SAMSUNG

White paper:

The ultimate guide to business connectivity in field services

A roadmap to increased workplace efficiency

Introduction

The challenges that field service workers face today stem from one primary issue: a lack of business connectivity. They require the same capabilities to access information and collaborate as the corporate office but have fewer tools to do so. This dichotomy between expectations and reality results in headaches that manifest in a variety of ways.

But businesses can address this lack of connectivity by turning to mobility-driven solutions. Mobile devices are often the first rung on the ladder to more systematic digital transformation. Adopting mobile devices provides a platform for future adoption of more advanced applications and capabilities that benefit the field service worker.

This shift is already happening: Standing at $3.12 billion in 2018, the market for global field service management promises to expand at a steady rate of 16.9 percent and reach $10.81 billion by 2026.[1] As more organizations invest in field service management, investment will focus on areas where technology can deliver the most meaningful increases in efficiency and improve customer service.

This guide walks through the challenges that field service workers routinely face due to a lack of connectivity, how mobile devices can help overcome these challenges and the steps companies can take to implement a robust custom mobility solution to deliver field service connectivity.

According to Field Service USA, technician connectivity extends equipment life cycles, reduces site visits and improves customer satisfaction.[2]

Who is a field service worker?

Field service includes diverse workers, from residential cable installers to machine engineers who service complex manufacturing equipment. Field service work can take place in a number of industries, including oil and gas, construction, telecommunications, home repairs, electrical repairs, public works professionals and more.

Part 1
Why is lack of connectivity a problem?

The nature of field service is changing as technology is becoming more complex and customer expectations more demanding. At the same time, companies are looking to maximize efficiencies through more strategic distribution of talent. This places significant pressure on field service workers to get things done right the first time.

Connectivity is the key ingredient to keep processes humming, and its absence can seriously hinder field service operations in many ways, resulting in:

1. Static information

A lack of connectivity in the field means that each worker functions in their own silo, effectively cut off from information about the larger picture. The information that the worker relies on might have changed, which might lead to work being done the wrong way, or when not completely necessary.

Disconnected service workers often experience downtime while gathering information that would otherwise be found quickly via mobile platform. Downtime results in inefficiencies and decreased productivity for the company. Without connected devices, when a service order comes in, customer service representatives need to print a stack of daily tasks for each field service representative or call workers while they're on the road.

If a worker is busy attending to other calls, there is an additional delay in relaying necessary information. At the end of the task, the employee might have to call back in to order parts or update the project status. The field service worker will have to enter information into the company's enterprise resource planner (ERP) the next day, which further delays processes down the line, such as invoicing.

2. Constrained knowledge base

When a field service worker is disconnected from the corporate office, they are also cut off from a larger knowledge base and have to rely solely on their own experience to complete the job successfully. Sometimes that might not be enough. If that happens, they would need to schedule a follow-up appointment, which hinders productivity.

Disjointed information also leads to issues for field service companies that operate in multiple geographic locations and rely on new information they receive from company headquarters. A central platform for knowledge and learning ensures workers have access to training materials and the most up-to-date protocols. Without a central source of knowledge, there may be change management issues.

3. Poor customer experience

For better or for worse, the field service worker is increasingly becoming the face of the company. According to Forbes, the connectivity achieved by digitizing knowledge access increases technician efficiency and improves customer satisfaction.[3] Given that this is the most direct channel for customer engagement, performance can make or break a relationship. Excellent service can be a crucial driver of business renewal.

Work order delays, missing parts or a job done wrong because of a lack of access to knowledge databases present a problem for customer experience (CX). Especially given today's demanding customer, companies cannot afford such missteps due to a lack of connectivity.

4. Increased expenses

Limited field service connectivity sometimes leads to unnecessary use of expensive talent. Companies might overcompensate and send the most experienced and expensive worker to address a problem even when not needed. They can avoid the expense by assigning workers depending on the nature of the job, and then providing mobile knowledge backup as needed.

If field service workers are disconnected, managers don't have a window into the situation on the ground, and can't reroute labor efficiently in case of a problem. Workers in the field need just as much connectivity as those in the main office. They need access to information, as well as the larger enterprise ecosystem, to do their jobs on time, within budget and to the customer's satisfaction. Without connectivity, all of these suffer and impact a company's bottom line.

