



YOUR AUTOMATED KNOWLEDGE CAPTURE PLAYBOOK

How to Scale Your Field
Service Organization



IDEA IN BRIEF

One of the most pressing challenges within the field service industry is the struggle to hire technical talent, as experienced technicians are continuing to leave or age out of the workforce. Younger, more inexperienced technicians don't have the same wealth of knowledge as their more experienced colleagues. Ultimately, many field service organizations will also need to augment their workforce with contract technicians to scale and meet service demands.

This challenge is compounded by the fact that products are becoming more intrinsically complex in their construction. Many machines are now outfitted with sensors or other features that enable them to connect to the IoT. Although these new designs provide the benefit of enhanced data collection, they are also creating a new realm of knowledge that needs to be absorbed by technicians in the field.

The convergence of these workforce trends points to the necessity of a strong knowledge management framework within the organization. Such a framework must support contract technicians and new hires as they become familiar with the products they will service in the field. The automation of knowledge capture can help to enrich the knowledge management system at large, but investments must be backed by a clear understanding of their future-facing use-cases.

In this research paper, we will provide the next steps and best practices for developing a rich knowledge base using automated knowledge capture tools. This knowledge base will enable your field service operation to continue to scale, even within an industry environment characterized by increasing complexity and competition for talent.



KEY FINDINGS

63%

63% of field service organizations face challenges with technician adoption and training when integrating more advanced knowledge capture tools into their services strategies.

12%

While only 12% of field service organizations have fully developed their ability to utilize Big Data to support their service operations' automated knowledge capture programs, 76% have either moderately or mostly developed this ability.

51%

51% of respondents rate the effectiveness of their organizations' current knowledge capture tools as either 'somewhat' or 'not so' effective.

65%

65% of respondents say their knowledge management tools help to accelerate their new technicians' first-time fix rates.

42%

42% of field service organizations are already utilizing an autonomous service model, or they plan to within the next 24 months.

NEXT 12 MONTHS

In the next 12 months, 64% of organizations will file audio records of on-site visits as part of their knowledge capture strategy, and 59% will use back-end analytics to process automated data capture.



FORWARD FROM A THOUGHT- LEADER



Tim Spencer
Senior Vice President
& General Manager of
Service Operations
BUNN

“Knowledge capture is clearly an area we all need to be aware of with plans to move our organizations towards a defined goal in this space. Within this research paper, I was particularly fascinated with the graph detailing the style with which organizations classify themselves on a “Reactive” to “Predictive” scale. For our company, the greater majority of our work falls under “Reactive” today. We have strong programs for Proactive or what we would call preventative maintenance, but it is difficult to know for sure if the parts replaced in the PM visit will properly impact machine uptime without better data regarding future failures. If we could do a better job of “knowledge capture” or true learning that has a use and application of that learning from our work order data history, we could further improve equipment uptime and customer experience.

We are proactively replacing anticipated wear parts but not learning from the real-life histories of our equipment experience, either parts or process related, that are causing failures. Personally, I think this is because of two factors. Firstly, our service management systems today don't make it easy for our technicians' experiences while working on the equipment to be captured in the system, and two, those systems struggle to extract what small amount of data is captured and output it to us in an easily digestible format. Solving for that will be my focus for the next 12 to 24 months.”





CHALLENGES IN ADOPTING AUTOMATED KNOWLEDGE CAPTURE TOOLS

Field service organizations are facing a convergence of challenges in a rapidly changing industry landscape. Aside from a retiring workforce of skilled technicians and a wave of new IoT and automation technologies, there is constant industry disruption due to global events like the COVID-19 pandemic.

To retain the gains made over the past few decades, one of the most important steps field service organizations must take is acquiring and managing collected knowledge. In the past, enterprise knowledge in the form of documents, spreadsheets, records, and anecdotal experiences was captured manually and then transcribed for the benefit of the whole organization.

