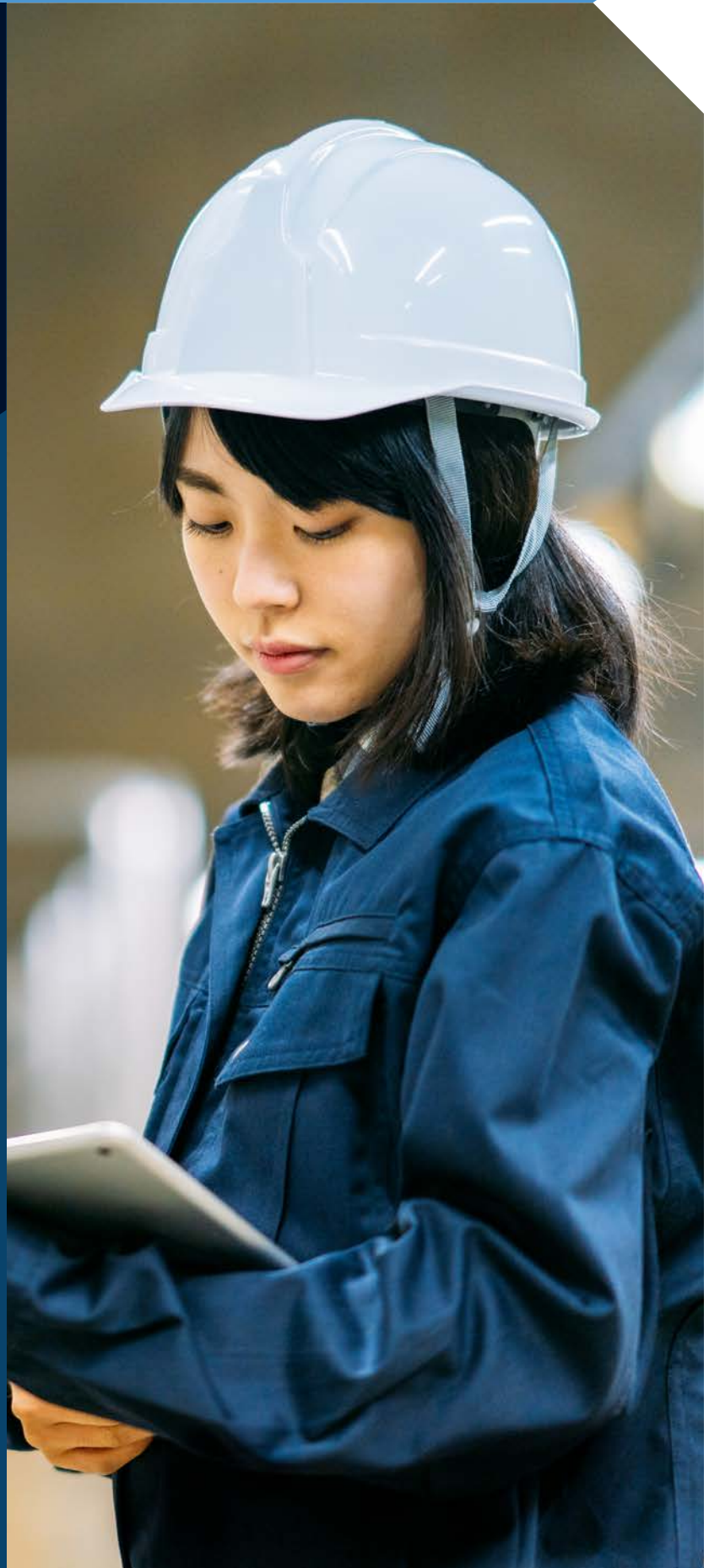




AUGMENTED REALITY PERFORMANCE AND THE FUTURE OUTLOOK IN THE FIELD SERVICE INDUSTRY

How AR is Transforming
Field Service and What
Organizations Can Do
to Improve Their Future
Prospects

LIBRESTREAM





EXECUTIVE SUMMARY

Augmented reality (AR) has been so widely incorporated into field service processes that many organizations have reached a significant level of maturity in their deployment of the technology. These organizations have observed real business outcomes thanks to their investments, including faster fix rates for their customers, reduced service costs, and much better utilization of their workforces. According to *Future of Field Service*, Gartner predicts, over 50% of field service management deployments will include mobile augmented reality collaboration and knowledge sharing tools by 2025—up from less than 10% in 2019.¹

Initially, AR was applied in field service as a tool to remove barriers during diagnostic procedures. Now, it is enabling field service teams to provide remote assistance, empower contractors and other contingent

workers, train and onboard new employees at an accelerated pace, and provide customers with new service opportunities, including new avenues toward self-service.

In launching this study, Librestream and the WBR Insights team sought to discover how AR technology adoption is becoming mature in the field service industry and what steps organizations will take in the next twelve months to improve their business outcomes through AR. This report will include industry benchmarking data, details about how other technologies, such as IoT-enabled devices and AI-driven computer vision, are impacting the industry, and strategies you can implement in your organization to leverage and scale AR technologies successfully.

