Sourcewell

Advancing the future of fire-rescue operations

Strategies and solutions for adopting emerging fire-rescue technology

Prepared for fire rescue leaders by:

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Contents

Introduction

The fire-rescue landscape is rapidly evolving, driven by groundbreaking technologies that enhance safety, efficiency, and responsiveness. Departments face growing pressure to adopt these tools to improve performance – but the path to implementation can be complex.

Use this guide to:

- Identify your department's needs and plan for long-term value
- Explore life-saving tech that boosts response times for all fire-rescue teams
- Learn how to successfully bring new tools into daily operations
- See how cooperative purchasing simplifies and speeds up procurement

Is your department ready for what's next?

Every firehouse has its own way of making decisions — whether it's a formal discussion around the meeting table or a conversation over coffee at the fire-station kitchen table. Some choices are shaped by hands-on experience; others come from structured evaluations with subject matter experts. But the goal is always the same: to make smart, lasting decisions that move the department forward.

Before investing in new technology, take time to assess what your department truly needs and what it can support. A clear understanding of your priorities and capabilities helps you choose solutions that fit your budget and deliver long-term value. A well-planned evaluation also shows fiscal responsibility — stretching every taxpayer dollar while making a real impact on your crew and your community. Just as importantly, it gives you a solid foundation for conversations with procurement officials or city leaders, helping you make the case for your investment.

Determining your department's needs and priorities

1. **Bring the right voices to the table:** Engage more than just your command staff. Include company officers, frontline firefighters, IT support, procurement, and even municipal leaders early. Not only does this build buy-in, but it also surfaces operational challenges you may not see from the top.

2. **Set priorities and test them:** Safety, response times, budget — all critical, all competing. Rank your department's top three priorities, then pressure-test them under real constraints. What absolutely can't wait? What must you defend at budget time? Prioritize with that lens.

3. **Budget beyond the sticker price:** Look past the upfront cost. Consider installation, integration, training, downtime, and long-term maintenance. Dig into total cost of ownership, because funding the purchase is only part of sustaining the solution.

4. **Know your department's risk tolerance:** Are you prepared to lead as an early adopter — or do you prefer a more conservative path? Neither approach is wrong, but clarity here prevents mismatched expectations between leadership, staff, and city officials.

5. **Align with mutual aid partners:** Before investing in new tools, assess what's already in play across your mutual aid network. If a neighboring department has a mobile command unit or high-angle rescue gear, your team might not need to make that same purchase, but it might make sense to invest in complementary assets, like drones for search and situational awareness. Talk to your partners. Map out what's available. Then invest where you add the most value to your shared mission.

6. **Plan for the human side of change:** Even minor upgrades can throw crews off if they're poorly rolled out. Identify what kind of change this is. Is it plug-and-play, or will it shift how your team operates? Assign internal champions, invest in hands-on demos, and plan for resistance. Culture change is part of tech adoption — lead it like any other mission-critical initiative.

Needs assessment checklist

Use this checklist as a guide to evaluate your department's needs before adopting new technology. Be sure to customize it with department-specific criteria.