Today, knowledge capture tools can be integrated into field service workflows to retrieve both the explicit and tacit knowledge that lies within employees, machines, and organizational processes. This information can then be organized and repackaged for training and reference purposes. The most advanced knowledge capture tools rely on automation, drawing on insights gained in the field to generate a knowledge base without the touch of the human hand.

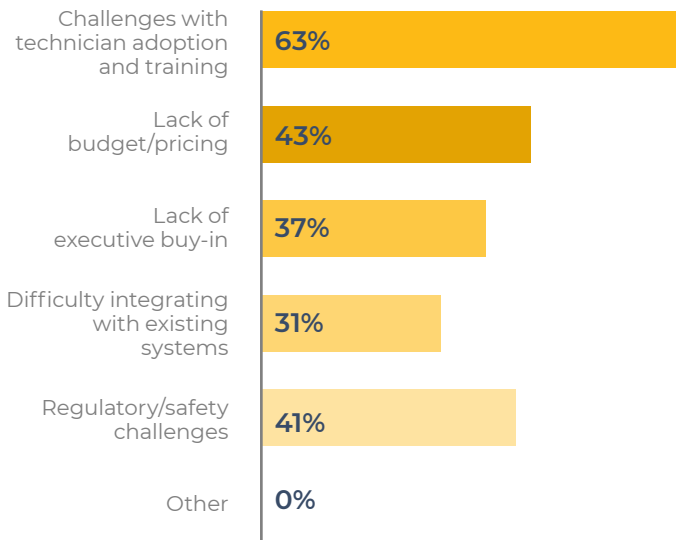
Still, integrating such tools is a challenge for many field service organizations in and of itself.

At 63%, a majority of organizations are struggling to get their technicians trained so they can adopt advanced knowledge capture tools into their service strategies. Meanwhile, 43% lack the budget to do so and 41% are concerned with regulatory and safety challenges. Other challenges for integrating advanced knowledge capture tools include lack of executive buy-in and difficulty integrating such tools with existing systems.

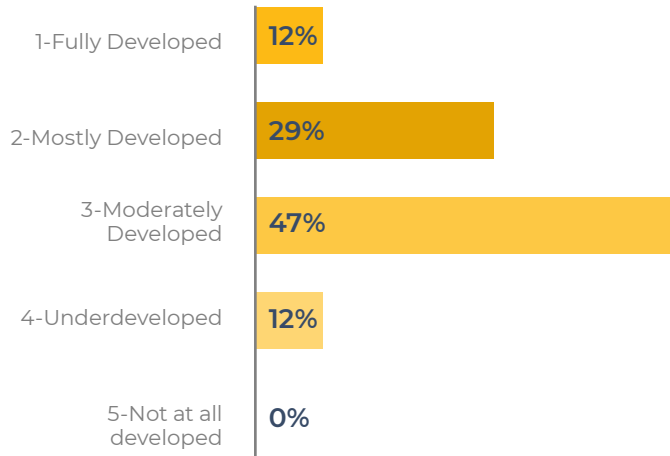
IN BRIEF — WHAT TO DO NEXT

- Integrate knowledge capture tools into your field service workflows.
- Orient your tools to retrieve both the explicit and tacit knowledge that lies within employees, machines, and organizational processes.
- Train veteran technicians to work with knowledge capture tools, as they are your best resource for enterprise knowledge.

What are the most significant challenges you face when integrating more advanced knowledge capture tools into your service strategy?



Rate your current ability to utilize Big Data to support your service operations' automated knowledge capture programs on a scale of 1-5, with 1 being fully developed, and 5 being not at all developed.