¹ www.futureoffieldservice.com/2020/07/13/the-2020-gartner-2020-magic-quadrant-for-field-service-management-paints-a-picture-of-progress



ABOUT THE RESPONDENTS

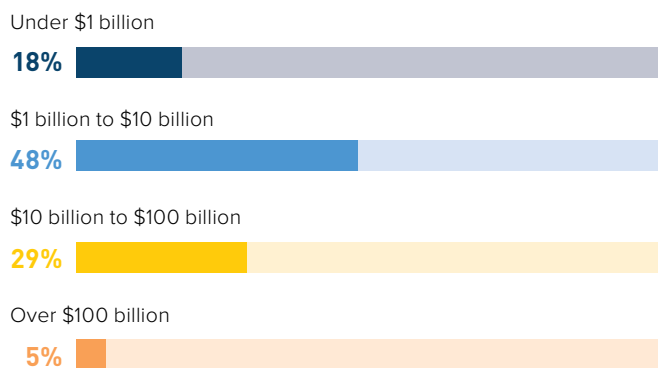
One hundred respondents took a benchmarking survey to determine the current maturity level of AR in the field service industry and what steps their organizations will take to transform their prospects using AR in the future.

All respondents in the survey indicate their organization is either currently using or planning to use AR within their service operations.

Is your organization currently using or planning on using augmented reality within your service operations?

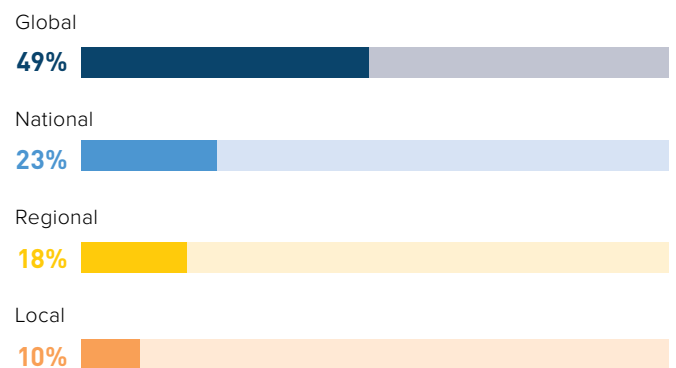
100% said yes

What are your estimated annual revenues?



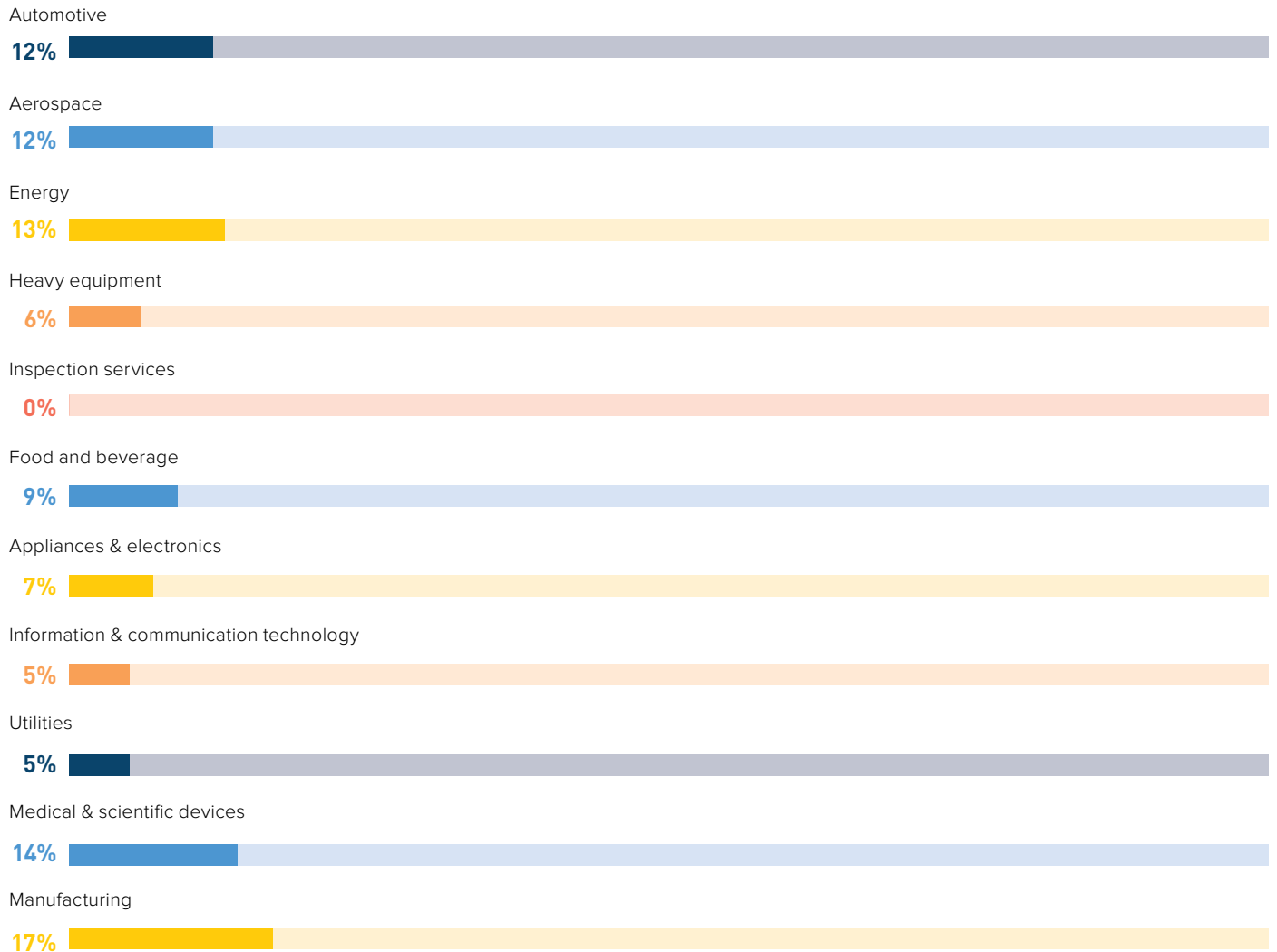
At 48%, about half of the respondents represent organizations making between \$1 billion and \$10 billion in annual revenue. Another 34% represent organizations making more than \$10 billion per year.

