

SAMSUNG

White paper:

The ultimate fire/EMS guide to going mobile



How mobile enhances fire service and EMS operations

Timely, accurate information is the key to successful fire and emergency medical service (EMS) operations. The more relevant, real-time data that firefighters and EMTs can access at incident scenes, the more effectively they can act to save lives, minimize damage to property and equipment and protect themselves and the public.

Smart, connected mobile devices can transform how fire and emergency services operate. With more long-lasting rugged smartphones and tablets launching each year, innovative new apps being developed and lightning-fast 5G networks rolling out nationwide, first responders' use of mobile technology will only increase.

Here's a snapshot of what mobile devices and apps can provide fire and EMS today:

- On-the-go access to computer-aided dispatch (CAD)
- Improved situational awareness through interactive maps
- Real-time location, movement and heart rate tracking
- High-resolution video streaming from drones
- Smartphone-based push-to-talk (PTT) to supplement radio communications
- Bluetooth pairing with EKG monitors to track patient vitals
- Rugged-built tablets for tough environments
- Workflow apps to streamline reporting and compliance

These capabilities are a quantum leap from what land mobile radio (LMR) has offered firefighting and EMS with its basic voice carriage and limited data throughput. For fire and EMS leaders, incorporating mobile into their technology portfolios can help address key operational challenges. Mobile also helps these leaders get more mileage out of their limited budgets, reduce the workload on their already strained IT personnel and more easily adhere to government reporting and compliance requirements.

Mobile technology has something to offer everyone working in firefighting and EMS, from the volunteer firefighter protecting their hometown in Wyoming to the full range of firefighting and EMS professionals serving millions in Chicago, New York and Los Angeles. In a small grass fire or a Category 5 hurricane, mobile technology provides the tools that responders need to work faster and more effectively.

Mobile devices have been adopted as an effective operations solution for law enforcement and the military, as well as many business and government agencies that require robust broadband capabilities 24/7. Fire services and EMS can similarly transform their operations by going mobile. This guide provides a roadmap for fire service and EMS leaders looking to initiate a successful mobile rollout, from developing a deployment strategy and securing funding to structuring ongoing device management.

10 reasons to go mobile

- 1 Access to broadband data supporting multimedia fire/EMS apps
- 2 Network provisioned by mobile carriers (no local radio network to be supported by department)
- 3 Rugged smartphones, tablets and smartwatches are more portable than rugged laptops and mobile data terminals (MDTs), yet also more affordable
- 4 Full access to dispatch data and medical records on the go
- 5 Enhanced real-time situational awareness for all personnel
- 6 Role-specific data, including driving instructions to the incident scene
- 7 Personnel locations monitored via GPS, giving dispatch and incident commanders more control and enhancing responder safety
- 8 Better on-site intelligence gathering and sharing between personnel and dispatch
- 9 More accurate and efficient fire inspections and reports
- 10 Familiar, easy-to-use devices and apps for firefighters and EMTs



Part 1: What mobile has to offer fire/EMS

Like many other lines of work, fire/EMS has unique communication needs.

Going mobile means accessing broadband communications through smartphones, tablets and smartwatches that are rich in features and functionality, familiar to users and quick to deploy (with minimal learning curve).

Mobile can provide fire/EMS personnel with routing maps and point out roadblocks and other obstacles. It can tell them the status of other responding agencies and where those agencies' vehicles are in real time. Dispatch can also relay vital information such as building maps, lists of on-site hazardous materials, hydrant layers and prepared emergency plans.

Mobile makes it easier for EMTs to coordinate patient transfers to hospitals, maintain incident records, access patient records while en route and consult with emergency physicians on complex treatments. If need be, an EMT can take a photo or video of a patient's injury and send it directly to the consulting physicians for their treatment direction.

Rugged smartphones, tablets and smartwatches are thousands of dollars less expensive than rugged laptops and mobile data terminals (MDTs). By deploying smaller devices that are much more portable than in-vehicle laptops and MDTs, fire/EMS departments save money on procurement, provisioning and training. Fire/EMS personnel can take mobile devices everywhere, so they get enhanced situational awareness no matter where they are on the incident scene.

Situational awareness improves when dispatch, commanders, firefighters and EMTs get the most relevant real-time data as quickly as possible, wherever they are. When data is only available through in-vehicle laptops and MDTs, it's of no help to first responders out on the fire line. 4G/LTE networks provide rich connectivity between first responders and dispatch, enabling full sharing of building maps, records and multimedia intelligence, including assignment data, incident scene details and real-time locations of personnel and equipment.