Mobility is the ultimate tool for the empowerment of field service workers because it grants connectivity. Using mobile devices, field service workers can access a larger database of knowledge and lean on experts to fill in the gaps. Additionally, field service connectivity improves productivity by enabling a variety of additional functions such as inventory management, invoicing and work order signoff while on the road.

Field service in hazardous areas

Whereas most aspects of field service work will require rugged mobile devices for connectivity, certain industries such as oil and gas and construction qualify as hazardous operating environments. There is a potential for explosions in these areas due to volatile substances interacting with electrical charges in unprotected devices.

Standard specifications dictate the kinds and extent of hazardous conditions that devices can tolerate. The primary driver for a non-incendive device is that the mobile tablet or phone should not create an electric spark large enough to produce a fire.

Certification deems devices to be safe for use under both class and division. For example, Class (or Zone) 1 means flammable vapors of gas are present in quantities enough to be ignitable.

Further categorization into divisions signals the kinds of operating conditions under which these hazards can be generated. A Division 1, for example, means that the hazard can be present under normal production conditions, while Division 2 means that the hazards are securely contained and pose a threat only in case of accidental rupture.

Finally, the ignition temperature of the chemical hazard (acetylene, for example) will indicate classification in one of groups A, B, C and D for Class 1, while the ignition temperature and conductivity of the dust in Class 2 will dictate if the material will fall into E, F or G.

Since hazardous conditions impose an additional design challenge for mobile devices, implementing connectivity for field service workers is especially difficult. Up until very recently, they depended on phone calls or ruggedized laptops with unreliable connections on the road. But Samsung has partnered with Pepperl+Fuchs to build on its rugged line of devices, including the Samsung Galaxy Tab Active line and the Galaxy XCover Pro, to bring to market non-incendive versions that allow for operation in Zone 2/Division 2 operating environments. These devices ensure safety under hazardous operating conditions and equip field service workers with all the benefits of connectivity despite these hazards.

Part 2
How connectivity can help

The adoption of mobile devices is a critical first step for field services on the path to digital transformation.

Companies still working with paper see productivity gains from switching away from manual processes. Similarly, those who have already implemented basic digitization can reap benefits from using mobile device connectivity to further optimize procedures. Even in more technologically advanced organizations, the same mobile device can serve as a conduit for emerging technologies such as augmented reality (AR), virtual reality (VR) and extended reality (XR) that can help the field service worker.

At the end of the day, a connected field service worker gains access to data, which is vital currency for today's businesses. Equipped with real-time information, the employee now enjoys several advantages, which companies can systematically harvest.

The advantages of mobility in field services include:

1. Automated work order management

Access to the company's customer relationship management (CRM) system on the road means the worker can pull up the relevant job without relying on phone calls from CX representatives. They can pull up work orders at the job site, populate forms with needed information, document the process before they forget steps taken, and check on the status of outstanding work orders.

Whereas traditionally workers called in to a customer service center to update progress, they can now save time by seamlessly attending to all the administrative tasks associated with a work order before moving on to the next job. They also don't need to call to get information about the next job and location; it just shows up on the mobile device. This saves time and improves worker productivity.

2. A view of the complete real-time field picture

Through field service management software, workers can see not only the status of their orders but also those of others on the ground. Equally important, managers get a real-time overview of the situation so they can allocate labor resources more efficiently.

Delays or challenges on a field service job can immediately flag the need for more workers so the situation can be resolved efficiently and with fewer delays. In instances where workers are deployed in hazardous areas, field service managers can make larger strategic decisions about labor and safety. For example, a flood watch or downed wires can affect how and where field service workers can be deployed and when.

3. Access to knowledge

The biggest advantage of mobile devices is that everyone — the workers and managers — are working with a single source of data both with respect to the situation on the ground and the knowledge database. Mobile devices give field service workers a common platform through which they can exchange and access information to help them on the road.

Because of connectivity, field service workers can tap into a stronger base of technical knowledge than they would have alone. A worker who encounters an unfamiliar situation can tap into a knowledge database by using strategic tag words — and can likewise update that same database as they gain expertise. This preserves communal knowledge so companies can build on years of employee expertise, ensuring the information doesn't leave when the field service worker does.

As companies advance on the path to complete digital maturity, workers can also tap into more advanced technologies such as AR to troubleshoot situations on the ground and call on fellow workers for help through smart assistance.