What is your geographic service footprint?



About half of the respondents (49%) represent an organization with a global footprint. Most of the remaining respondents are from organizations that operate on the national (23%) and regional (18%) levels.

What best describes the areas in which you provide service?



The respondents represent a variety of field service areas, including manufacturing (17%), medical & scientific devices (14%), energy (13%), automotive (12%), and aerospace (12%).



KEY INSIGHTS

The companies surveyed range from \$500 million to over \$150 billion in estimated annual revenue.

54%

of organizations will **increase their spending on AR** in the next 12 months. About 82% of those will do so by 20% or more.

56%

identify **AR as a capability with growing applications** across their organization. 10% of organizations have fully integrated AR into every application where they've found a use for it.

61%

of executive leaders believe **AR is an important or critical piece of their strategy.**

59%

of respondents say **AR helps improve contactor support** and new technician onboarding, while 56% say it helps in reducing the need to travel for service.

28%

of respondents believe both **machine learning** and **digital work instructions** are "very important" to their current service organizations.

45%

of respondents say **AR is a strong selling point in third-party contractor negotiations.**

54%

of respondents say the **importance of AR will be somewhat or greatly increased** at their organizations in the next 12 months.

50%

of respondents **struggle to manage the scaling of their AR technology** (50%) and implement technician feedback on the performance of such solutions (53%).

81%

of respondents **describe IoT data at the point of service as important**, followed by machine learning at 79% and remote assistance at 71%.



FIELD SERVICE ORGANIZATIONS ARE PURSUING **ADVANCED REMOTE ASSISTANCE CAPABILITIES** AND ANALYTICS

Augmented reality (AR) has quickly evolved from a novelty form of digital entertainment into an innovative and groundbreaking business technology. And nowhere is this more apparent than in the field service industry.

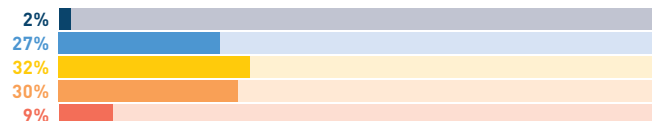
AR has opened the door for a surge of new capabilities to be deployed at field service organizations. Many of these capabilities are designed specifically to enhance

customer experiences, in some cases by providing customers with new ways to access service remotely. Other technologies enable field service organizations and OEMs to collect data in real-time and move from a reactive service model to an outcome-as-a-service model—so much so that they are now bundling service packages that include guaranteed levels of uptime with the sale of their products.

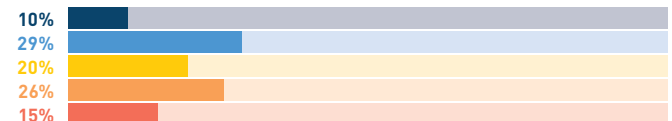
On a scale of 1-5, with 1 being unimportant and 5 being very important, please rate the importance of the following capabilities in relation to your current service organization.

