

THE FRONTLINE UNDER PRESSURE:

TECHNOLOGY, RESILIENCE AND THE
FUTURE OF EMERGENCY RESPONSE



WELCOME NOTE

THE DIGITAL FRONTLINE IS UNDER PRESSURE



Emergency services have always operated in environments defined by urgency, uncertainty and complexity. Whether responding to a major fire, treating a critically ill patient, attending a public safety incident or coordinating a large-scale multi-agency response, frontline personnel must make rapid decisions in situations where the consequences of failure can be significant.

Over the last five years, technology has become increasingly central to how these decisions are made. Mobile devices, cloud-based applications, digital reporting systems, communications platforms, location services, wearable technologies and AI are now embedded across frontline operations. These technologies support information sharing, situational awareness, workforce coordination, reporting, evidence gathering and access to critical systems. Yet as digital dependency has increased, reliability has not kept pace.

Frontline workers operate in environments where connectivity can be inconsistent, devices are frequently shared, applications fail unexpectedly and access to systems can be disrupted at critical moments. Connectivity issues are regularly experienced by 67% of respondents, while 63% report application issues and 62% report devices freezing or becoming unresponsive.

These challenges create friction in already demanding roles and directly affect operational effectiveness. At the same time, the pressures facing emergency services are intensifying.

Climate-related emergencies are becoming more frequent and complex. Workforce shortages continue to affect many organizations. Multi-agency coordination is becoming increasingly important. AI is rapidly entering operational environments while cybersecurity threats are evolving. Collectively, these factors are creating new challenges for emergency services leaders.

Technology is no longer a support function. It is a core component of operational resilience. To understand how emergency services are experiencing technology today, SOTI surveyed 2,500 frontline workers, exploring device use, the technology challenges they face and the strategies used to overcome them.

The findings show that while frontline staff embrace technology, value its benefits and recognize its importance, they also carry the burden when it falls short in already stressful circumstances.

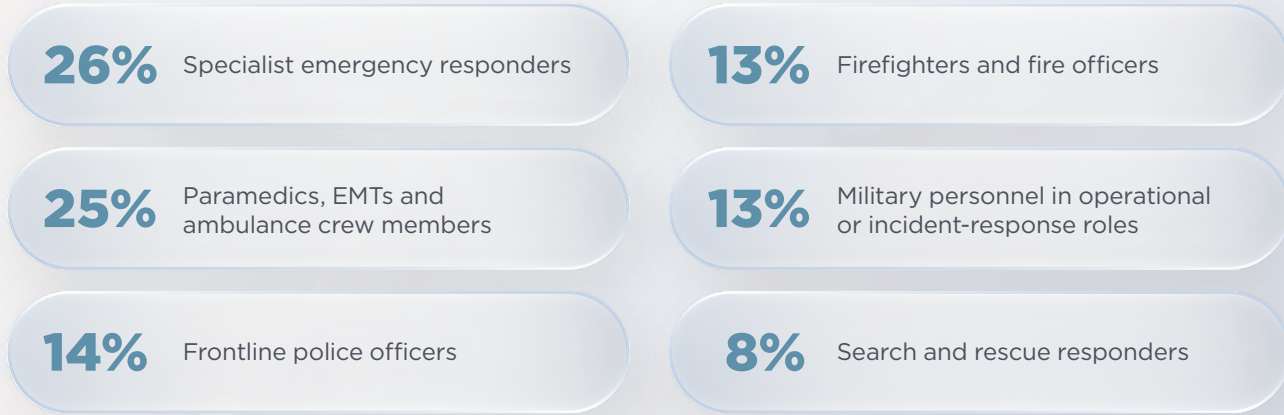
The opportunity for emergency services organizations is no longer simply to digitize operations, but to build the resilience needed to ensure frontline workers can depend on technology when it matters most.

