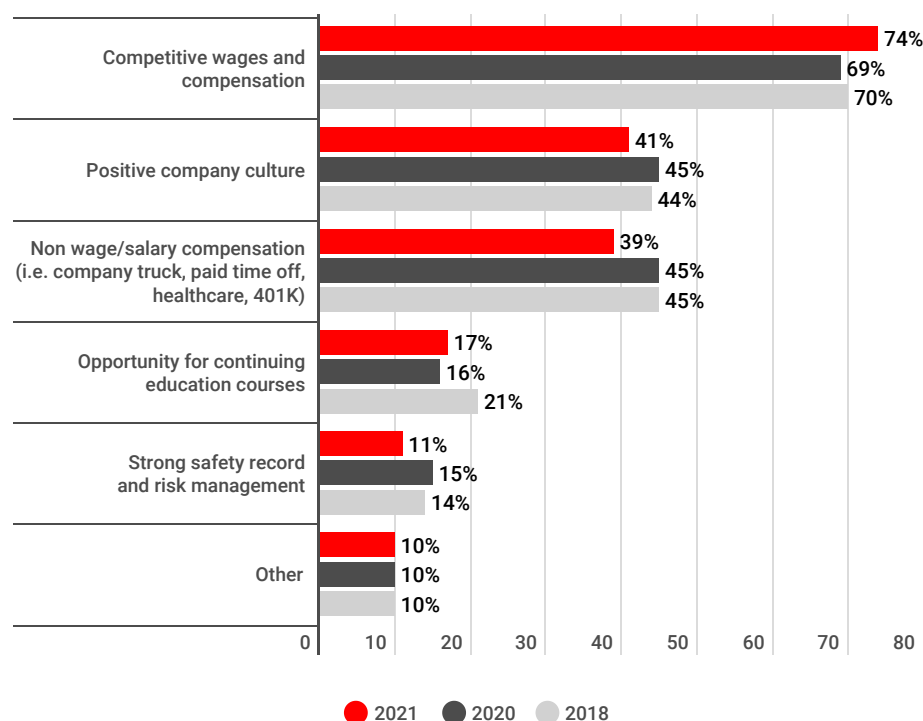
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Training Trends

In the COVID-19 world, competitive wages and compensation continues to be the top factor impacting employee retention. Over the past three years, electrical contractors have ranked this factor as having the greatest impact on their ability to retain workers, but in 2021, it jumped up five percentage points to 74% of the respondents (**Fig 10**).

Fig 10. Key Factors Impacting Employee Retention



Base: All respondents; up to three answers permitted (n=344 in 2021, n=425 in 2020, and n=745 in 2018).



Positive company culture is also important to our respondents, and while it slipped back four percentage points from last year to 41%, it still has an effect as well as non-wage/salary compensation with 39%.

Other factors impacting employee retention include COVID-19 vaccine mandates and protocols.

“The government is taking away our employees by paying them to stay home,” one respondent stated.

Employees are also starting their own businesses or are unwilling to do the work and have a poor work ethic.

“We want to find employees that want to make a career with us,” a respondent commented.

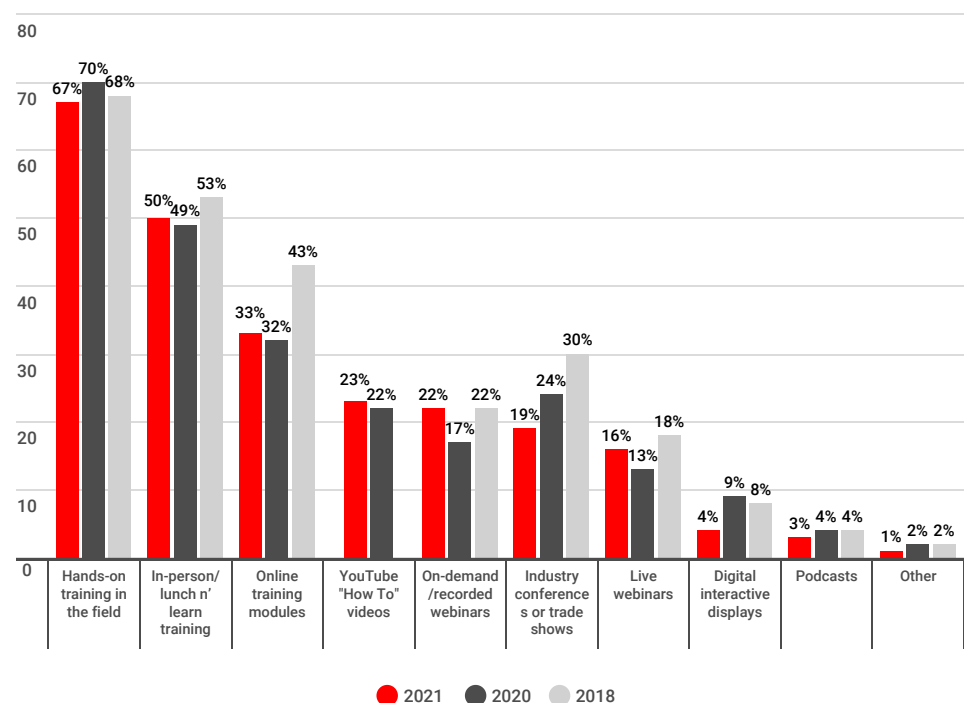
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To keep employees engaged and well trained, electrical contractors are investing in continuing education programs for their employees. Hands-on training in the field is once again the preferred method of training. In-person and lunch n' learn training came in second with half of the votes. Online training modules, which captured 43% of the vote three years ago, were named as a top training format preference by 33% in 2021 (**Fig 11**).