■ 1 (Unimportant) ■ 2 (Not very important) ■ 3 (Average importance) ■ 4 (Somewhat important) ■ 5 (Very important)

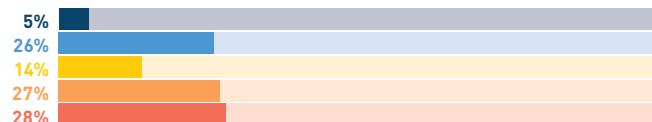
Remote expertise assistance



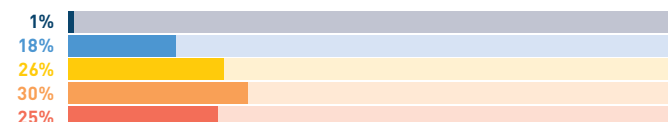
AI natural language processing (translations)



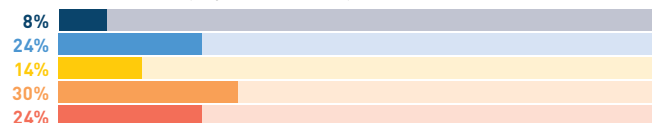
Digital work instructions



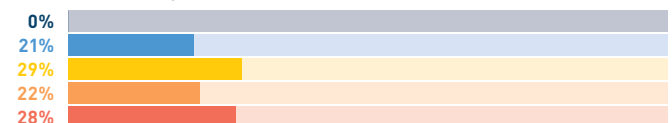
IoT data at point of service



AI computer vision (object detection)



Machine Learning



Researchers sought to determine which capabilities field service organizations are currently prioritizing. The capability respondents ranked as “very important” the most often was digital work instructions. This is significant as this capability is already transforming the way field service technicians advance their skills and provide services.

Digital work instructions create a more human-centric way for technicians and end-users to perform procedures. Instead of relying on traditional paper instructions, digital instructions can be updated based on feedback and data inputs. They are also interactive, which makes completing procedures much more intuitive.

IoT data at the point of service was rated as important most frequently, at 81%. This reflects the importance of delivering data to the workforce directly to inform decision-making. Advanced capabilities such as AI computer vision, AI natural language processing and machine learning were also deemed important at 68%, 61% and 79% respectively.

While only 9% of respondents indicated that remote expert assistance is ‘very important’, 71% identified this capability as important to their business. This could indicate that remote assistance is already an integral part of these respondents’ field service operations. This isn’t surprising, as remote assistance was one of the first key capabilities offered by augmented reality in field service.

What remote expert assistance features are most important to your workforce?

Analytics which incorporate usage statistics, AI, and machine learning algorithms



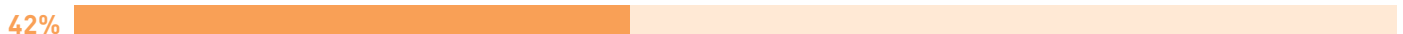
Device agnostic software which offers a similar experience across all platforms



Diagnostic tool support (eg: borescopes, IR cameras, etc.)



Offline features for areas with no internet connectivity



Low bandwidth functionality in areas with poor communications infrastructure



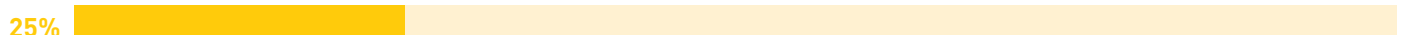
Conference calling with three or more participants



Secure connection between user and remote expert



Ability to connect with industrial IoT data sources



Integration with existing systems (eg. CRM, ERP, etc.)

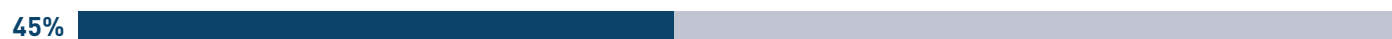


Indeed, many organizations seem to be working toward a more technically mature field service operation, having already enjoyed the initial benefits of expert assistance capabilities. In each case, a 45% plurality of respondents say that analytics that incorporate usage statistics, AI, and machine learning algorithms, as well as device-agnostic software that offers a similar experience across all platforms, are the two most important expert assistance features to their workforces.

Close behind these two features are diagnostic tool support as well as performance in low bandwidth environments including offline support at 42% and low bandwidth functionality at 41%.

What business benefits do you most associate with AR?

Technology as a selling point in 3rd party contractor negotiations



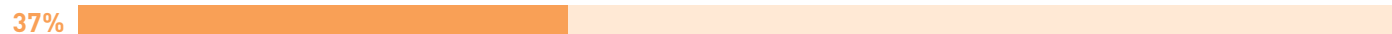
Improved technician productivity



Improved service ROI/cost savings



Improved worker safety



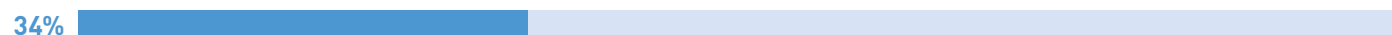
Shorter training timelines for new technicians



Improved organizational knowledge capture



Increased technician satisfaction



Higher first-time-fix rates



New revenue streams



Reduced truck rolls



Reduced emissions/environmental footprint



Similarly, fewer respondents say reduced truck rolls, higher first-time-fix rates, and increased technician satisfaction are benefits they most associate with AR. Instead, they view AR technology as a selling point in third-party contractor negotiations (45%) and rely on its ability to improve technician productivity (40%) and improve service ROI (38%).