I	Methodology
II	Key Findings
III	The Modern Emergency Tech Stack is Distributed, Mobile & Shared
IV	Reliability is Priority
V	The Hidden Human Cost of Digital Disruption
VI	Security Risk Will Increase as Frontline Technology Expands
VII	The Future of Emergency Response Depends on Trusted Technology



METHODOLOGY

SOTI partnered with Censuswide to survey 2,500 frontline emergency services professionals across the U.S. (400), Canada (400), UK (400), Germany (200), France (200), Mexico (150), Sweden (150), the Netherlands (150), Italy (150), Spain (150) and Australia (150).



KEY STATS

98%

still use pen and paper despite widespread digital adoption.

89%

use personal devices for work-related activities.

89%

say device and application issues are disruptive to their work.

88%

report that AI has already been integrated into frontline operations.

78%

agree technology improves communication with colleagues and control rooms.

65%

say technology issues negatively affect stress levels.

THE MODERN EMERGENCY TECH STACK IS DISTRIBUTED, MOBILE & SHARED

Frontline Technology Has Become Essential Infrastructure

From incident reporting and navigation to communications and records access, frontline personnel now rely on a varied ecosystem of devices and applications throughout every shift. These technologies support almost every stage of emergency response, helping them access information, coordinate activities and make decisions in real-time.

The research reveals how deeply technology has become embedded within frontline operations.



Smartphone

70%



Rugged handheld device

43%



Mobile applications
used for work tasks

62%



Shared team device

43%



Radio with digital /
data applications

52%



Tablet

37%



Laptop or notebook
computer used in the field

48%



Mobile printer

20%

The findings reflect a fundamental shift in how emergency services operate; technology is now integral to the delivery of frontline services. However, one key statistic acts as a reminder that digital technologies haven't been adopted completely.



98% of frontline workers still use pen and paper.

This continued reliance on manual processes suggests that while technology has become a core part of frontline operations, many workers still view traditional methods as an important backup when digital systems are unavailable, unreliable or difficult to access.

Application Use Reflects Operational Priorities

The applications frontline workers use most closely mirror the realities of emergency response.

What, if any, types of applications or systems do you use for your role (on any device)?

Incident reporting / case management system	47%
Messaging / communications tools (e.g. Teams / internal comms)	45%
Mapping / navigation tools	44%
Records / database lookup systems	40%
Camera	37%
Dispatch / command-and-control system	36%
AI-powered assistants or chatbots (e.g. ChatGPT, Copilot, Gemini, automated report-writing tools)	32%
eForms / digital signatures	31%
Word documents	28%
Voice recording apps	27%
Spreadsheets	24%
Barcode scanning / asset tracking apps	23%

Incident reporting systems are the most widely used application category overall among those surveyed, reflecting the importance of documentation, accountability and information sharing.