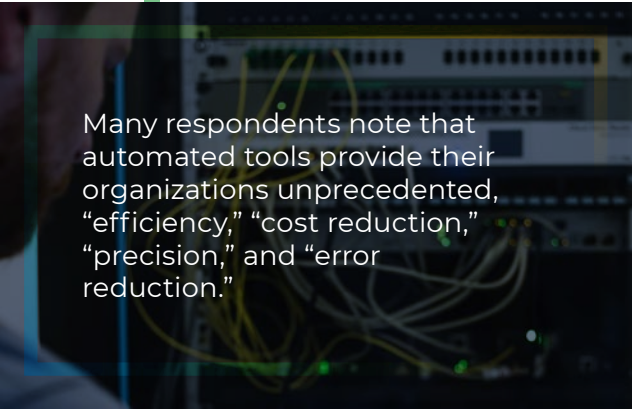
Nonetheless, at 88%, most respondents say they are making headway in the use of Big Data to support their service operations' automated knowledge capture programs. Among them, almost half (47%) have only moderately developed this ability.

To achieve the full development of their knowledge capture programs, **field service organizations must train their veteran technicians to work with these automated technologies.** Some of the most effective knowledge management systems rely on technologies that are already in technicians' pockets, such as smartphones, cloud-based apps, and simple IoT devices.

Once veterans have adopted these technologies, they can begin to be deployed across the organization. Through qualitative responses, respondents make clear that integrating automated knowledge capture tools will be a significant step in capturing field data and organizational knowledge.

According to one respondent, "Data at the source is unstructured. With the help of automation, this unstructured data gets captured and segregated to provide a formal structure that can be broken down as preferred for use."

Similarly, another respondent says, "Automations, especially in data collection, streamline the next step and eliminate the data verification procedure." Many other respondents note that automated tools provide their organizations unprecedented, "efficiency," "cost reduction," "precision," and "error reduction."



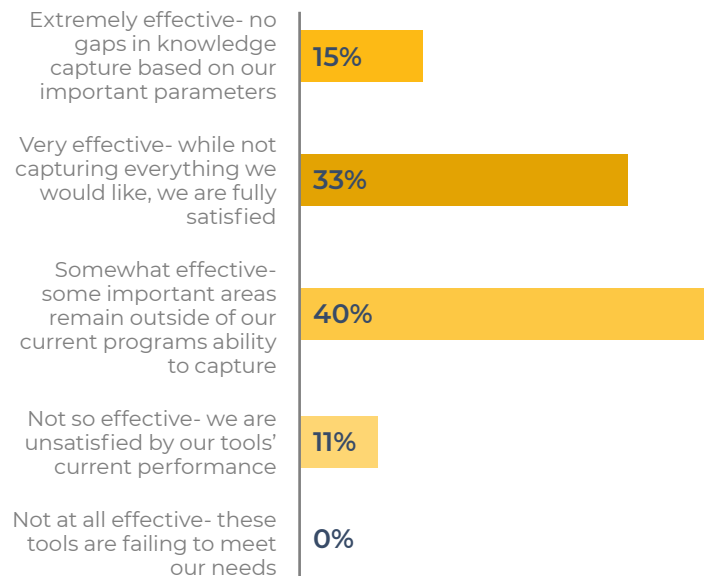
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MEASURING THE SUCCESS OF EXISTING KNOWLEDGE CAPTURE TOOLS

To understand their ability to capture, organize, and make use of enterprise knowledge, service organizations must first assess their current knowledge capture tools.

How would you rate the effectiveness of your organizations' knowledge capture tools that are currently in place?



While it's clear that most respondents believe in the power of automation to streamline their knowledge management efforts, they are split on the efficacy of their current tools.

At 51%, a slight majority of respondents rate their organizations' current knowledge capture tools as either 'somewhat' or 'not so' effective. They are either unsatisfied with their tools' performance, or they believe their current programs are missing important areas of their operations.

51% OF RESPONDENTS RATE THEIR ORGANIZATIONS' CURRENT KNOWLEDGE CAPTURE TOOLS AS INEFFECTIVE

Worldwide Business Research



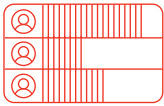
CSG

“How do we simplify and work smarter using our technology and systems?”