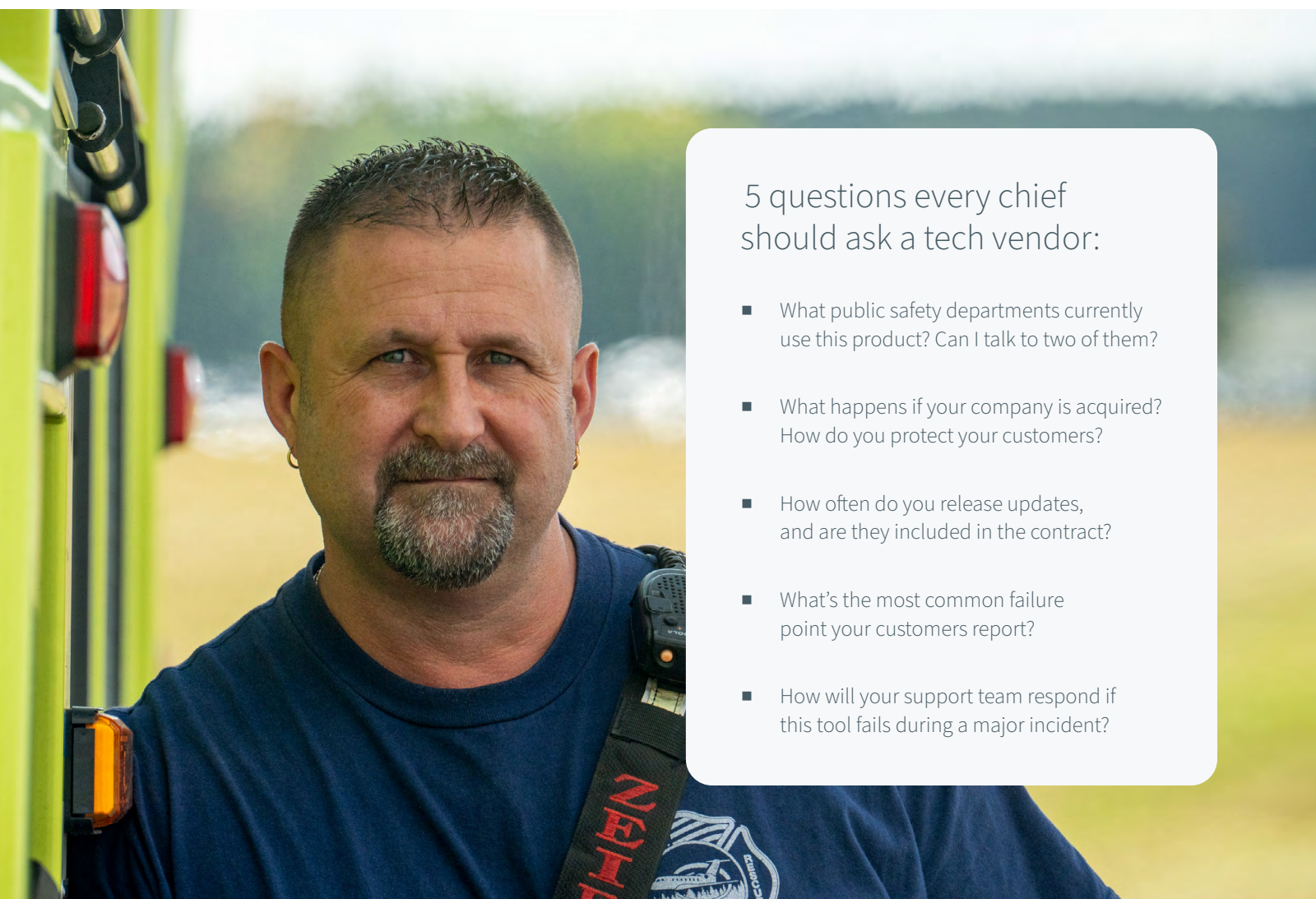
What do we actually need?	Identify specific operation gaps or challenges. Are you addressing an internal shortfall or filling a capability gap in your region?
How will we fund this?	Determine if the investment will rely on your budget, grants, regional cost-sharing, or a combination. Some tools, like drones or command software, may be easier to justify with mutual benefit.
What are our real priorities?	Rank needs by urgency and operational impact. Focus on what improves life safety, incident outcomes, and interagency coordination.
What's the total cost of ownership?	Look beyond the price tag. Include maintenance, updates, training, and staffing needs over the life of the technology.
Will this work with what we already use?	Evaluate integration with existing software, gear, and workflows –not just in your firehouse, but across the mutual aid network.
What is our risk tolerance?	Are you positioned to lead as an early adopter – or would it be smarter to wait and learn from a partner department's extperience?
Are we prepared for the rollout?	Gauge the change management load. Can you support the training, SOP updates, and follow-through needed to make this tool effective?