With the global pandemic placing a screeching halt on business travel, electrical contractors have spent the last two years attending virtual conferences and participating in video calls rather than meeting face-to-face. All this online training has likely led to "virtual fatigue." Case in point: Half of the respondents currently prefer in-person training and expect this preference to continue. In

Fig 11. Training Format Preferences



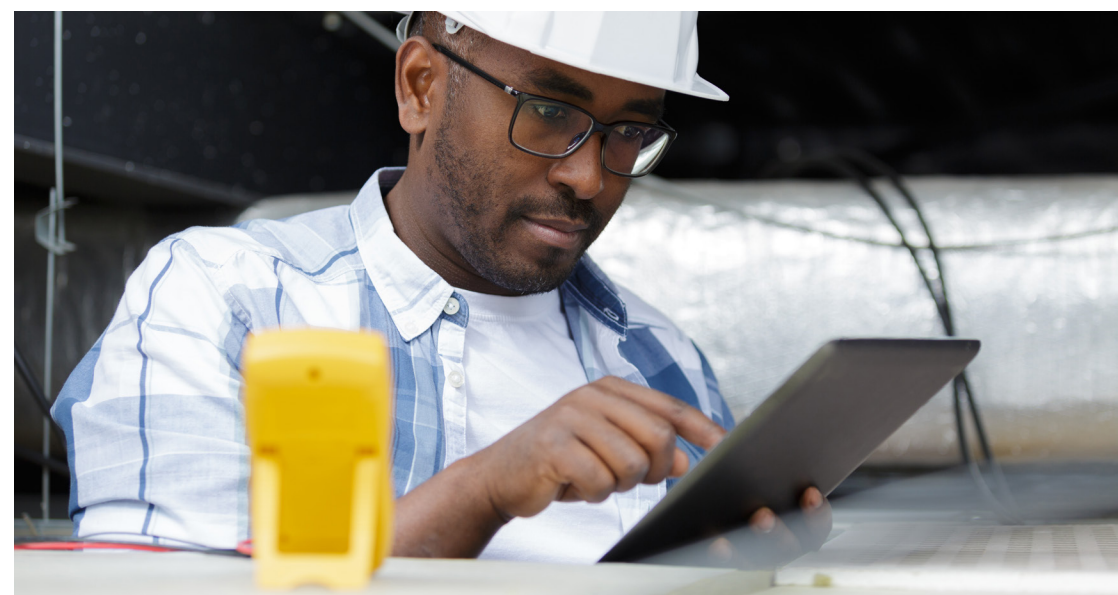
Base: All respondents; up to three answers permitted (n=344 in 2021, n=425 in 2020, and n=745 in 2018).

contrast, only 15% currently prefer virtual training but look forward to returning to in-person training. In addition, 13% opt for a hybrid option blending both virtual and in-person training (**Fig 12**).

Fig 12. Training Preference



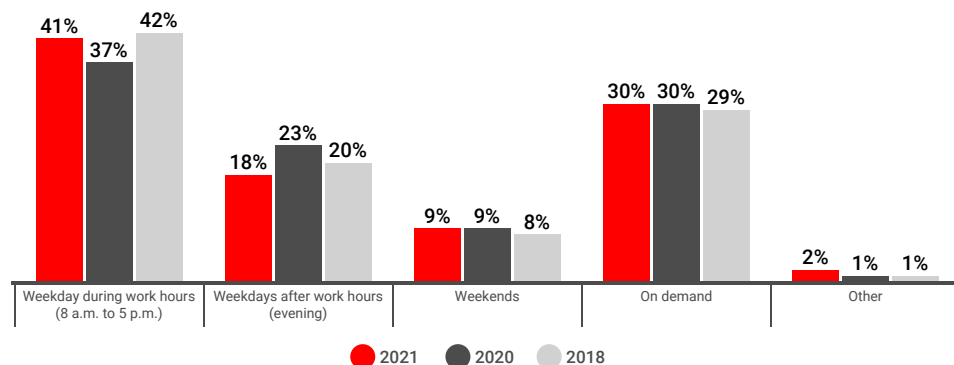
Base: All respondents (n=344).