Keith Ladson | Sr Director Field Technical Operations - Install & Service

CHALLENGE

- A Tier 1 quad-play provider generates 10 million rows of data per day, making it challenging to quickly pull the information needed to make good business decisions.
- For this Tier-1 quad-play provider to manage its field service team, it needed to:



Align its resources optimally throughout the day to respond to ever-changing workloads



Meet its brand promise of an on-time arrival



Need for real-time data to empower leadership and decision making

SOLUTION

- CSG Dash is an easily configured Business Intelligence (BI) and analytics reporting tool that seamlessly integrates with Operations Support Systems (OSS), Business Support Systems (BSS), field service systems, and additional operating systems.
- Enables field leaders to access relevant insights and respond in real-time throughout the service journey.

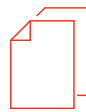
RESULTS



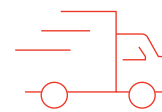
5% increase in productivity



Maintained on-time arrival track record (within 1-2 hour appointment windows)



Eliminated need for manual reporting



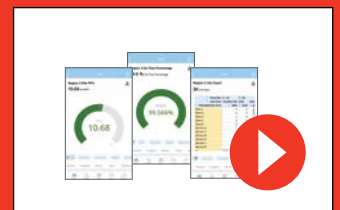
Reallocated resources to other value-added activities



Leveraged insights to deliver better business results

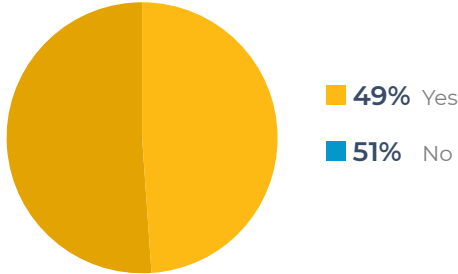
WATCH THE WEBINAR FOR THE FULL STORY

Challenged with stale data? Make Real-time decisions with dynamic data and support from **CSG Dash**.





Are your current knowledge management tools able to be used as an asset in negotiations with contractors?



Similarly, 51% of respondents say their current knowledge management tools can't be used as an asset in negotiations with contractors. Although their current tools may provide some benefit to their technicians, they don't yet serve as an attractive feature to prospective contingent workers.

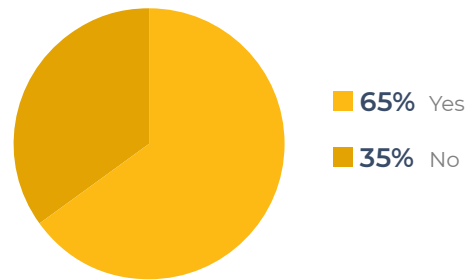
As we noted, 43% of respondents say budget and pricing are barriers to their adoption of automated knowledge capture tools. Training takes time, and integrating new tools is also expensive. **Organizations will need to make strategic and sensible investments moving forward if they intend to integrate more effective tools into their processes.**

Regardless, most organizations do recognize a significant benefit from their current tools: the ability to increase the first-time fix rates of their newer technicians.

Among the respondents, 65% say their current knowledge management tools accelerate the ability of their new technicians to fix problems the first time they are deployed to the field. About one-third of respondents don't believe their tools do so.

65%
65% of respondents say their current knowledge management tools accelerate the ability of their new technicians to fix problems the first time they are deployed to the field.

Are your current knowledge management tools able to accelerate the ability of new technicians to improve their first-time-fix rates?



Field service organizations will look for specific features in their automated knowledge capture tools moving forward. Specifically, two features stand out amongst respondents' qualitative responses. **Field service organizations need tools that seamlessly integrate into an existing environment, and they need tools that not only capture knowledge effectively but also amplify it, making it easily accessible across the organization.**

For example, one respondent says a new tool "should not only capture knowledge but also categorize it and proactively provide it in required destinations within the organization."

Similarly, another respondent says the tool "should describe knowledge better, and we should be able to use the information generated in the best possible manner."

