Customer Engineering Services Case Study: Augmented Reality for Distributed Field Service Workers

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Augmented Reality for Distributed Field Service

Customer Engineering Services (CES) outlined key criteria of its augmented reality (AR) deployment decision-making process in its case study with IDC. Features and functionality of an AR training and remote assistance solution for regionally distributed field service workers, the level of support required, and the impact on key metrics such as first-time fix rates and specialist escalation reduction drove the selection of CareAR as CES' technology provider.

Key Takeaways

- AR training and remote assistance applications help improve first-time fix rates and reduce repeat truck rolls.
- Specialist escalations increase time to fix and are costly for both service provider and customer alike.
- Early and consistent employee engagement helps better refine and troubleshoot workflows, increases end-user adoption, and improves worker morale.

Recommended Actions

- Be patient and selective when it comes to new technology deployments. Take the time to research the right solution and vendor that fits your specific business needs.
- Prioritize the level of customer support your vendor provides. It will be an invaluable asset to the success of the deployment.
- Seek solutions that are flexible enough to scale with future business strategies, technology form factors, and evolving use cases.

Source: IDC, 2024

SITUATION OVERVIEW

Selecting and deploying an augmented reality (AR) training and remote assistance solution for field service technicians poses a unique set of challenges. It is imperative that AR functionality and suitability be considered against key criteria such as first-time resolution rates, time to repair, cost, ease of use, and the demands of varied geographic locations and environments. Customer Engineering Services (CES) leadership was able to find an AR training and remote assistance solution that ultimately met all of these foundational requirements, CareAR Assist. This document provides insight into key criteria and decision-making processes that guided CES' overall approach to AR deployment – specifically into what challenges needed to be addressed, the level of support required, the impact on employees, what vendor CES selected, and why that vendor was chosen.

CES is an authorized service provider of industrial printing and other electromechanical equipment with over 200 field-based technicians tasked with servicing equipment located across the United States and Puerto Rico. Spanning urban, suburban, and rural geographic locations, travel to these sites alone can take technicians hours, resulting in extended equipment downtime and lost revenue for CES customers. Chief Executive Officer Scott Johnson is one of the several leaders at CES who leads the selection, oversight, and implementation of new technologies at CES, including its AR training and remote assistance solution.

What CES Needed and Why

CES' field service workforce comprises both experienced and novice technicians that service and maintain a variety of industrial printing and other electromechanical equipment in locations across the United States and Puerto Rico. When a CES customer reports a malfunction or an issue with a piece of equipment, CES assigns and dispatches a technician to the location to make the necessary repairs onsite. In an ideal scenario, a technician is local to the customer location and is able to address the problem the first time with minimal equipment downtime. Sometimes, however, the problem is more complex and needs to be escalated to a specialist technician to diagnose the issue or assist with the repair. In these instances, time to fix can increase dramatically since CES specialists represent a smaller group of CES technicians. In some instances, these specialists may be regionally located and require hours of travel to reach a given location, and, in some cases, a specialist may even need to be flown to the location. This delay not only increases the downtime of the customer's equipment impacting revenue but also increases the hard costs for CES, such as travel expenses, plane tickets, and hotel costs. In addition, since these specialist technicians can't be productive while traveling to these locations, CES loses a valuable asset and potential opportunity for additional business while they are in transit.

With these common challenges in mind, CES sought a solution that would increase the overall efficiency of its workforce in two primary ways. First, CES leadership wanted to increase the first-time fix rates of its technicians while reducing repeat dispatches or "truck rolls" to customer locations. Essentially, CES wanted a solution that would help technicians resolve the issue quickly on the first try. Second, CES wanted to avoid or prevent field escalations of its specialist technicians. These escalations not only delayed time to fix but also increased operational costs for CES while creating logistical inefficiencies for the company. "Our specialists are some of our most valuable resources, so having them sitting on planes or driving for hours where they can't do any real work was not a winning situation for us," said Johnson.

The Search for an Augmented Reality Solution

For Johnson, the search for an AR training and remote assist solution suitable for field service began over a decade ago. Johnson explored numerous early AR hardware solutions available like Google Glass and Vuzix smart glasses, in addition to early AR software solutions designed for augmented step-by-step instructions. However, the AR hardware available in 2014 was limited in functionality, and the existing AR software solutions were very IT focused, also limited in functionality, and cost prohibitive. "It was a ridiculous sum of money for a company our size just to pilot some of these solutions, in addition to needing a large investment in back-office resources that simply made the technology cost prohibitive," said Johnson. Ultimately, no one AR solution met all of CES' requirements. The solutions either lacked proper support or a feature or functionality issue was incompatible with CES needs.