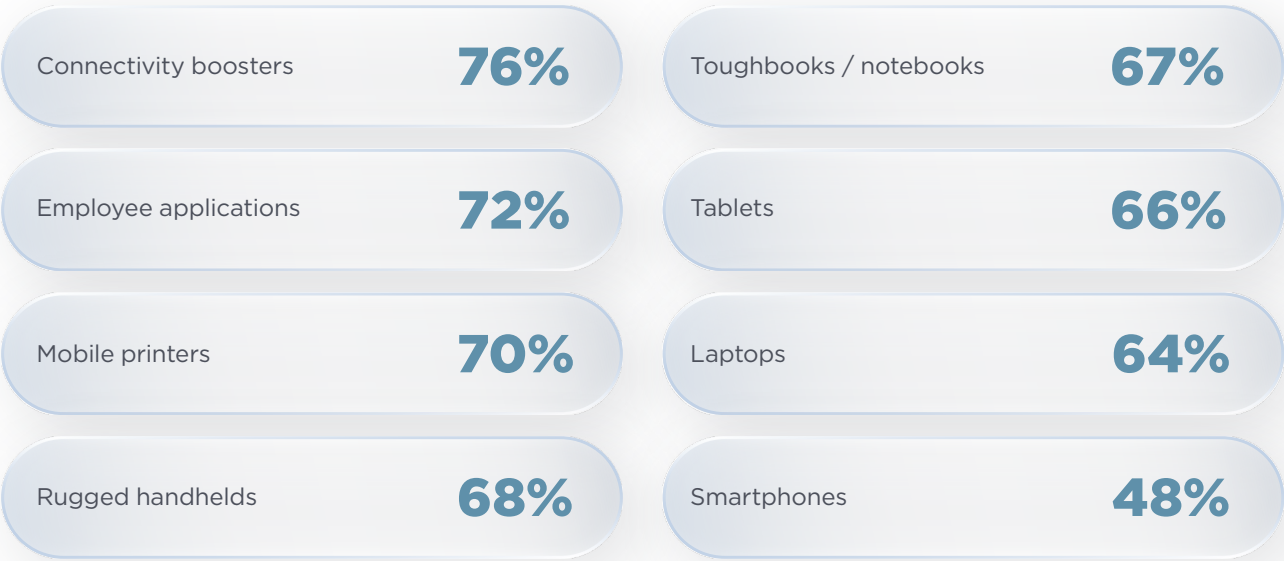


Shared Devices Are Creating a Visibility & Accountability Gap

Unlike many office-based environments where employees are assigned dedicated devices, emergency services frequently operate using shared technology pools. Devices are often used across multiple shifts, teams and operational units.

While this approach provides flexibility and helps maximize the use of available resources, it also introduces new operational and security challenges

Most Shared Technologies



The prevalence of shared technology means frontline organizations need full visibility into who is using devices, where devices are located and whether they are operationally ready when needed.

The challenge becomes even more significant when credential sharing is introduced.

Concerningly, credentials are shared across a range of technologies, including connectivity boosters (18%), mobile printers (16%), tablets (14%), laptops (14%), employer applications (13%) and smartphones (10%).

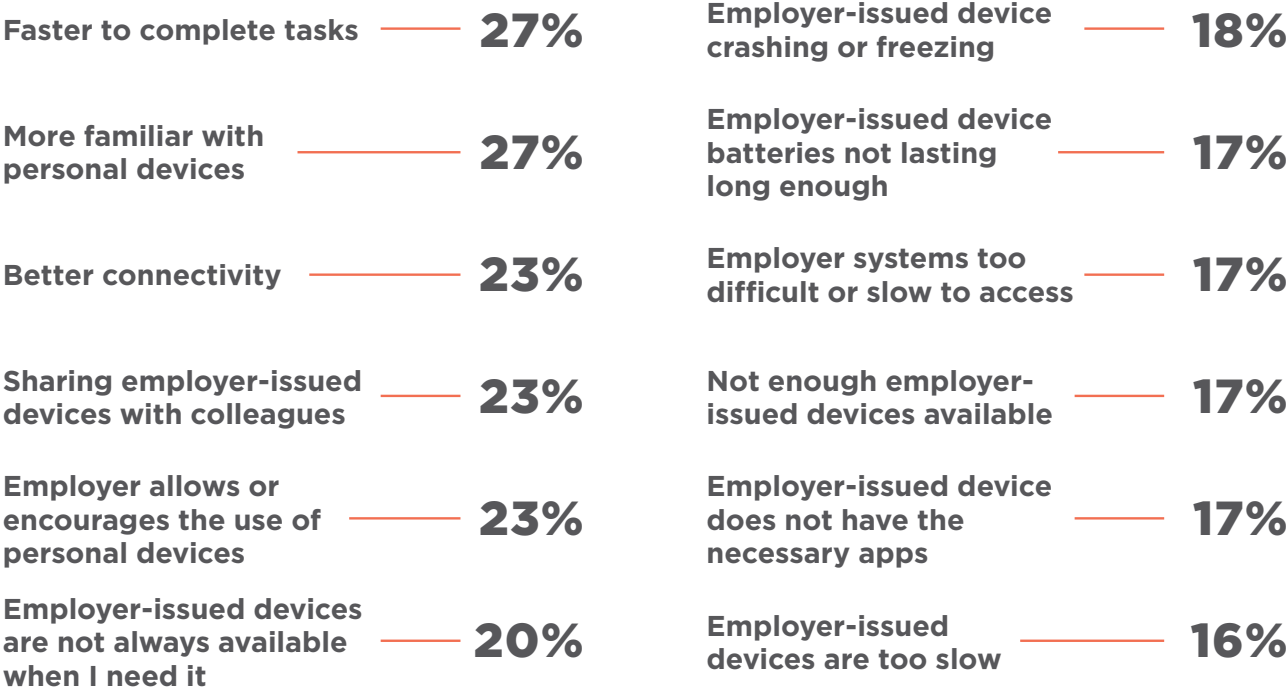
When shared devices are paired with shared logins, organizations can lose traceability over usage, which weakens accountability and creates unnecessary security exposure. In frontline environments, that can affect operational readiness long before a cybersecurity incident occurs.