And modern mobile devices can be built tough. Manufacturers like Samsung make smartphones and tablets that meet military standards for durability and are IP68 rated for water, dirt and dust resistance.

With ubiquitous mobile networks, devices and apps at their disposal, fire/EMS, police and other public safety agencies can achieve unprecedented interoperability.

A smartwatch can biometrically track the wearer's heart rate. If a first responder's heart rate rises dangerously, this data is immediately flagged to dispatch, and the responder can be located via their mobile device's GPS. This health tracking can save lives. The U.S. Fire Administration (USFA) has identified heart attacks from overexertion as the leading cause of death among active-duty firefighters. In 2018 alone, 82 U.S. firefighters died at incident scenes, 33 of them due to heart attacks.¹

With the right software and supporting equipment, a mobile device can serve as the primary computer for fire and EMS workers. Case in point: Samsung's DeX in-vehicle computing solution allows a Galaxy smartphone or tablet to function like a desktop computer, just by connecting to an external monitor, keyboard and mouse. The user gains access to a full desktop experience powered by their mobile device. Not only does this reduce costs through device consolidation, it also has significant workflow benefits.

The mobile device is easily undocked for use outside the vehicle to capture photos and videos, record interviews and do everything else a first responder needs to do. All of this data can be incorporated into on-scene reports and after-action documents via one device.



Samsung DeX in-vehicle



Why BYOD is not the answer

Allowing personnel to use their own mobile devices at work — a practice known as Bring Your Own Device (BYOD) — might seem like a smart money-saver for first responders, but it introduces several problems and hidden costs.² Once you're using smartphones to access, gather and send mission-critical information, the use of personal mobile devices creates inconsistent results. Individual users may fail to secure their personal devices, leading to compliance risks if their device is lost or stolen. They may not update their devices to the latest operating system, or they may download apps that increase the risk of hacking. And key department apps may not run optimally on all devices, leading to time lost troubleshooting tech issues. Most end-user mobile devices are built for consumers and can't withstand the tough environments fire/EMS personnel endure daily.

The best way to ensure the success of your mobile deployment is to purchase the devices yourself and manage them closely throughout their lifespans. Issuing devices on a 1:1 basis allows you to support personal use while maintaining control over devices' configuration, authentication methods, security policies, app allowlisting and updates to the operating system. It's also smart to maintain an inventory of spare devices so you can immediately replace a lost or damaged device and keep first responders fully active and productive.

Purchasing and managing devices for your personnel has significant benefits. You can take advantage of bulk pricing, cut out the cost and hassle of supporting user-owned devices, ensure users have the apps they need and eliminate stipends for user-provided devices.

Part 2: Multiple roles, multiple mobile options

Fire/EMS personnel fulfill many roles in the course of their work. Mobile can help them fulfill these roles more effectively:

Ideal mobile solutions:

Incident commanders



Rugged mobile devices and situational awareness apps give incident commanders a comprehensive, interactive and real-time overview of an unfolding incident scene and their responding personnel. Being able to interface effectively with dispatch significantly enhances their ability to make well-informed decisions.

Being able to identify, track and communicate directly with individual first responders allows incident commanders to deploy their teams more effectively and detect when any responders run into trouble. Meanwhile, situational awareness apps like the military-developed Android Team Awareness Kit (ATAK) allow incident commanders to share locations, mapping and video to all first responder smartphones and tablets — layered on a 3D map that users can annotate as they go.



Rugged tablets such as the Galaxy Tab Active3



Smartphones combined with Samsung DeX for mobile command center

Firefighters



The combination of mobile devices and fire/EMS apps can give firefighters a real-time multimedia connection to dispatch, field command and each other. Mobile apps can also provide individualized instructions and support for each firefighter based on their specific role in their unit.

Mobile devices are affordable for professional and volunteer fire departments. The latter in particular can benefit from the low cost of buying and using mobile devices and the minimal learning curve for using fire/EMS apps. With the improvement in cellular PTT capabilities, smartphones can now support seamless two-way or group voice communications. Long-lasting rugged smartphones and tablets also lower total cost of ownership (TCO) thanks to their durability.

Smartwatches can also be used to monitor firefighters' vitals and location to enhance safety, or to deliver notifications to enhance safety, or to alert volunteers of an incident.



Rugged PTT-capable smartphones such as the Galaxy XCover Pro



Smartwatches to monitor firefighter biometrics, movement and location

Ideal mobile solutions:

Fire inspectors



Using mobile devices and fire/EMS apps, fire inspectors can access relevant site information, including building maps, hazardous materials lists and records of fire code compliance or noncompliance.