Other respondents are interested in tools that will fit easily into their existing framework. According to one respondent, "We should be able to implement it effectively and not spend on adjustments and tailoring our infrastructure to fit this technology." Another respondent says, "It should be easy to integrate into an already complex operational and functional infrastructure."

Other respondents are interested in "reliability," "accuracy," and "stable performance," among other qualities.

IN BRIEF — WHAT TO DO NEXT

- Be strategic about your knowledge capture tool investments. Search for tools that fit seamlessly into your existing environment.
- Start with small investments and obvious wins, then expand upon your knowledge capture program.
- Create a framework whereby knowledge is easily accessible across the organization — solutions that are accessible through everyday tools like smartphones can help.



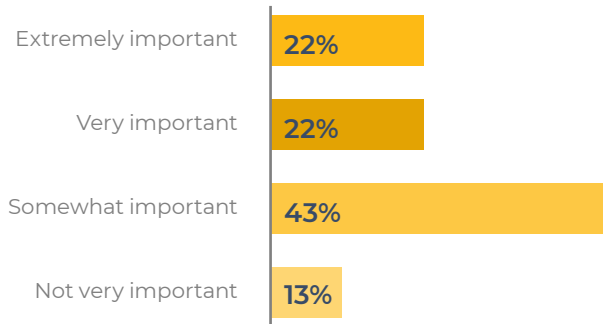
EVOLVING SERVICE MODELS WITH AUTOMATED KNOWLEDGE CAPTURE

The primary objective of onboarding any type of tool is to produce better business outcomes. Automated knowledge capture tools don't just help the organization create a repository of enterprise knowledge to pass on to recruits; they also help organizations evolve their service models, allowing for more first-time fixes, better customer service outcomes, and lower costs.

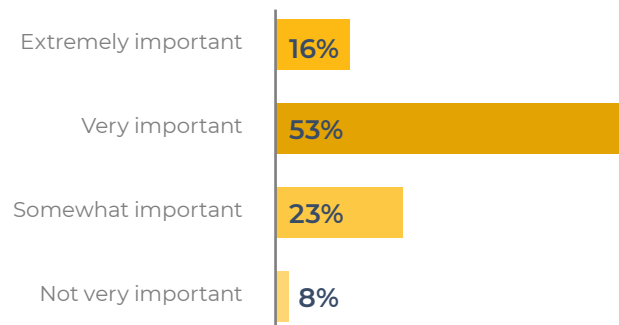
As such, there are many elements of knowledge capture that are essential to the organization.

How important are the following knowledge capture elements to your current organization?

Back-end knowledge capture (i.e. analytics math, pattern recognition, etc.)



Front-end knowledge capture (i.e. technician best practices, transit times, etc.)