Based on these responses, it's clear that field service organizations are already moving past the initial benefits of AR technology and exploring the perks of more advanced forms of deployment. They'll use their AR capabilities to improve negotiations and to generate even more of a return through the integration of advanced analytics and additional productivity solutions.

AR IS NOW A COMMON FEATURE ACROSS THE ORGANIZATION, **BUT BARRIERS TO DEVELOPMENT REMAIN**

Every respondent to the survey is currently using or planning to use AR as part of their service organization. However, respondents differ in their current rates of adoption as well as how they are addressing key challenges in developing their ongoing AR strategies.

At 66%, most respondents say AR is either a common feature across the organization with growing applications or is fully integrated into every application they've found for it. Only 11% of respondents say AR is being applied to a very small subset of applications.

As we can see, most field service organizations have already reached a high-functional operational level in their AR applications, with many exploring new applications as they continue to roll out the capability. It will be interesting to see how field service operations change as they incorporate new capabilities alongside their AR deployments.

How would you rate your organization's current adoption of AR technology on a scale of 1-5, with 5 being most advanced?

1 – Currently no active use of AR within the organization

0%

2 – AR is being applied to a very small subset of the organization as a pilot

11%

3 – AR is being applied across the organization for one or two applications

23%

4 – AR is a common feature across the organization with growing applications

56%

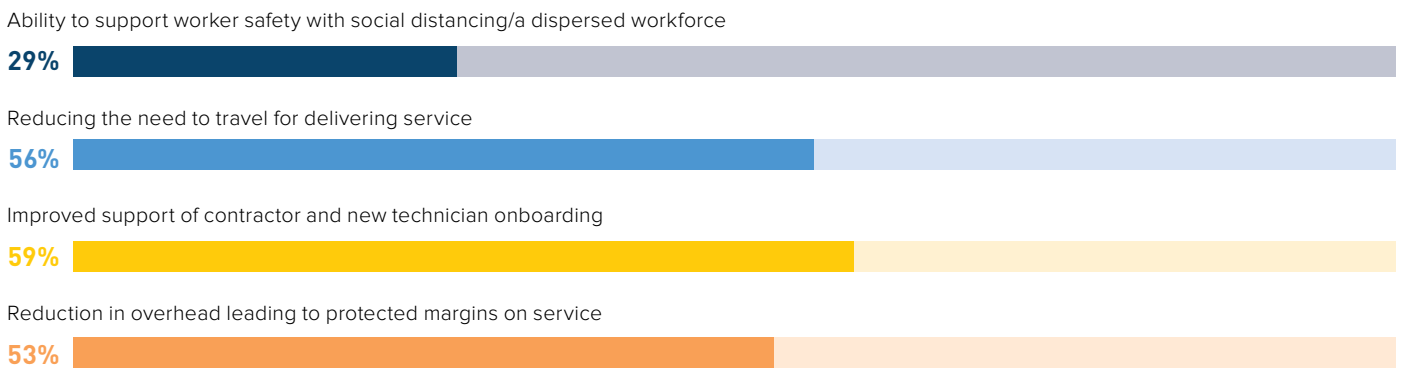
5 – AR is fully integrated into every application that we've found for it at this time

10%

The year 2020 was a tumultuous one for many industries. Many organizations were forced to adapt their strategies to accommodate safety precautions and maintain business continuity. Respondents claim that AR played a significant role in enabling business continuity in the face of these unpredictable market conditions.

In each case, a majority of respondents say AR helped them reduce the need to travel for delivering service (56%), improve their level of support for the onboarding of contractors and new technicians (59%), and reduce overhead leading to protected margins on service (53%). As such, AR will surely be an important tool for adapting to future market disruptions, whether they be economic, political, or even environmental.