Mobile devices' cameras can capture high-resolution photos and videos of noncompliant buildings and inadequate fire protection equipment. Mobile devices and apps are ideal for documenting investigations at fire scenes, from photos of suspicious burn zones to video interviews with witnesses.



Rugged tablets such as the Galaxy Tab Active3 with S Pen for digital form completion

EMTs



Mobile devices and apps allow EMTs to share information and stay in constant communication with their dispatchers and receiving hospitals. EMTs can use mobile devices to record patient information, retrieve patient data from hospitals, arrange patient deliveries to hospitals and consult with physicians while en route.



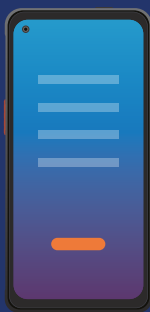
Rugged tablets such as the Galaxy Tab Active3 with S Pen for inputting patient information



Rugged PTT-capable smartphones such as the Galaxy XCover Pro

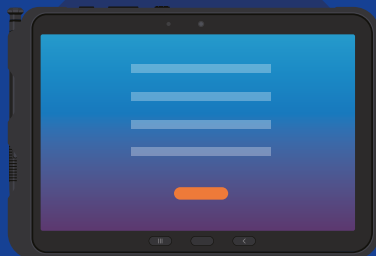
Samsung's field-ready mobile portfolio

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



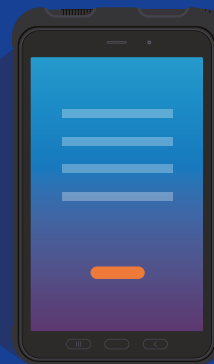
XCover Pro

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

Part 3: A roadmap for deploying mobile in fire/EMS

Once a fire/EMS department decides to commit to mobile technology, they need to map out an end-to-end implementation process. This process will vary from agency to agency, depending on their short-term priorities (e.g., enhanced communications) and long-term aspirations (e.g., better multiagency response and cooperation). Successful rollouts typically include flexible long-term planning and short-term pilot testing that informs the long-term plan.

Mobility initiatives are complex, with multiple elements that have to be managed, including funding, technology selection (software, hardware, network connectivity), acquisition, pilot testing, training, device management and ongoing support. Through careful planning and informed device selection and support tools, agencies can simplify rollout and deployment.

Here are some key steps that will help your mobile rollout succeed:

1



Create a mobile roadmap and a project team

Every department needs to create its own mobile roadmap that reflects the immediate priorities and long-term goals for going mobile, such as:

- Improving communications between first responders and dispatch with enhanced multimedia content-sharing
- Establishing interoperability with neighboring first responder agencies
- Futureproofing communications by replacing proprietary land mobile radio (LMR) systems with Android-based mobile handsets/tablets

Once senior command signs off, it's time to put an in-house project team in place to execute the plan, manage pilot testing and update the roadmap.

2



Consult with stakeholders

Successful mobile deployment starts with the project team talking with fire/EMS stakeholders to identify which of their specific needs can be addressed by mobile technology and prioritizing implementations.

Priorities will vary. An urban fire/EMS department may be more concerned with route planning and dispatch enhancement, while a rural department may prioritize connectivity among personnel. The goal is to ensure that your roadmap aligns with your priorities.

The project team should assess your department's current mobile technology and identify the benefits already being delivered and the aspirations going forward. Interoperability with neighboring agencies is often a high priority, and the project team can reach out to other agencies to promote cooperation and mutual support.

3



Make a business case

Once the project team has compiled this data, you should use it to create a business case for the department's mobile deployment. To convince local officials, senior managers and the public that going mobile is the right choice, this business case needs to enumerate mobile's many benefits, which may include:

- Enhanced two-way connectivity between first responders and dispatch, improving incident responses
- A secure, scalable and user-friendly alternative to legacy LMR systems
- Improved interoperability with adjacent first responder agencies
- Affordable technology that costs much less to acquire and maintain than traditional LMR systems and rugged laptops
- A technology platform that is intuitive, familiar and appealing to the new generation of first responders

4



Secure your budget

Another crucial step is identifying the department's available budget for investing in mobile capabilities, as well as where and when the money will become available.

Budget planning must be comprehensive, looking at the TCO, not just device acquisition costs. This includes monthly data plans, ongoing device management and support (including MDM software), as well as deployment, training and transition costs for the new mobile solution. Technology expenses will likely increase in the short term with the addition of new devices. Over time, however, departments may be able to consolidate communications and computing on mobile devices and reduce their overall technology spending.