Put tech to the test — before it's in the field

You've defined your needs , now it's time to put the tools to the test. Choosing the right technology is about more than specs and price tags. It's about finding solutions that hold up under pressure, work across agencies, and come with real support when things go sideways.

Guidelines for evaluating and selecting technology:

- **Run a real-world test:** Before signing a contract, pilot the product in the field. Use it during drills. Put it in the hands of actual users. Then ask: does it deliver what was promised? Where does it fall short?
- **Cross-check with your peers:** Reach out to other departments. Have they tried this vendor? What worked and what didn't? Even if they didn't purchase it, learning why not can save you from a misstep.
- **Evaluate the vendor:** A good product means nothing without strong support. Ask for public safety-specific references, dig into their training model, and press for response times on support tickets. Don't just take their word, verify.
- **Check for long-term fit:** Will this tech grow with your department? Look for roadmaps, upgrade options, and evidence that the company plans to stick around and evolve with you.



5 questions every chief should ask a tech vendor:

- What public safety departments currently use this product? Can I talk to two of them?
- What happens if your company is acquired? How do you protect your customers?
- How often do you release updates, and are they included in the contract?
- What's the most common failure point your customers report?
- How will your support team respond if this tool fails during a major incident?

Don’t just deploy it — operationalize it

You’ve selected the right tool. Maybe it’s a drone for aerial surveillance or a new training simulator. Now comes the hard part: making sure it actually works in the field. Implementation isn’t just flipping a switch, it’s aligning the rollout with how your team operates under pressure, trains across shifts, and adapts in real time. Chiefs don’t have the luxury of downtime. Without solid planning, phased deployment, and hands-on training, even the best tech risks sitting unused or creating more problems than they solve.

Implementation strategies for chiefs:

Build operational ownership early: Before rollout, assign a lead from each shift or division to act as an internal lead—someone who understands both the field and the tech. Their buy-in becomes your pressure-release valve when resistance shows up.

Train tactically, not theoretically: Hands-on, peer-led instruction works best, but make sure it mirrors real conditions. Use gear. Simulate stress. Include “what if” failure scenarios, and plan for how your team should adapt.

Phase with purpose: Don’t just phase in tech to ease resistance, use it to reveal weaknesses in SOPs, interoperability, or crew readiness. A structured trial (30-60 days) with clear feedback loops lets you fine-tunedeployment and adjust without losing credibility.

Control the timing: Roll out new systems when call volume dips, during recurring training days, or alongside scheduled equipment transitions. Avoid major rollouts during peak staffing gaps or overlapping initiatives.

Always have a contingency: Have a rollback plan in case of failure, but communicate it carefully. Confidence matters. Use dual systems only as long as necessary to preserve trust and data integrity.

Technologies revolutionizing fire-rescue operations

Fire-rescue is about protecting life, property, and critical infrastructure while keeping firefighters safe. As risks grow more complex, departments are turning to a wave of advanced technologies that sharpen decision-making, reduce response times, and cut down exposure to danger. From drones that scout wildfires to wearables that monitor vitals in real time, technology is giving firefighters new ways to do their jobs safely, effectively, and with precision.

> "As the technology advances, robots will become an essential tool for fire departments, enhancing both safety and operational efficiency."
>
> **– Western Fire Chiefs Association**

By 2033, the U.S. firefighting drone market is set to **more than double to $638M.**

Drones, robotics, and unmanned vehicles

Unmanned systems are changing the way fire-rescue departments operate, providing faster intel, safer reconnaissance, and new options in high-risk environments. Outfitted with thermal imaging, real-time video, and advanced sensors, UAVs (drones) now give incident commanders rapid visibility over structure fires, wildland threats, and large-scale emergencies — without sending crews into danger.