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Fig 13. General Timing Preferences for Self-Directed Training



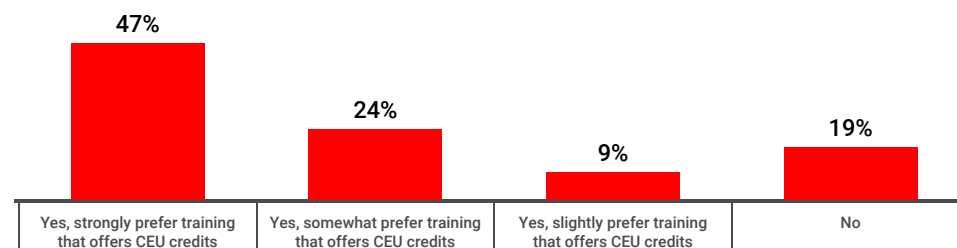
Base: All respondents (n=344 in 2021, n=425 in 2020, and n=745 in 2018).

When the training is self-directed, 42% of the respondents would rather complete the training session during normal working hours from 8 a.m. to 5 p.m., and only a slim percentage would rather take it on the weekends. The popularity of on-demand training, however, has remained constant over the past few years, indicating the preference for flexibility (**Fig 13**). One respondent voiced a preference for weekdays during lunch time, and another has a busy schedule and participates in training sessions whenever time is available.

Continuing education unit (CEU) credits continue to be a draw for training for electrical contractors with nearly 50% preferring to earn CEUs for their time and effort (**Fig 14**).

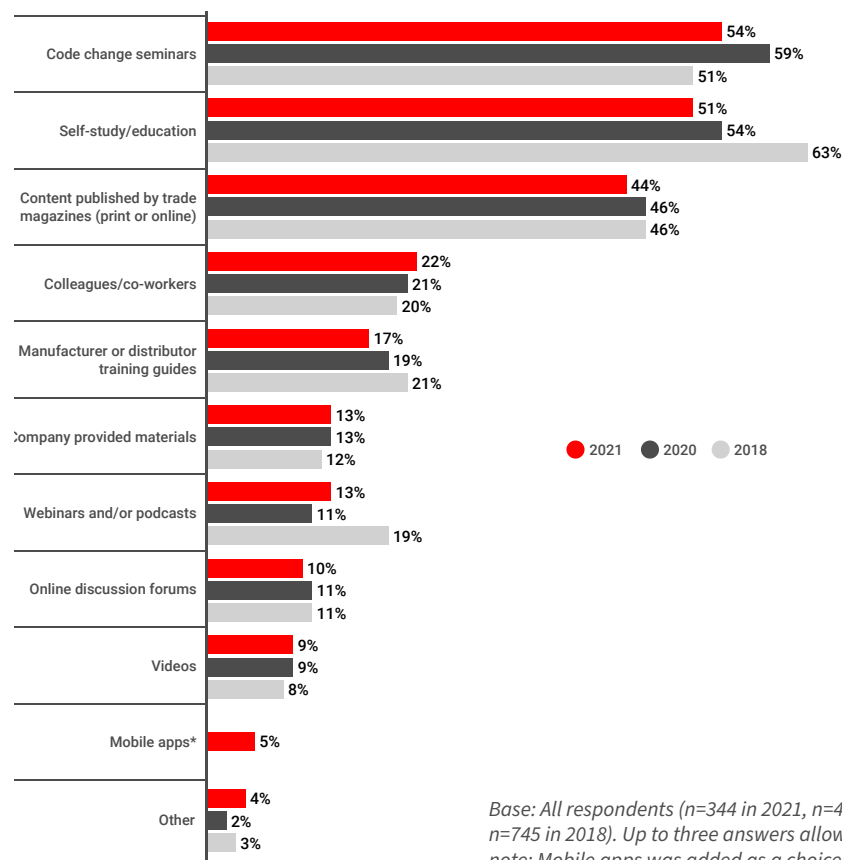
To keep up with codes and standards changes, more than half—54%—prefer code change seminars, with self-study/education and content published by trade magazines coming in second and third in terms of popularity (**Fig 15**). The respondents listed such resources as CEU courses, *EC&M* magazine, IBEW code education classes, new NFPA 70 NEC code books and guides, and a certified in-house trainer as ways to stay up to date on changes in the National Electrical Code.

Fig 14. CEU Credit Preference



Base: All respondents (n=344). Analyst note: This question was modified from the 2020 study to the 2021 study and the responses are not directly comparable.