4. Improved customer service

Instead of a customer service representative calling a series of field service workers on the ground to address a problem, technicians can receive alerts from job sites close to their own geographic location. Quicker service leads to greater customer satisfaction. This is an especially important consideration as manufacturers continue to leverage contract workers in the field to "fill in service gaps," according to CustomerThink.[4]

Having access to a mobile platform means field service workers can make CX more seamless and simultaneously create more efficiencies by ordering new parts in real time, scheduling new appointments on the spot or even solving multiple problems in a single appointment by accessing the required knowledge online.

Connecting to knowledge with AR

One of the biggest advantages of connectivity is that field service workers can lean on a larger knowledge bank beyond their own experience. Video streaming applications and AR are tools through which workers can access this specialized technical know-how.

Mobile devices with open architecture platforms can support a variety of applications that drive even more value to field service workers. For example, Samsung rugged tablets support a Librestream application that enables field workers to use AR to view equipment issues in collaboration with experts who are located remotely.

Librestream's AR platform, Onsight, enables field service workers to get advice from experts using live video, audio and advanced AR tools, including telestration and IoT data overlay. With this technology, the off-site expert can see the same view the field service worker sees and can advise accordingly.

AR applications essentially layer a digital blueprint over the real one. Such a solution is especially useful for a field service worker who can use a mobile device to pull up a digital rendering of what a part should look like. By layering this image over what the part actually looks like while under repair, the field service worker can strategize next steps.

AR applications can also train field service workers by running them through a sequence of steps they can visualize against the backdrop of the actual work that needs to be done. Using AR, field service workers can gauge the condition of various parts and predict which ones will need to be replaced soon.

Part 3
How to implement field worker connectivity

Your enterprise has decided to implement connectivity for field service workers to realize the many promises of digitization. The steps you take next and how you implement a systematic rollout will determine how quickly and thoroughly you reap the dividends from a switch to system-wide connectivity. Even companies who have digitized basic functions such as work order management stand to gain from an evaluation of their processes and tweaking procedures accordingly.

At its most basic, a switch to (or improvements in) field service connectivity involves making key decisions about company-wide buy-in, the hardware and software needed and how to execute the change.

The incremental steps to follow include:

1. Get employee and corporate buy-in

Address employee questions about what is changing, how it will change and how they as field service workers will benefit from connectivity. Ensure that every field service worker's concerns are addressed and that you make the workers a central pillar of your transition to connectivity. Make sure the C-suite is also on board with the program, with firm financial backing in place to implement the strategy.

2. Set up an accountability team

Once you have buy-in from corporate and employees, set up a task force with members borrowed from various departments. Include representation from all parties, as they can provide vital input into how to fine-tune goals now and in the future.

The team draws up a clear blueprint with well-defined business outcomes to be realized from the connectivity implementation.

3. Determine your software needs

Review the input from your accountability team and determine how you're going to use the information. What kinds of analytics will facilitate the data sharing that connectivity can deliver? Would a work order management tool improve connectivity on the job site? Will supervisors need to check in on the status of workers throughout the day? You may want to seek a workforce application such as Oracle Field Service, which includes work order management tools that get companies started on the road to connectivity.

Because technology changes so frequently, companies may prefer choosing an operating system with an open architecture platform. With accessible application programming interfaces (APIs), open architecture facilitates the addition of new software and applications that can deliver even more value to the field service worker. AR and VR apps are examples of such advanced and evolving technologies that will find room in the field service worker's toolkit.

4. Consider hardware options

The blueprint for business outcomes will dictate the kind of mobile devices enterprises need for connectivity. Parameters to consider include:

Form factor
What form factor and screen size are ideal for your field service workforce? Rugged smartphones such as Samsung's Galaxy XCover Pro provide a convenient, compact form factor for quick information access, data capture and field communications. However, workers looking up detailed manuals from the knowledge database and attending to other work order processes while in the field may benefit from the extra screen real estate of an 8-inch or 10-inch tablet. Larger screens are also beneficial for leveraging AR assistance applications. Even if the company might not implement these capabilities right away, enterprise teams should keep future applications in mind as they select hardware.

Work environment
Most mobile devices for field service connectivity need to be ruggedized to withstand shocks and rough handling in the field. In addition, some field service workers operate in hazardous areas such as chemical plants, construction zones or oil and gas fields. In such cases, it's also important for the mobile device to be non-incendive, preventing the likelihood of a fire or explosion on the job site. The Tab-Ex® rugged tablets from Pepperl+Fuchs, for example, are safe for use in Zone 2 and Div2 environments.[5]

5. Choose the right partner

Simply buying into mobility is not enough. Strategize with vendor partners on how best to execute your goals and measure outcomes. For example, workflows optimized with digital solutions can reduce on-site job volumes and duration by providing knowledge access and even some services remotely.[6] Since mobile devices also need layers of data security, you may want to select a vendor that offers a security package or enterprise-wide mobile device management (MDM) solution.