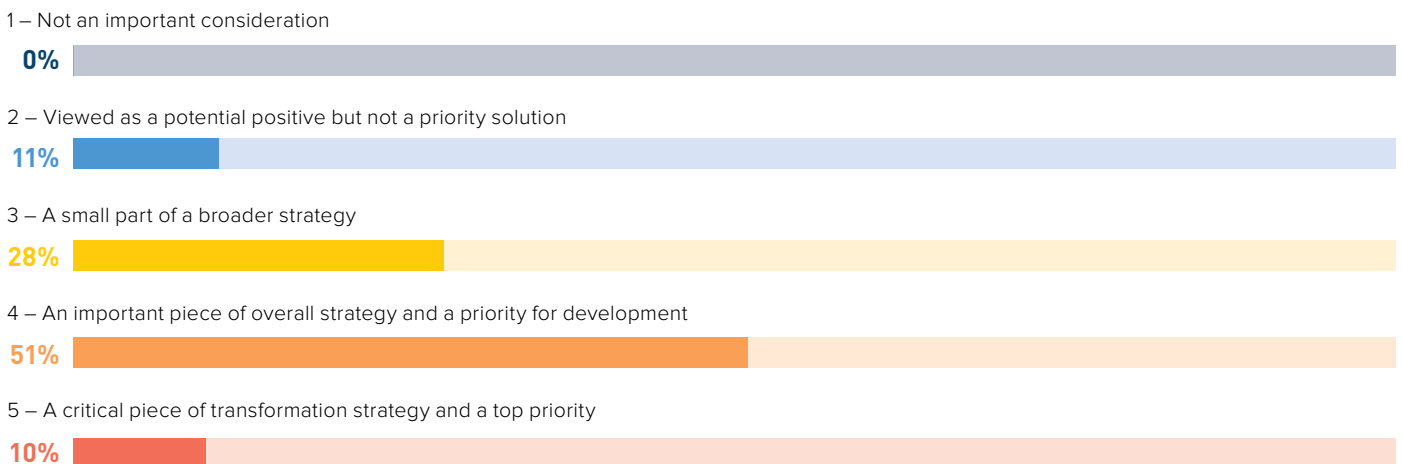
In what ways does AR play a role in enabling business continuity in the face of unpredictable market conditions?



Still, organizations are struggling with barriers to deploying the level of AR maturity they need in their businesses. At 53%, most respondents say they struggle to collect and implement technician feedback on solution performance, and half of the respondents struggle to manage the scaling of the technology after a successful pilot.

Developing processes for obtaining and analyzing technician feedback will be key to improving the use of AR across the organization. There are likely software solutions that can accommodate this capability, and there must be a set of standards for providing feedback for all technicians.

On a scale of 1-5, with 5 being most optimistic, what are the current attitudes of your executive leadership around AR as part of your digital transformation strategy?



Meanwhile, scaling the technology after a successful pilot is a process that can be undertaken both by the field service organization and the AR provider. Field service functions should look to providers who work proactively to develop AR programs for their customers, working alongside these stakeholders to realize how AR can function as a driver of business value throughout the organization.

Nonetheless, respondents say their executive leaders are very confident in their ability to leverage AR as a part of their digital transformation strategy: 61% say executives view the technology as either “an important piece” or “a critical piece” of their strategy.

That confidence is also translating into plans for significant investments in AR in the coming months.

Which factors are the most challenging to manage when developing the AR strategy within your business?

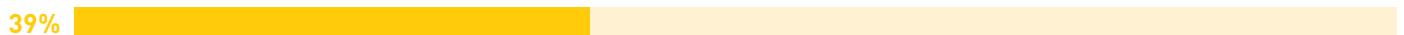
Creating executive buy-in



Change management and training



Defining and piloting the use-case of the solution



Managing the scaling of the technology after successful pilot



Collecting and implementing technician feedback on solution performance



FIELD SERVICE ORGANIZATIONS PLAN TO INCREASE AR SPENDING SIGNIFICANTLY

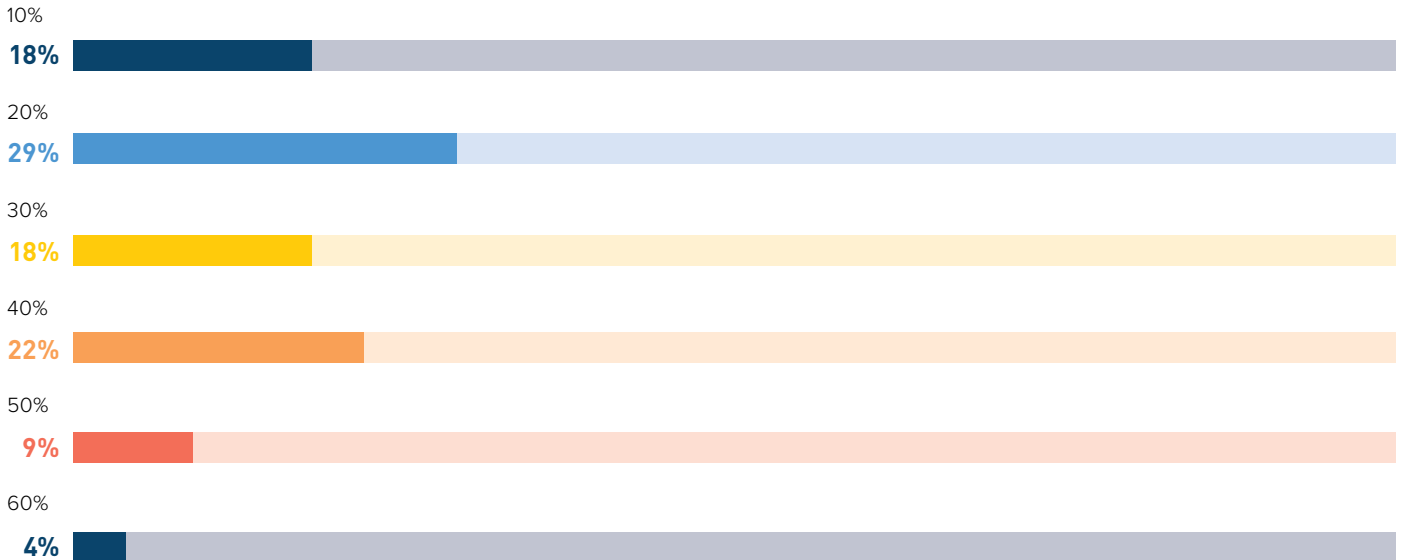
To gain an understanding of how AR deployments at field service organizations might develop in the future, researchers asked respondents a series of questions regarding their plans for the technology.