Fig 15. Sources for Keeping up with Codes & Standards Changes



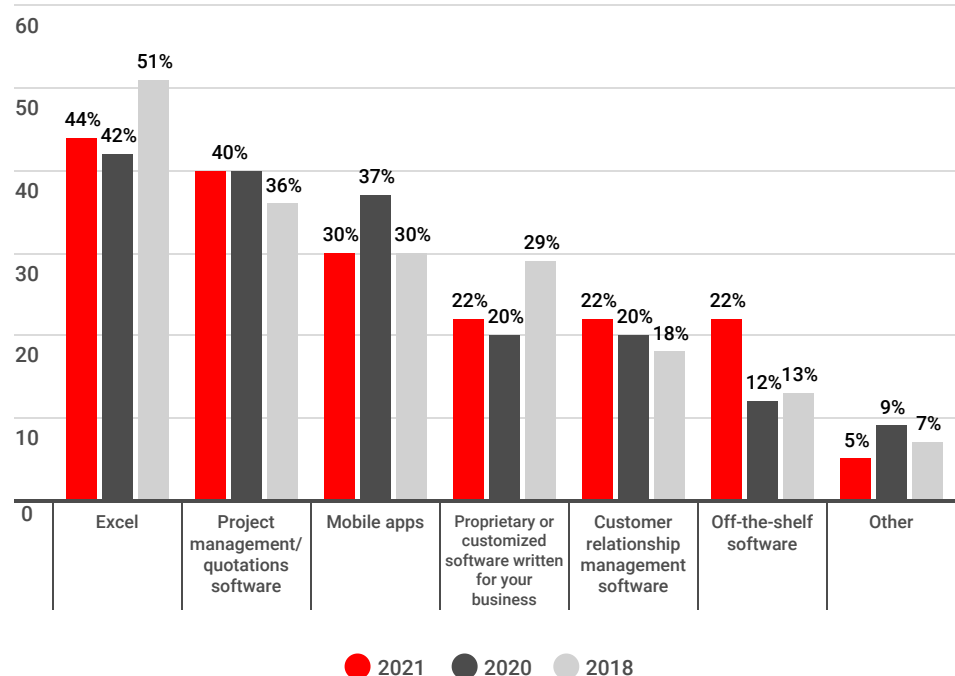
Base: All respondents (n=344 in 2021, n=428 in 2020, and n=745 in 2018). Up to three answers allowed. *Analyst note: Mobile apps was added as a choice in 2021.

Technology on the Go

For electrical contractors, investing in the right technology can make the difference between getting the job done and facing a delay. As one individual stated, however, there is “no substitute for trained and experienced workers.”

When they do use technology, they reported they were most likely to use Excel, followed by project management/quotation software and mobile apps (Fig 16).

Fig 16. Business Management Tools Leveraged

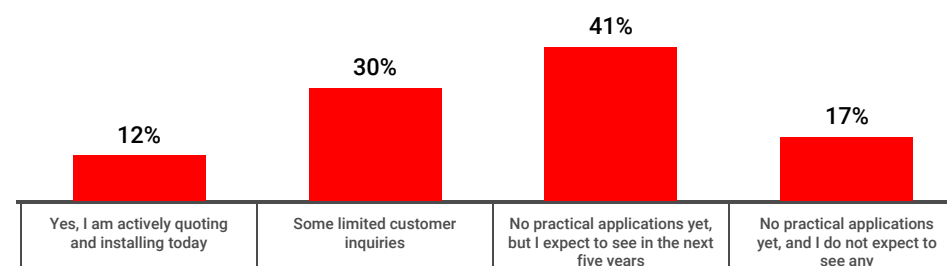


Base: All respondents; up to three answers permitted (n=344 in 2021, n=425 in 2020, and n=745 in 2018).



New for this year, *EC&M* and ABB also asked respondents whether they were required to offer smart technologies. Only 12% of the respondents reported they are actively quoting and installing them today, but in the next five years, 42% expect to see practical applications (Fig 17).

Fig 17. Smart Technology Requirements

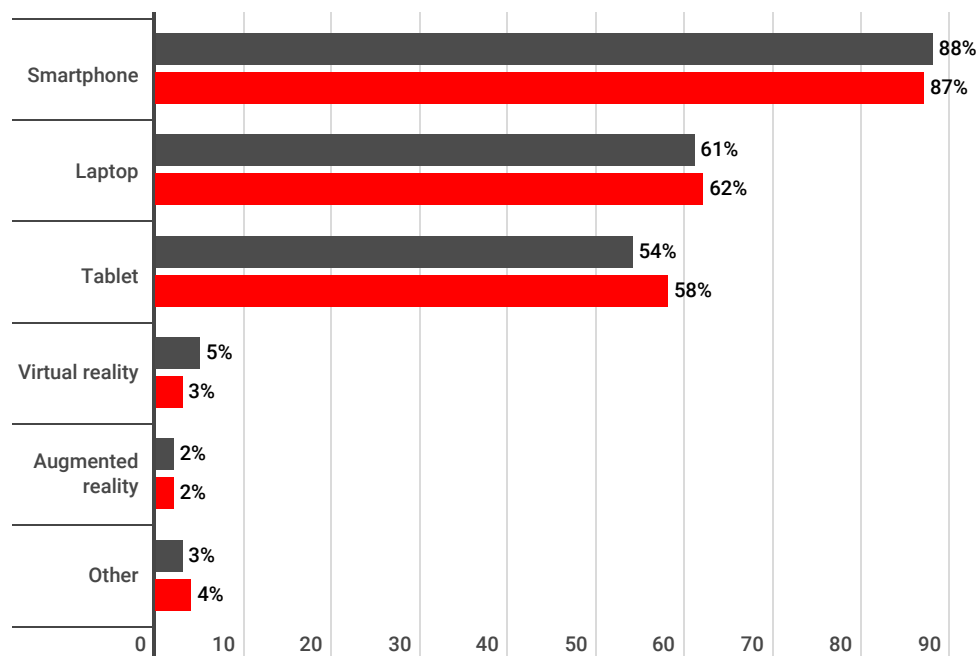


Base: All respondents (n=344). Analyst note: This question was modified from the 2020 study to the 2021 study and the responses are not directly comparable.