Finally, after years of patiently waiting, CES found and deployed an AR training and remote assistance solution that met all its requirements from a support, functionality, and cost perspective – CareAR Assist.

CareAR Assist

CareAR Assist is an augmented reality visual support "See What I See" solution designed for customer service management, field service management, and IT service management. CareAR Assist allows remote experts to provide real-time visual AR assistance, guidance, and compliance for onsite customers, field workers, and employees. Users can access CareAR Assist via desktop, mobile device, or smart glasses, and it helps CES achieve its primary goals in the following ways:

- **Improved first-time fix rates:** CareAR Assist allows onsite CES technicians (both novice and senior) to access visual step-by-step procedure guidance with AR annotations and instructions in real time via mobile device. This allows technicians to service equipment efficiently with high degrees of accuracy, improving first-time fix rates and reducing the number of repeat truck rolls.

- **Preventing field escalation:** Onsite technicians that are unable to diagnose an issue or lack the knowledge on how to fix an issue can collaborate with a remote specialist technician in real time to explain the problem or receive live instruction from a specialist technician with AR annotations on how to resolve an issue. This helps prevent the need for a specialist to travel to the location themselves, saving CES' time and money, while also allowing a single specialist to assist multiple technicians at any given moment, regardless of the location.

- **Faster training:** Novice technicians are able to access detailed visual instructions on equipment they are unfamiliar with, speeding up the amount of time it would take to learn a procedure from a traditional training manual. In addition, via guided instruction from a specialist technician, they are able to collaborate in real time reducing the amount of trial and error it would take to learn a procedure or piece of equipment on their own.

- **Employee experience:** All CES technicians have access to CareAR Assist, making the solution incredibly accessible. Accessing the application is as simple as scanning a QR code, installing the application, and then initiating a session. CES employees are more efficient, confident, and productive through the use of CareAR Assist.

- **Customer experience:** As a customer of CES, increased first-time fix rates, reduced truck rolls, faster resolution, and more capable technicians equate to a significant reduction in equipment downtime and have a positive impact on revenue and satisfaction.

CareAR: Support, Planning, and Pilot

Getting the right solution into the hands of a worker is only part of a much larger picture when it comes to enterprise deployments. For CES, the level of support and collaboration CareAR provided during all phases of the deployment was a critical and deciding factor that led to CES' selection of CareAR Assist. "What I really liked right out of the gates is that CareAR was very focused on support. They were very much on the point of forming the business case, understanding our needs, and determining what would define a winning solution for CES," said Johnson. CareAR provided dedicated representatives for CES and held collaborative discussions with CES stakeholders, including himself (the CEO), the field operations team, specialist technicians, and other CES executives. The goal was to clearly define problems and to provide a realistic and tangible view of what the end result of the deployment would be.

Once the problems and success factors had been clearly defined, CES conducted a three-month pilot of CareAR Assist. During the pilot, employee engagement was made a high priority, as was clear communication from CES to employees about why this solution was being deployed and what the company goals were. CES used A and B control groups of employees to determine the best workflows, comparing the experiences against technicians of varying skill levels, roles, and geographic locations to optimize the end-user experience. For example, while the amount of time a technician spent onsite was an initial concern and a metric CES tracked, the pilot of CareAR Assist helped uncover that, in some instances, it was significantly less expensive for a technician to spend a more time onsite than a repeat truck roll or specialist escalation.

The pilot and deployment of CareAR Assist also had a significant impact on the employees using the tool. As with all new technology deployments, end-user adoption always has the potential to pose a challenge, especially with novel technology like AR remote assistance. Internal change advocates helped evangelize CareAR Assist among employees, and once the technicians started using it, they discovered it was very intuitive and did not require sitting through hours of training to learn. In fact, CareAR Assist had a very positive impact on CES technicians and even elevated employees' perception of the company according to Johnson. "We got a lot of very positive feedback from everyone about the tool, the ease of use, and the effect it had on them and their process. So a benefit there was our employees saw that we were trying to innovate and provide them with tools that help them provide a greater contribution to the success of the business."