At 54%, a majority of respondents say they anticipate they will increase their AR investments in the next 12 months. Another 40% say their investments will remain the same, and 1% states their investments will decrease. These results are telling as they indicate the vast

majority of field service organizations are experiencing significant returns on their AR investments—they are either satisfied with their current returns, or they are anticipating even greater returns with more investment.

The amount by which these investments will increase is also significant. About 82% of respondents will increase their investments into AR by over 20%.

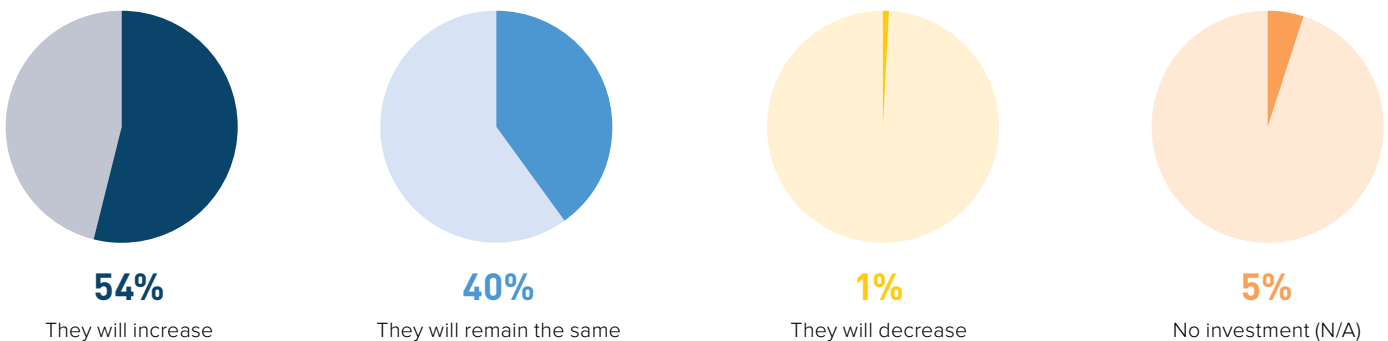
Since you indicated your investments will change, please indicate the closest percentage of change you anticipate in the next 12 months.



Ideally, field service organizations should be able to calculate how much of a return they can enjoy from each dollar spent on AR technology. This must be accompanied by a development plan, as well as a clear process for deploying the technology into key functions like training and self-service offerings.

Similarly, most respondents report that the importance of AR will increase in the next 12 months. Specifically, 44% say AR's importance will increase somewhat and 10% say it will increase significantly. As field service functions compete to provide their customers with guaranteed uptime, next-generation service channels, and empowered technicians, AR will serve as a key enabler of their strategies in 2021.

Within the next 12 months, how do you anticipate your investments in AR will change?



Within the next 12 months, how do you anticipate the importance of AR will change within your organization?