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Fig 18. Use of Mobile Devices in the Field



Base: All respondents (n=327 in 2021 and n=421 in 2020). Multiple answers allowed.

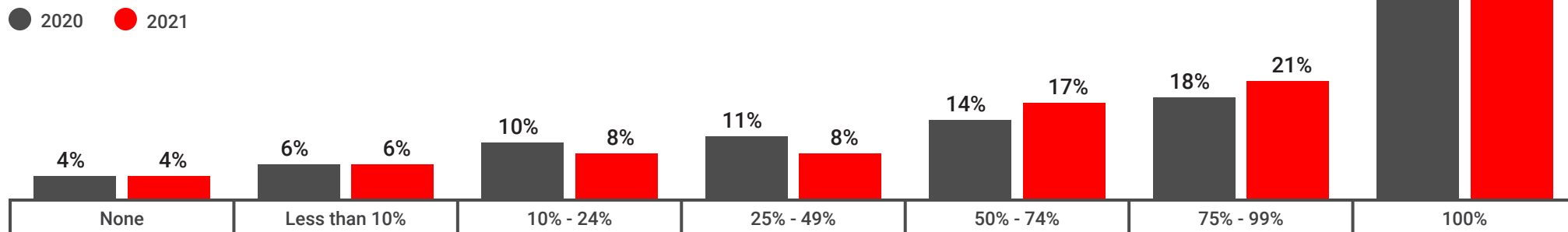
Mobile devices, ranging from smartphones to laptops to tablets, are still in the top tier for electrical contractors. Over the last two years this question has been posed to respondents, the preferred choices remain in the same order with smartphones leading the way. Virtual and augmented reality, however, are still far behind these other top three choices (**Fig 18**).

For the field workforce, who are often on the go, mobile devices can help to improve productivity and safety for many electrical contractors. In fact, one-third of the respondents stated that 100% of their field employees use mobile devices on the job, compared with only 4% for none (**Fig 19**).

On their mobile devices, field employees are accessing such resources as customer-specific information and scheduling, design drawings, mapping applications, and project documents.

As far as digital tools, codes and standards websites and apps came out on top, but they have dropped back from the last two years to 58% of the respondents. Just like last year, half of the respondents use manufacturer websites, tools, and apps, but a lesser percentage—37%—report using distributor websites, tools, and apps (**Fig 20**).