Field service connectivity should not be a case of fix-it-and-forget-it. It should be an ongoing digitization conversation in which companies periodically take stock of where and how they can improve procedures to increase productivity. The most enduring gains result from incremental efficiencies that add up over time.

Samsung's field-ready mobile portfolio

Samsung's line of rugged smartphones and tablets are purpose built for frontline teams:

XCover Pro

6.3-inch edge-to-edge display; optimized for PTT communications with programmable physical buttons.

Galaxy Tab Active series

Rugged 10.1-inch and 8-inch tablets featuring S Pen for gloved note-taking and Samsung DeX to power desktop experience on external monitor.

→ Learn more about Samsung's Rugged Portfolio

All devices feature:

- MIL-STD-810 certification, passing 20+ tests including repeated drops, vibrations and extreme temperatures
- IP68 certified for dust and water resistance
- Long-lasting field-replaceable batteries
- Charging via durable pogo pin connector
- High-resolution cameras

Samsung Knox platform

Defense-grade, hardware-based security is at the core of Samsung Galaxy mobile devices. No matter where your team goes or what they do, Samsung Knox keeps hackers out and your data safe from the second the device turns on. Trusted by governments around the world, Knox protects your business by isolating, encrypting and securing your data, while providing close integration with leading enterprise mobility management (EMM) tools.

Device management tools

From device configuration, enrollment and management to advanced mobile security controls and updates, Samsung offers the mobility software and enterprise mobility services you need for every stage of the device life cycle. With Knox services, you can keep pace and maintain control over devices and how they're used. Manage devices in real time, configure settings and remotely lock or wipe devices if lost or stolen.

→ Learn more about Samsung Knox

Securing data with Samsung Knox

Field service workers need connectivity to improve productivity, but when they use mobile devices to access sensitive customer data, it is natural to worry about security.

The Knox mobile security platform is built into the hardware and software of Samsung's mobile devices. The platform provides multiple layers of security that keep hackers out and protect sensitive data right from the moment a device is turned on.

For even more comprehensive security, businesses can turn to the Knox Suite: an end-to-end solution that covers the entire mobile device management life cycle.

Knox Suite includes:

- **Knox Platform for Enterprise:** Provides defense-grade security and advanced device management features that meet the most stringent security requirements and standards.
- **Knox Mobile Enrollment:** Automatically enrolls devices into your enterprise mobility management solution, enabling a no-setup, zero-touch deployment process.
- **Knox Manage:** A powerful enterprise mobility management (EMM) solution that puts IT back in control, providing an intuitive mobile interface console and robust policy management.
- **Knox E-FOTA:** Provides granular control over firmware and OS updates, giving IT the power to roll out mandatory updates on their preferred schedule.
- **Knox Asset Intelligence:** Enables the tracking of battery performance, application crashes and rapid locating of lost devices, delivering enhanced operational insights.

Samsung Knox Suite is a complete solution for modern mobile management, providing IT administrators more control and flexibility to manage a fleet of devices. This empowers field service companies to spend less time worrying about security and more time focused on delivering value.

Learn more about Samsung Knox

Conclusion

Mobility is the ultimate tool for the empowerment of field service workers because it grants connectivity. Using mobile devices, field service workers can access a larger database of knowledge and lean on experts to fill in the gaps. Additionally, field service connectivity improves productivity by enabling a variety of additional functions such as inventory management, invoicing and work order signoff while on the road.

Field service connectivity means workers no longer have to waste time traveling to the central office to attend to these tasks. They can now complete jobs more quickly and more accurately while on the field. Mobile devices empower field service workers by making them an invaluable and accurate extension of the corporate office.

Learn more about Samsung's rugged device portfolio

Footnotes

1. https://www.prnewswire.com/news-releases/field-service-management-fsm-market-size-to-reach-usd-10-81-billion-by-2026---valuates-reports-301047497.html
2. https://fieldserviceusa.wbresearch.com/downloads/field-service-palm-springs-2020-innovation-briefing-january-2020
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