The importance of AR will be greatly reduced

0%

The importance of AR will be somewhat reduced

9%

The importance of AR will remain the same

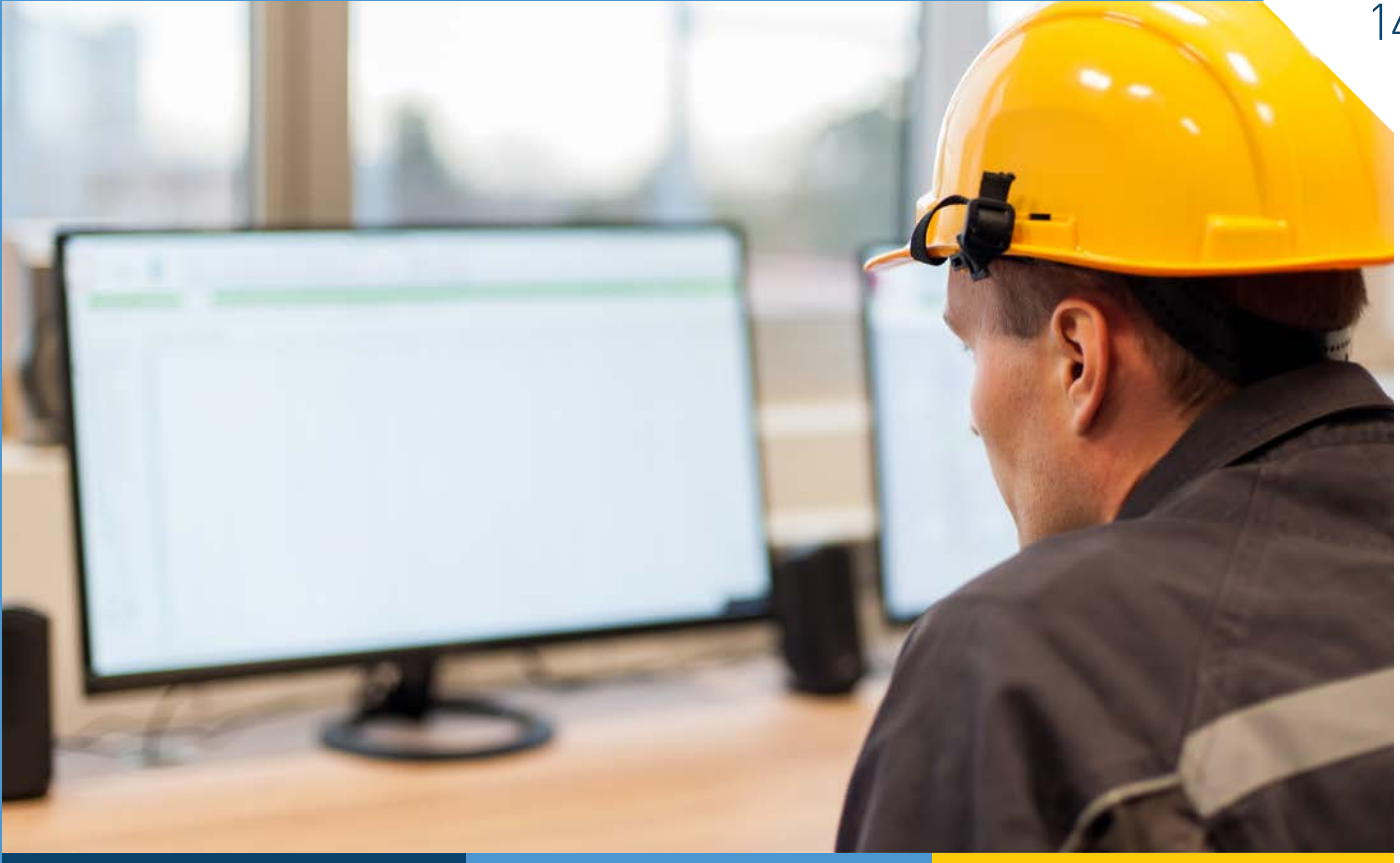
37%

The importance of AR will be somewhat increased

44%

The importance of AR will be greatly increased

10%



CONCLUSION: A BRIGHT FUTURE FOR AR IN FIELD SERVICE

In qualitative statements, respondents described which capabilities associated with augmented reality are most important to their organization and how they expect those capabilities to evolve over the next twelve months. If there is a single theme in these responses, it's that organizations are only just beginning to scratch the surface of what AR and AI are capable of within field service applications.

According to a respondent from a medical and scientific organization that has a global reach and over \$150 billion in annual revenue, AR has been instrumental in their training strategy: "We can gamify certain processes like training which make these processes highly valuable and effective. AR has been doing a fabulous job in health sciences and is set to achieve more in the future."

But AR has also made inroads into other processes, such as quality assurance. A respondent from an automotive manufacturer with a global reach says, "There are so many components and parts we create or distribute. Most of these components are either designed or quality checked with AR or the assistance of AR at some point in time. I am quite sure of this technology and the potential with which it can grow."

Similarly, a respondent from an aerospace organization says AR is not only essential, but will also continue to grow in importance to their operations: "Critical part mapping and calibration will be done with the assistance of AR. The importance of AR is more than just essential and will continue to grow in the future."

As organizations continue to reach high levels of maturity in their pilot AR applications, they will surely discover new opportunities to leverage this evolving technology.



KEY RECOMMENDATIONS

Guaranteed uptime and **outcome-as-a-service business models** are quickly **becoming standard** in field service.

Combine your AR capabilities with solutions like AI, machine learning, IoT data at the point of service, and digital work instructions to enable proactive maintenance.

Use **AR technology as a selling point** in third-party contractor negotiations.

Prioritize the integration of AR into every possible field service application. This will be an important step to remain competitive as other organizations do the same.

Standardize AR as a service capability so it can be leveraged as an adaptive channel during market disruptions.

Select a provider with a proven ability to build adoption programs and deploy at scale. Ensure they have solution that incorporates advanced **AI, IoT, and analytics** in addition to core fundamentals, including low bandwidth operation and offline use.

Most organizations will **increase their investments in AR in the next 12 months.** Prioritize this technology in budget discussions.