Fig 19. Percentage of Field Employees Using Mobile Devices on the Job

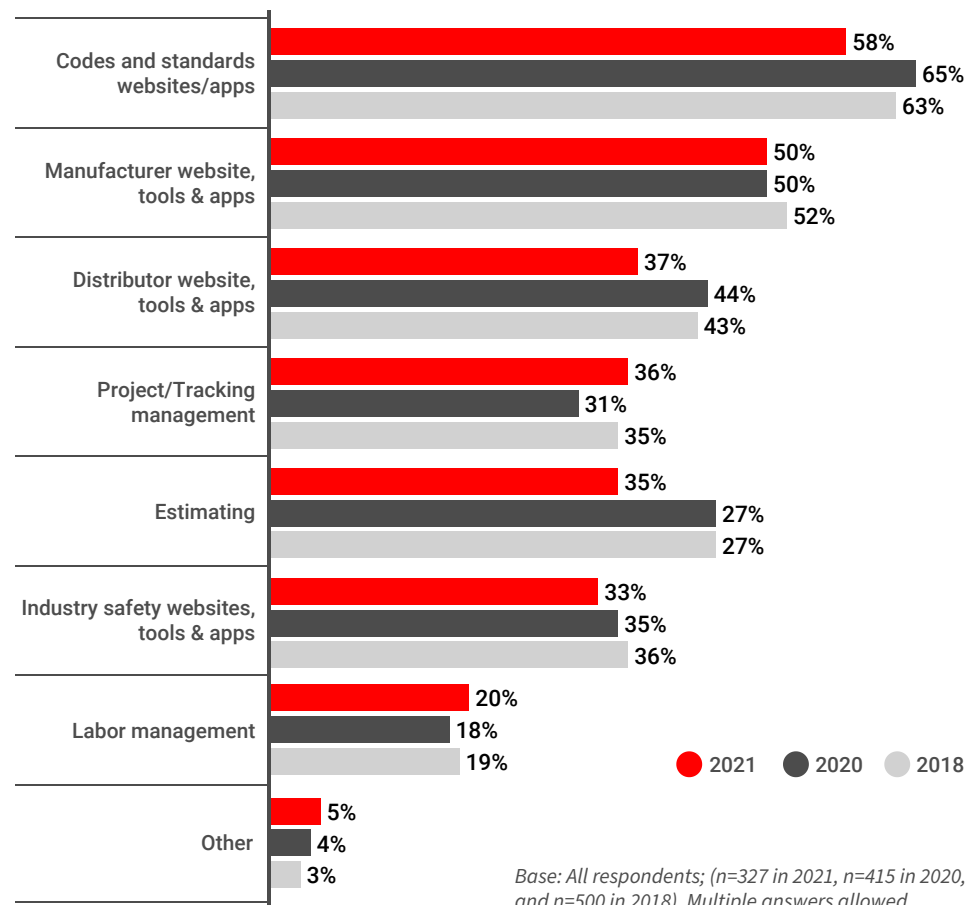


Base: All respondents (n=327 in 2021 and n=427 in 2020).

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Fig 20. Digital Tools Used Regularly by Field Employees



On their mobile devices, field employees can pull up a number of different resources from installation instructions to project specifications. Sixty-nine percent of the respondents, compared to 75% a year ago, rely on their phones to access instructions. In contrast, about 20% use them to pull up COVID-19 safety protocols or project warranty information (**Fig 21**).

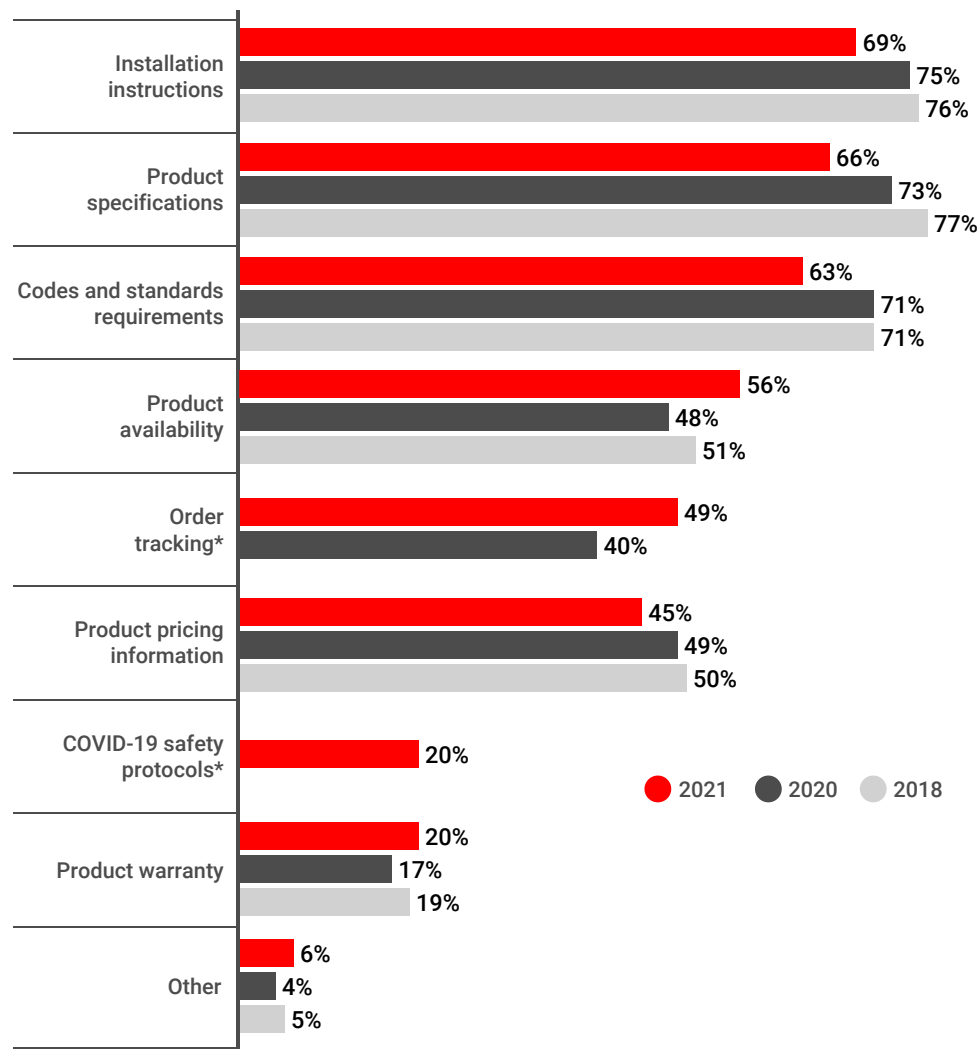
Beyond using technology for communication and collaboration, field employees are also increasingly reaching out to their supervisors and peers

for help to interpret standards. For example, half are consulting with their supervisors compared to 32% last year. Manufacturer technical support fell back from 49% in 2020 to 41% in 2021, but asking a coworker jumped up from 26% to 39% (**Fig 22**).