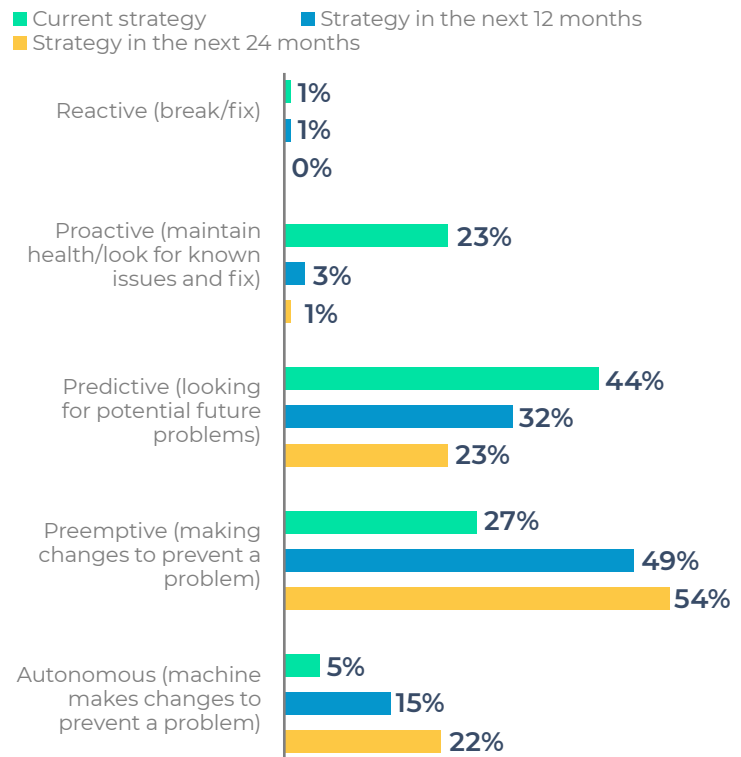




At 53%, a majority of respondents consider front-end knowledge capture — the capture of technician best practices, transit times, and other first-hand field data — to be 'very important.' Meanwhile, a plurality of respondents (43%) consider back-end knowledge capture — analytics math, pattern recognition, and other data-driven processes — to be 'somewhat important.'

This suggests most organizations are interested in automated knowledge capture tools for the hands-on knowledge they can provide their technicians. Data-driven insights are important but secondary. In the future, organizations will need to apply both knowledge capture elements to enhance the maturity of their service model, but it's clear that field knowledge and know-how are more critical in doing so.

Where is your current service model on the following scale? Where do you anticipate it will be in the next 12 months? In the next 24 Months?



81%

81% of respondents expect to deliver autonomous service by 2022

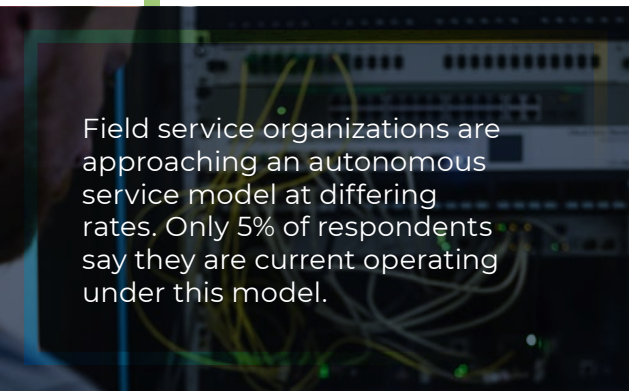


Researchers asked representatives of field service organizations about the status of their service model and how they expect it to look in the next year as well as the next two years. Among them, 67% are operating under either a proactive or predictive model. They are maintaining the health of their field assets while also looking for known issues to fix or anticipating potential problems.

A slight majority of respondents (54%) expect to reach or continue a preemptive posture within the next 24 months, while 49% expect to be using this model within the next 12 months. Fewer respondents anticipate reaching an autonomous model within the next 12 or 24 months, although 5% of respondents say they are currently operating under this model.

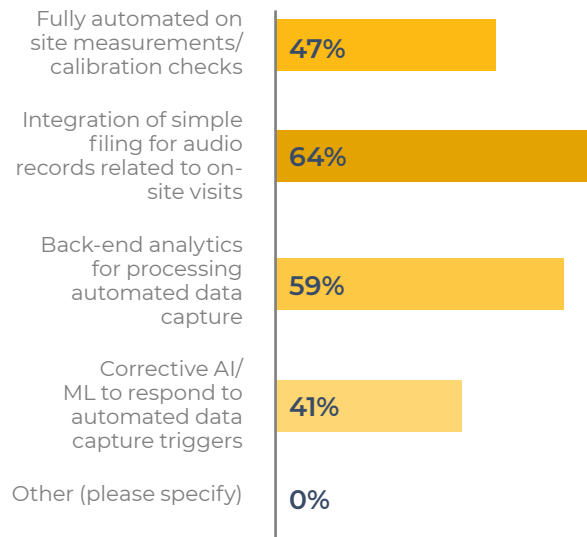
Field service organizations are approaching an autonomous service model at differing rates, but it's clear from these results that they are making progress. In most cases, organizations will need to deploy new capabilities to grow their service models.