Government grants can help cover the costs of investing in mobile. Samsung provides an array of resources and support, in partnership with Grants Office LLC, to help fire/EMS agencies learn about the grant opportunities they can leverage to get their mobile projects funded.

Funding sources for fire/EMS mobile

- ▶ [DHS Homeland Security Grants](#)
- ▶ [USFA Assistance to Firefighters Grants](#)
- ▶ [FEMA Emergency Management Grants](#)
- ▶ [CDC Emergency Response Funding](#)

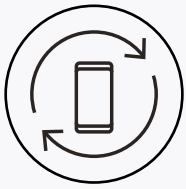
5



Create an execution and training plan

Once the project team has defined the priorities and budget, it's time to create an execution plan and timeline. This plan will define the scope and goals of the pilot program and estimate how long it will take to consult with vendors, review bids, win approval for this option in-house, purchase and deploy devices and then run a pilot deployment. Your plan should also address training for pilot users and IT, and establish measurable benchmarks for evaluating the pilot project, including user adoption and effectiveness of the tasks prioritized in the pilot.

6



Plan for device life cycle management

In most cases, agencies will need to use a mobile device management (MDM) or EMM solution for their mobile deployment.

First responder agencies need comprehensive device management that ensures data security while tracking and monitoring devices. Device management can be handled by your in-house IT team or outsourced. A pilot program is a perfect opportunity to explore options for configuring and managing devices.

An MDM or EMM solution helps you roll out updates and activate security policies, such as user authentication and app allowlisting. The solution can also provide remote troubleshooting, locate lost/stolen devices and, if needed, wipe their data. Agencies can improve management and reduce IT's workload by choosing tools that manage devices in bulk and over the air.

Devices must be enrolled in the MDM or EMM solution as they are deployed and then managed on an ongoing basis to keep operating systems and apps up to date. For large deployments, configuration tools will allow you to preload apps and establish policies and settings on a whole fleet of devices prior to deployment, reducing the need to make manual changes. With a device configuration solution, agencies can also preconfigure devices with a custom home screen and user profiles for roles such as deputy chief, firefighter, EMT and fire inspector.

Essential MDM capabilities for fire/EMS agencies

- Enforce use of strong PIN, password and/or biometrics to unlock device
- Only allow apps installed from trusted sources
- Provide additional protection for department apps with a secure container
- Track devices' location and, when necessary, remotely wipe a lost device
- Manage and force security updates

7



Consult with vendors, prepare an RFP

Once you have a plan and a budget, speak to mobile equipment vendors, mobile systems integrators and mobile carriers. Prepare questions about device types, local network coverage, support and prices for devices and mobile plans, including after-sales service. If your agency's IT team needs support, determine the scope and find out what sort of support is available from integrators and what it will cost.

Create a request for proposal (RFP) and issue it to suitable vendors. Once the vendors have made their proposals, review the results with your stakeholders and get signoff to purchase devices and services for the pilot program.

8



Execute pilot program

Purchase devices and services, train users and launch the pilot program. As users integrate the mobile technology into their work, measure the results against the benchmarks. The project team should keep complete records and take note of all unexpected developments, both positive and negative. Determine what's working and what's not and prepare to recommend changes that will improve subsequent rollouts.

From the group of pilot users, pick champions who can remain involved in mobile technology planning and implementation. They can share what they've learned with agency colleagues and promote the advantages of going mobile.

The time to go mobile is now

Mobile technology can improve operations and safety for all fire services and EMS agencies. The capabilities, reach, safety and cost-effectiveness of smartphones, tablets and smartwatches is unmatched by any other communication technology available to first responders. The payoff is better outcomes at fire scenes and investigations, enhanced officer and public safety and a more affordable, predictable impact on the departmental budget.

The key to success is executing a comprehensive mobile roadmap that starts with a manageable pilot project and incorporates your department's long-term vision. Careful planning, diligent supervision and a thorough trial run will minimize problems during and after your full deployment.

Samsung can help with your mobile initiative:

[Learn how](#)

Speak to a Samsung public safety consultant:

[Contact us](#)



Footnotes

1 https://www.usfa.fema.gov/data/statistics/ff_fatality_reports.html

2 <https://www.samsung.com/us/business/short-form/maximizing-mobile-value/>

3 <https://insights.samsung.com/2019/09/05/samsung-helps-agencies-find-funding-for-mobility-initiatives/>

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