Respondents also report reaching out to the authority having jurisdiction (AHJ), local code inspectors, engineers, the local building department, or other tradespeople.



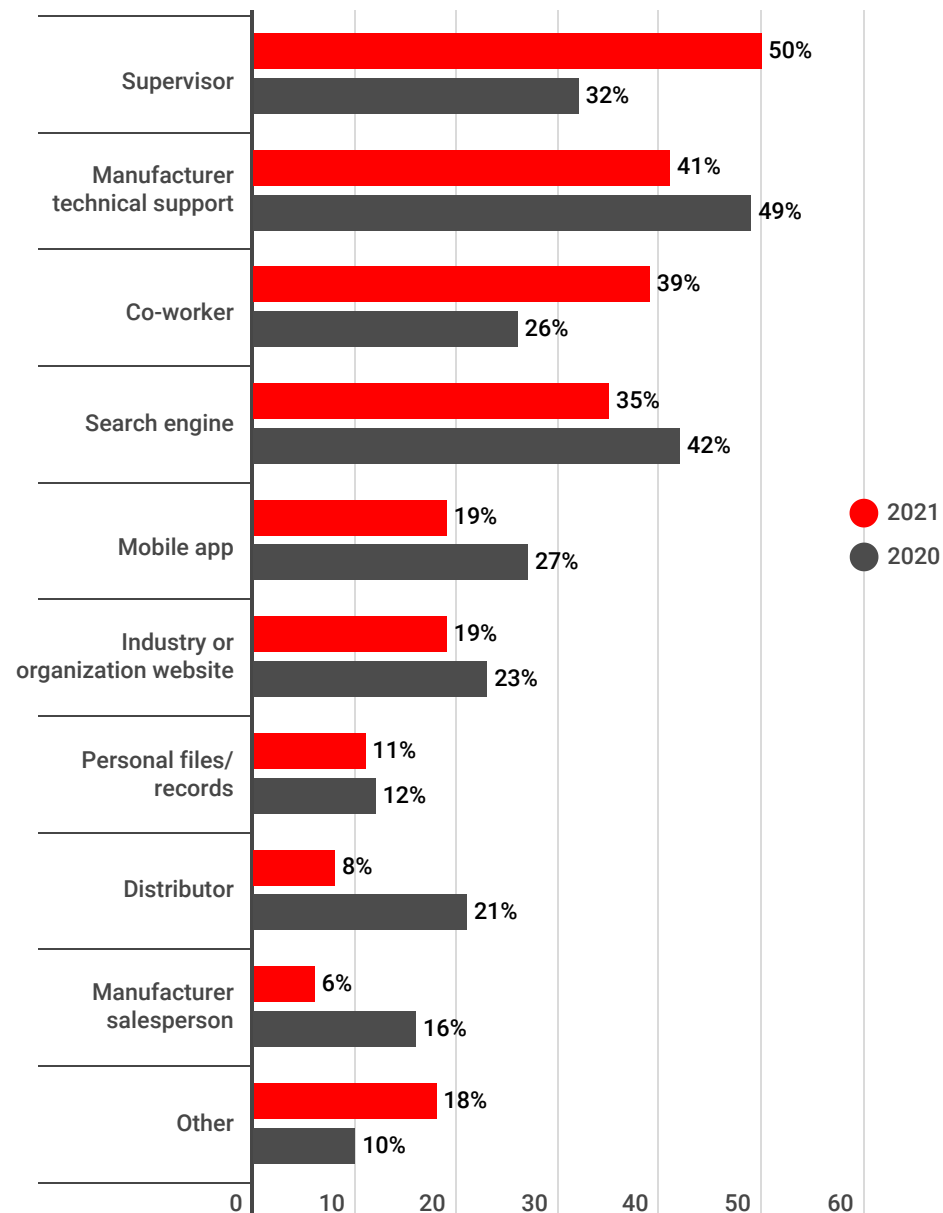
Fig 21. Information Accessed via Mobile Devices by Field Employees



Base: All respondents (n=327 in 2021, n=423 in 2020, and n=500 in 2018). Multiple answers allowed.

When electrical contractors do reach out to manufacturers, 63% prefer an email exchange with only 14% opting for a video call like FaceTime or Zoom (**Fig 23**). The respondents also prefer picking up the phone and calling a manufacturer when they have an issue or a problem.