However, new capabilities can't be deployed in a piecemeal fashion. Rather, **field service organizations should deploy new capabilities as part of their ongoing knowledge management strategy, and in support of their goals for service operations.**



Field service organizations are approaching an autonomous service model at differing rates. Only 5% of respondents say they are current operating under this model.

Within the next 12 months, which capabilities are you planning on developing relative to your ability to capture organizational knowledge?



Within the next 12 months, 64% of organizations expect to integrate the simple filing of audio records related to on-site visits, and 59% expect to integrate back-end analytics for processing data that is captured through automation. Forty-seven percent plan to fully automate their on-site measurements and calibration checks.

Finally, 41% plan to integrate corrective artificial intelligence and machine learning capabilities to respond to automated data capture triggers. This capability is integral in the step toward an autonomous service model, and it's quickly coming within reach of organizations that have been proactive in addressing their knowledge management challenges.

IN BRIEF — WHAT TO DO NEXT

- Incorporate your knowledge capture program into the broader goals for your service operation.
- Deploy new capabilities gradually, with the eventual goal of achieving an autonomous service model.

HOW TO TAKE ACTION

WHAT TO DO NEXT

- Train veteran technicians to work with knowledge capture technologies, so they can pass their knowledge to the next generation. Some of the most effective knowledge management systems are accessible through everyday devices like smartphones.
- Make strategic investments in new knowledge capture tools. Each investment should fit within your knowledge management roadmap and work to evolve your service model.
- Look for tools that seamlessly integrate into your environment. You shouldn't have to spend on auxiliary products just to take advantage of automated knowledge capture.
- Deploy new capabilities in support of your goals for service operations. Working toward an autonomous service model may require multiple new capabilities, but you should have a clear plan of how they'll help you achieve it.

To finish the study, researchers asked representatives of field service organizations what impact stronger knowledge capture tools would have on their organizations from a productivity standpoint.

Several respondents agree that they can reduce the time it takes to find solutions to problems, thereby increasing productivity. Many also agree that they allow them to apply several different skillsets to a given problem through collaboration, yielding better results.

For example, one respondent says the tools help to “develop a solution- and innovation-oriented culture within the organization.” Another respondent says, “The rate of innovation goes up as there are more documented skills that are used in problem-solving during the innovation and development process.”

To take advantage of the benefits of automated capture tools, you should tap your knowledge base to apply multiple skillsets to a singular problem. Instead of relying solely on their own knowledge and experience, a technician in the field should access your knowledge base to find novel solutions to the unique challenge in front of them.

Other respondents say such tools can help to reduce errors, increase the value of their enterprise knowledge, and enable more personnel within the organization to access the knowledge base.

Interestingly, one respondent says a key benefit is that knowledge capture tools can help to “protect the intellectual capital of the organization.” Other respondents say the tools can even reduce stress and increase the confidence of their field technicians.

“No one is scared by challenges. There is a greater focus on creating and enhancing solutions,” says a respondent.

By implementing knowledge capture tools, your objectives should be to switch to a more preemptive, autonomous service model, maintain a knowledge base to empower the next generation of field technicians, and provide customers with faster, more effective service outcomes.



ABOUT THE AUTHORS



WBR Insights is the custom research division of Worldwide Business Research (WBR), the world leader in industry-driven thought-leadership conferences. Our mission is to help inform and educate key stakeholders with research-based whitepapers, webinars, digital summits, and other thought-leadership assets while achieving our clients' strategic goals.