Future Outlook

Looking forward, CES intends to expand its use of CareAR Assist to help facilitate field certifications for newer technicians. In its current state of deployment, CareAR Assist excels in the remote training of new technicians, but field certifications still require the presence of an additional senior technician to observe and ensure the servicing or repair of a piece of equipment is done correctly. This process requires an additional truck roll and the physical presence of a senior technician to observe the work. CareAR Assist has the potential to eliminate the need for the physical presence of a senior technician, saving CES time, effort, and money. Another future plan of CES is to incorporate wearable technology like smart glasses into its technicians' workflows, allowing them to work hands-free while leveraging CareAR Assist. Currently, CES technicians use mobile devices to access the tool for ease of use, but CES would like to explore smart glasses options once a solution that fits its needs is available. Finally, as a national W2 employer, CES does not use contract labor as part of its business operations. However, given that CES' customer base is growing regionally, leveraging CareAR Assist to enable contract technicians in more remote areas would help CES reduce operational costs where a specialist technician would otherwise be required.

Well into CES' deployment of CareAR Assist, CES leadership reports a positive experience as a CareAR customer. CES and CareAR hold monthly cadence calls to refine workflows, as well as quarterly business reviews to track results and confirm a positive ROI for CES. "Our partnership with CareAR has been very collaborative, which helped the deployment stand out in terms of ease. It's been almost a model for how we would like to see things work going forward. It never felt like they were only in it for the sale, and that is what I look for now when I speak to potential partners, and I encourage others to do the same," said Johnson.

ADVICE FOR THE TECHNOLOGY BUYER

Enterprise deployment best practices should always include conducting an extensive audit of the organization's specific needs prior to deployment. Enterprise organizations that are faced with similar challenges or are exploring new workforce solutions should consider the following:

- **Prioritize employee engagement:** End-user engagement is essential to deploying a new technology that impacts their day-to-day workflows. Prioritize high employee engagement throughout the pilot phase, communicate why a given technology was selected, and clearly define what the company's goals and expectations are for the employees while encouraging honest and open feedback. Change advocates can be a tremendous asset and help evangelize a solution while educating the broader worker population of its benefits.

- **Be patient and selective:** Deploying a solution or technology that does not meet your critical technical requirements is a waste of time and money. In addition, selecting a solution provider that does not meet your support requirements can be just as detrimental to the success of the deployment.

- **Look for solutions that will scale with future business strategies:** All businesses want to grow, and all businesses want to be able to adapt to changing market conditions. In the case of CES, CareAR Assist not only serves its current needs, but it will allow CES to expand its use cases in the future, such as deploying smart glasses that allow technicians to access CareAR Assist while working hands-free. CareAR Assist will help CES train and certify new types of workers, adapt to new customers, enable technicians working in new locations, and service new equipment types.

LEARN MORE

Related Research

- *Worldwide Augmented, Extended, Mixed, and Virtual Reality Headset Forecast Update, 2024-2028: CY 3Q24* (IDC #US51612324, July 2024)
- *AWE USA 2024: Refining Spatial Computing* (IDC #lcUS52389624, June 2024)
- *IDC's Worldwide AR/VR Headset Tracker Taxonomy, 2024* (IDC #US52075924, May 2024)
- *Top 5 Trends in Enterprise Mobile Devices to Watch in 2024* (IDC #US51856224, February 2024)
- *Apple Vision Pro: Will It Work for Work?* (IDC #US51826624, February 2024)
- *Top 5 Trends in the Augmented and Virtual Reality Market to Watch in 2024* (IDC #US51740723, January 2024)

Synopsis

This IDC Perspective examines how CES leadership determined and executed a set of foundational requirements in the selection, deployment, and application of an augmented reality (AR) training and remote assistance solution to be used by field technicians in a variety of customer retail locations. This document provides insight into key criteria and decision-making processes that guided CES leadership's overall approach to its augmented reality deployment. The goal of this document is to provide technology buyers with core criteria that are essential for a successful augmented reality training and remote assistance deployment in a field services environment.

"Taking the time necessary to seek a technology solution and solution provider that meets your unique business needs is a core success factor for any enterprise deployment," said Bryan Bassett, research manager, IDC Enterprise Mobility: Workspace and Deployment Strategies. "When augmented reality features, functionality, hardware, and support are in alignment, AR has the potential to deliver a truly transformational outcome in business deployments, and none of those criteria should be overlooked or compromised."

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