Departments are using drones to:

- Drop ignition devices for precision wildfire containment
- Deliver flotation aids in water rescues
- Conduct structural assessments from the air
- Stream live situational video to command posts

Ground-based robots are also becoming mission-critical tools, especially for hazmat, USAR, and confined-space response. These units can enter collapsed buildings, evaluate structural stability, locate victims, and even deploy suppression tools in areas deemed too dangerous for human entry.

The **International Association of Fire Chiefs** also points to a growing list of operational benefits, including:

- Performing 360-degree size-ups for safer and faster scene assessments
- Delivering AEDs or supplies to remote or inaccessible zones
- Surveying evacuation routes and traffic conditions
- Supporting air operations when helicopters are grounded

As drone capabilities expand — with longer flight times, AI-powered automation, secure data handling, and increased payload options — they're no longer just experimental tools. They're becoming everyday assets. In fact, the **U.S. firefighting drone market** is projected to more than double by 2033, rising from $302.7 million to $638 million, largely fueled by wildfire activity and evolving tech.

For fire-rescue leaders, drones and robotics are no longer "nice to have" they're becoming operational necessities.

Artificial intelligence and predictive analytics

AI isn't just for back-office automation anymore. It's quickly becoming a frontline tool for fire rescue leaders. From streamlining paperwork to mapping wildfire risks, today's AI platforms are helping departments do more with less, in real time and across multiple domains.

Departments are using AI to:

- Monitor live video, audio, and sensor data during incidents
- Predict fire spread in wildland and urban environments
- Identify high-risk buildings and neighborhoods based on fire history and structural conditions
- Automate scheduling, training logs, and incident documentation

Some platforms even combine **real-time weather data, fuel loads, and terrain modeling** to forecast how wildfires will move over the next 12–24 hours, giving incident command more time to stage crews and protect at-risk communities.

In the urban environment, predictive tools can flag potential risks before the tones drop, alerting departments to buildings with outdated fire protection systems, previous violations, or structural vulnerabilities.

- AI is also improving internal operations by:
- Supporting QA for incident reports and after-action reviews
- Detecting heat exhaustion or distress through wearable monitoring
- Transcribing and tagging 911 call data for faster post-incident analysis

What makes AI especially powerful is its ability to **learn and improve over time.** The more data it absorbs — calls, fires, inspections, weather — the more refined its output becomes. For fire chiefs, that translates to **fewer surprises, smarter deployment, and better long-term planning.**

Smart fire suppression systems

Modern fire suppression isn't just about flow rates and nozzle types — it's about **intelligence at the system level.** Today's smart suppression technologies are designed to detect, analyze, and respond to fire conditions in real time, making them more effective in protecting both people and property.

These systems integrate directly with building management and fire alarm systems, enabling them to:

- Adjust water, foam, or chemical application based on heat patterns, fire load, and room layout
- Detecting heat exhaustion or distress through wearable monitoring
- Transcribing and tagging 911 call data for faster post-incident analysis

Smart suppression is especially useful in environments like:

- Adjust water, foam, or chemical application based on heat patterns, fire load, and room layout
- Supporting QA for incident reports and after-action reviews
- Detecting heat exhaustion or distress through wearable monitoring

For fire-rescue leaders, smart suppression is more than a building feature — it's a force multiplier, helping crews buy time, reduce risk, and enhance overall scene control before they even arrive on site.

Emergency and integrated communications

When every second counts, you must have reliable communication. New tools like advanced computer-aided dispatch (CAD) systems, real-time alerting platforms, and multi-agency coordination technology are streamlining operations, reducing response times, and helping emergency responders arrive better prepared.