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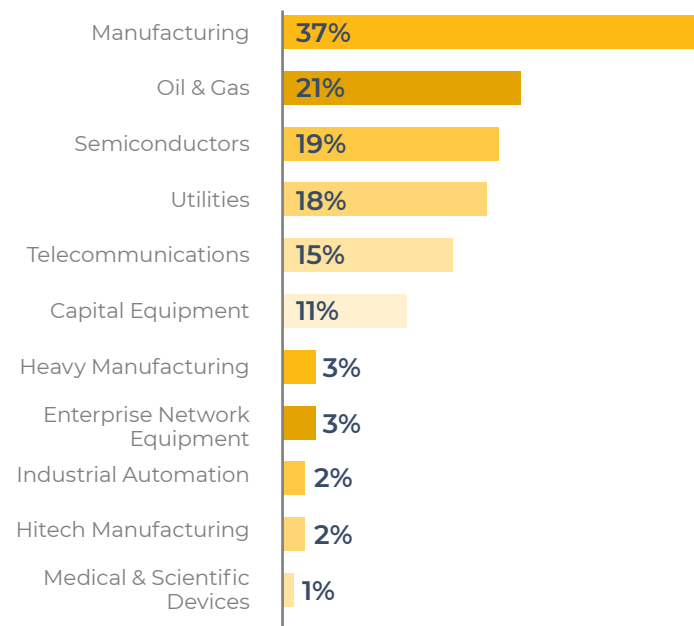
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ABOUT THIS RESEARCH

To obtain the data for this research, the WBR Insights team surveyed a grouping of 100 respondents from field service organizations across the United States and Canada. The respondents provide services to a variety of industries. Many of the respondents serve multiple industries as part of their business.

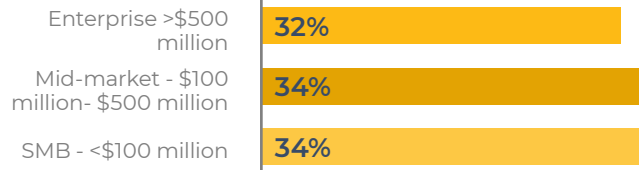
What best describes the areas in which you provide service?



At 37%, a plurality of respondents serves the Manufacturing industry, and at 21%, over one-fifth of respondents serve companies in the Oil & Gas industry. Other areas served by the organizations represented in this study include Semiconductors (19%), Utilities (18%), and Telecommunications (15%).

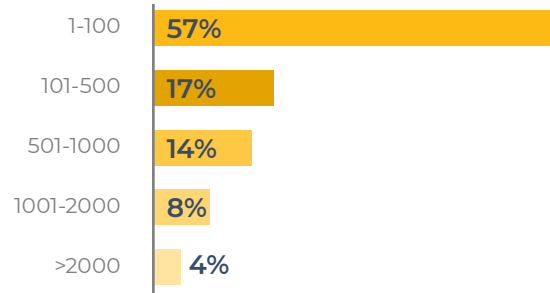


What is your estimated annual revenue?



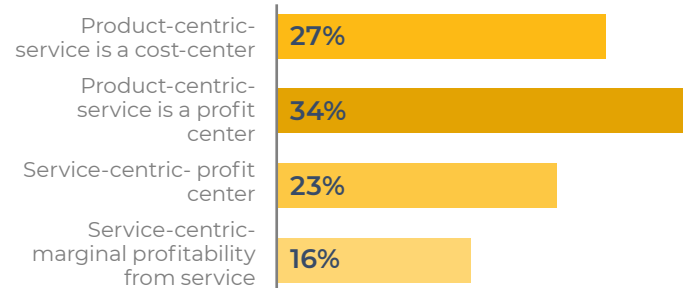
Respondents are almost evenly split in size, measured by how much revenue their organizations bring in each year. Almost one-third of respondents represent enterprise organizations with over \$500 million in annual revenue.

Roughly, how many field service technicians do you have in your global workforce?



Only 12% of respondents represent organizations with 1,000 or more field service technicians in their global workforce. A majority of respondents (57%) have 100 technicians or fewer.

What is the role of service in your organization?



Most of the organizations surveyed are product-centric, with 27% considering service as a cost-center and 34% considering service as a profit center. Overall, 73% of organizations see at least marginal profitability from their service operations.