Fig 22. Sources Leveraged for Standards Interpretation

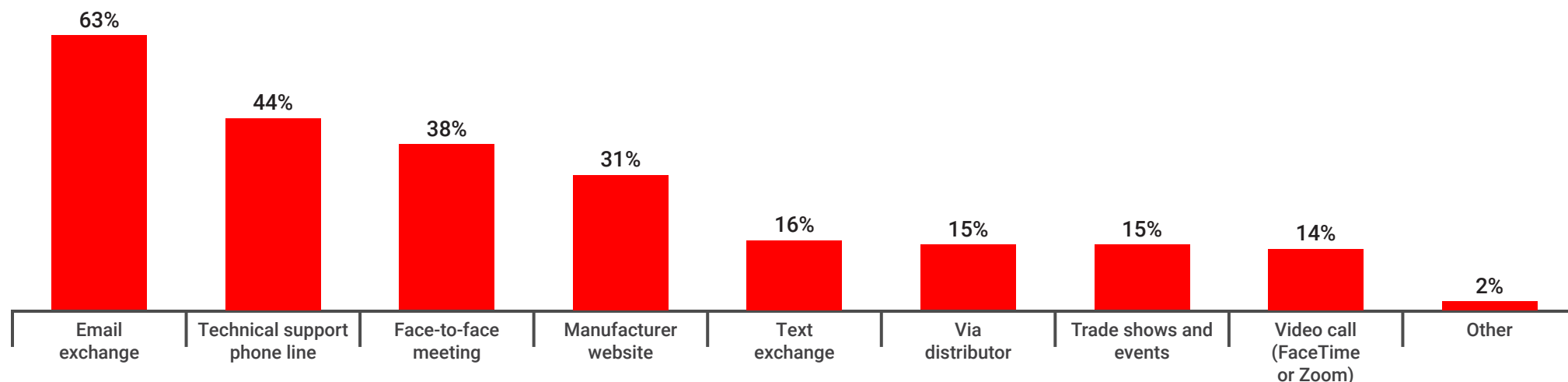


Base: All respondents (n=317 in 2021 and n=425 in 2020). Up to three responses allowed.

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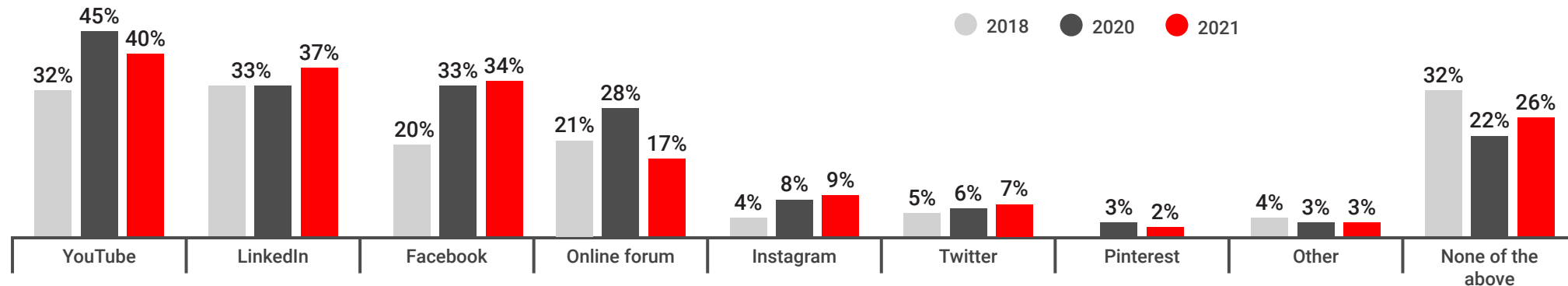
Fig 23. Preferred Method of Contact with Manufacturers



Base: All respondents (n=317). Multiple answers allowed.

Another way that electrical contracting professionals can reach out to their team members and to the industry at large is through social media. Two years ago, 68% used social media, compared to 74% today. The most common social media platforms are YouTube with 40%, LinkedIn with 37%, and Facebook with 34% (Fig 24).

Fig 24. Social Media Platforms Used for Work-Related Purposes



Base: All respondents (n=317 in 2021, n=422 in 2020, and n=745 in 2018). Multiple answers allowed.

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Forecasting the Future

As electrical contractors look to the future of the electrical industry, they all foresee significant changes as a result of the pandemic. For example, they are forecasting such changes as more computer-based applications, safer ways to work, a slower pace of construction, and a shortage in the workforce. One person expects to see centralized supply, better deliveries, and more online information sources while another thinks the pandemic will change how companies do business by being more virtual and having people work from home.

“There will be few face-to-face meetings, more online meetings, and more ordering of materials online with no direct contact,” one person stated. “Everything is online now, and every one of my customers wants faster Internet speeds.”

Others are planning to see less work because of excessive pricing, longer wait times on products, and fewer skilled trade workers.

“There will be near-term labor shortages, and long-term, there will be less apprentices coming into the field,” one person stated. “As a contractor, we will be expanding storage to keep more supplies and materials on hand. Readily available materials are quite often four to six weeks out if not more. We will warehouse 12 to 16 weeks of materials as delivery on demand is no longer an option. This will add to overhead significantly.”

One person stated that the “just-in-time” material supply chain strategy was put under a stress test by COVID-19.



“Hopefully, suppliers will re-evaluate—and, more importantly, adjust—the supply timeline mentality,” one person says. “It causes us to shop around, which takes time and is expensive for the job.”

The future may be uncertain for electrical contractors, but further delays, fewer workers and more material shortages and restrictions may be in store. By investing in training and technology and doing what they can to retain their workforce, however, they are looking ahead to a brighter future.

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