As one article noted, advanced dispatch systems provide many advantages to basic systems, giving fire departments the tools they need to respond faster, smarter, and more effectively. These systems:

- Integrate real-time location tracking using GPS to monitor units in the field
- Pull in medical profiles and incident details directly into 911 systems
- Improve resource deployment through automated routing and dynamic recommendations
- Support real-time communication and interoperability across multiple agencies

With these capabilities, dispatchers can send the right crews, to the right place, at the right time — reducing delays, improving coordination, and arriving better prepared. When Colorado launched its first regional CAD-to-CAD dispatching hub, the impact was immediate: response time during a structure fire was reduced by more than **two minutes** by automatically dispatching the closest available units, regardless of jurisdictional boundaries.

Departments should also be aware of the ongoing rollout of the National Emergency Response Information System (NERIS) which may require future upgrades to CAD or reporting systems to support standardized data sharing across agencies.

Wearable monitoring and real-time tracking

Real-time firefighter tracking is no longer optional. It's fast becoming standard in modern fireground operations. Wearable devices equipped with GPS, environmental sensors, and biometric monitors now give commanders a clearer picture of what's happening inside the fire line — minute by minute, firefighter by firefighter.

These wearables can:

- Track movement and location in real time, even in low-visibility or collapsed environments
- Monitor vital signs like heart rate, body temperature, and oxygen saturation
- Detect sudden changes in posture or motion that may indicate a fall, injury, or distress

From a command post, this data is displayed on a centralized dashboard, helping leaders make critical calls,like when to stage backup crews, initiate emergency egress, or direct medics into position. When seconds count, these alerts can save lives.

Beyond the incident, these systems support:

- **Rehab tracking:** Ensuring rest, hydration, and medical checks are happening in real time
- **Post-incident analysis:** Identifying moments of heat stress, inefficient movement, or equipment failure
- **Training feedback:** Helping crews see how they move, pause, and perform under pressure

Some systems integrate with SCBAs or helmets, while others clip into turnout gear. Advanced platforms even combine location data with building plans or digital twins to show not just where your crew is, but what conditions they're in.

As budgets and safety expectations evolve, wearable tracking tech is giving departments **a new level of operational intelligence,** and for incident commanders, it's becoming as essential as the radio.

Augmented and virtual reality (AR/VR)

Training has come a long way from whiteboards and burn buildings. Augmented reality (AR) and virtual reality (VR) tools now give fire-rescue teams the power to prepare for high-risk incidents without the risk.

With AR/VR systems, firefighters can:

- Run live-fire scenarios without live flames
- Navigate zero-visibility mazes using visual cues and timed objectives
- Simulate multistory rescues, hazmat scenarios, and structural collapses
- Practice communication and coordination under stress in a virtual command structure

VR fully immerses the trainee in a 3D digital environment ideal for building muscle memory and decision-making under pressure. AR overlays information on the real world, allowing crews to visualize hazards, exits, and building layouts in real time, potentially even on scene.

Departments are using these tools to:

- Standardize training across shifts and stations
- Reduce costs and wear on gear compared to traditional live burns
- Increase training frequency with on-demand accessibility
- Improve scenario diversity, including rare but high-impact events

The **Western Fire Chiefs Association** notes that AR and VR technologies support not just tactical readiness but scenario planning and decision-making under pressure, two areas where fireground success is often won or lost. By allowing departments to train more often, in more varied and realistic situations, these tools help teams prepare faster, respond smarter, and operate more safely — without relying on limited live-fire setups.

As budgets and safety expectations evolve, wearable tracking tech is giving departments a new level of operational intelligence, and for incident commanders, it's becoming as essential as the radio.

Smarter communications and dispatch systems

When every second counts, connected dispatch systems can mean the difference between a coordinated response and critical delay. Today's advanced CAD systems and alert platforms are helping departments streamline operations and arrive better prepared.

These tools enable departments to:

- Track units in real time using GPS and telematics
- Share live incident updates and resource availability across jurisdictions
- Automatically dispatch the closest available crew, regardless of agency boundaries
- Push key incident details directly to units en route, including hydrant data, maps, and medical notes

More than just a faster response, this technology improves situational awareness, reduces radio clutter, and helps align multi-agency responses before units hit the scene.

One powerful example: Colorado's CAD-to-CAD dispatching hub connects fire departments across multiple counties, enabling instant cross-agency dispatch. In one structure fire, the system cut response times by more than two minutes by automatically deploying the closest engine regardless of which patch it wore.

These systems are also paving the way for future integration with NERIS , which aims to standardize data reporting and information sharing across U.S. fire agencies.

For chiefs, this isn't just about speed — it's about smarter resource deployment, seamless coordination, and stronger mutual aid.

Fast-track technology procurement with cooperative purchasing

Technology moves fast. Unfortunately, traditional procurement usually doesn't. By the time you've issued an RFP and awarded a contract, the solution you need may have changed or the window to act may have closed. In public health emergencies, disaster response, or critical infrastructure failures, faster procurement isn't a luxury — it's a necessity.

Cooperative purchasing streamlines the purchasing process by providing immediate access to competitively awarded contracts that satisfy solicitation requirements. With Sourcewell's cooperative contracts, you can get your department equipment it needs faster and easier.

"Once you decide and identify a product you want, as an admin chief, my first thought is, 'How the heck am I going to buy it?' Some of these technologies aren't inexpensive. You want to stay within procurement guidelines, get the best pricing, and be good stewards of taxpayer money. Having a group like Sourcewell really gave us that solution. I don't have the staff to handle complex procurement, and our procurement department didn't either, so Sourcewell saved us time and effort. The sooner you can get through purchasing, the sooner you can get tools to the frontlines where they belong."

— Eddie Buchanan, Asst. Fire Chief (Retired)

Fire-rescue departments can:

- **Streamline procurement:** Access hundreds of competitively solicited contracts from trusted suppliers, nationwide
- **Stay compliant:** Satisfy the public buying process with competitively solicited contracts that support compliant purchasing
- **Save money:** Leverage the purchasing power of over 50,000 agencies to secure competitive pricing

Diverse range of technology solutions on contract

Sourcewell participating agencies gain access to hundreds of contracts for fire-rescue technology solutions from trusted suppliers. Find contracts for everything from drones to advanced dispatch systems.

Fire-rescue categories:

- **Drones, robotics, and unmanned vehicles**
- **Emergency and integrated communications**
- **Dispatch software and alerting systems**
- **Augmented reality (AR) and virtual reality (VR)**

Sources

Afkhami, B. (2024). **"Firefighting drones: What's new and what's next?"** FireRescue1.

Imarc. **United States Firefighting Drones Market Report**

Moore, J. (2025). **"5 in 2025: Fire Service Technology Trends"**

Vince, J. (2020). **"Virtual Reality Training: It's Not a Video Game."** Firehouse.

U.S. Fire Administration. (2020-2024) **"Summary Incident Report."**

Western Fire Chiefs Association. (2024). **"Firefighter Virtual Reality & Augmented Reality."**

Empower your department with technology

Technology should never be out of reach. With Sourcewell, it isn't. We make it easier for fire-rescue departments to access the tools they need, when they need them — so they can focus on what matters most: protecting lives, property, and their communities.

Ready to take the next step? Explore Sourcewell's offerings and start building a safer, smarter future today.

How to participate:

Register as a participating agency

Any government or education entity can quickly and easily register. Participating is free with no obligation to purchase.

Find a contract

Browse hundreds of awarded contracts or search by category.

Contact the supplier

Work directly with suppliers to get a quote and finalize your purchase using Sourcewell's contracts.

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Help when you need it

Sourcewell is government empowering government since 1978 — partnering with education and government leaders to impact student and community success. Sourcewell staff measure their achievements by the success of the people they serve — you.

We value our relationship with you and are committed to understanding your needs and providing comprehensive solutions to make you successful today and long into the future.

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See what cooperative purchasing can do for you →