Personal Devices Have Become the Unofficial Backup System

Personal devices are now deeply embedded in frontline emergency work.



The reasons for this are practical:



Personal device use is not simply a matter of convenience. In many cases, it is a workaround for gaps in employer-issued technology that prevent frontline workers from focusing on the emergency at hand.

However, while personal device use can help frontline workers stay connected, complete tasks and access information when official tools create friction, this behavior is not without risk. Personal devices can introduce challenges around data security, privacy, compliance, auditability and information governance.

That said, the strategic imperative for emergency services organizations may not necessarily be to eliminate personal device use. Instead, there is an opportunity to move beyond informal tolerance of Bring-Your-Own-Device (BYOD) toward clear, secure governance.



RELIABILITY IS PRIORITY

When Technology Fails, Emergency Response Slows Down

There is no doubt that frontline operations are now dependent on digital tools, but a widening reliability gap is limiting the full benefits of digital transformation.

Recurring problems with connectivity, battery performance, application stability, device availability and access to critical systems are no longer isolated IT frustrations but operational challenges that affect frontline workers every day.

Top Challenges with Employer-Issued Devices & Applications

1	Connectivity issues	25%
2	Not enough devices available	25%
3	Poor battery life or battery health	24%
4	Applications not working or crashing	24%
5	Difficulty accessing required systems	24%
6	Starting a shift with an uncharged device	23%
7	Device crashes, freezes or shuts down	23%
8	Digital forms not working properly	22%
9	Difficulty reporting back information and completing reports	22%



Before organizations can fully leverage emerging technologies, such as AI, they must first ensure frontline workers can consistently access the mobile technology required to perform their roles. Reliability is the foundation, since every other technology goal depends on it.

Reliability Issues Are the Norm, Not the Exception

Rather than being isolated incidents, technology challenges are a persistent feature of frontline work, with most respondents regularly facing connectivity issues (67%), application glitches (63%) and hardware failures (62%) that create friction in operational environments.

67%

regularly experience connectivity, network or Wi-Fi issues



while

65%

report battery issues.

Over time, these disruptions can contribute to higher stress levels and reduced confidence in the technology frontline workers rely on every day. The research shows emergency services are operating in a state of digital dependency while simultaneously managing persistent reliability challenges. As technology becomes increasingly central to frontline operations, ensuring systems are consistently available and fit for purpose will be critical to maintaining operational effectiveness.

Downtime is Costing the Frontline Valuable Time

Almost nine in ten respondents (89%) say device and application issues are disruptive to their work.

Respondents also report that resolving technology issues can be time-consuming, with an average resolution time of 21 minutes through IT or helpdesk channels.

89%

say device and application issues are disruptive to their work.

While individual delays may appear relatively small, their cumulative effect across large emergency services organizations can represent a substantial loss of operational capacity.

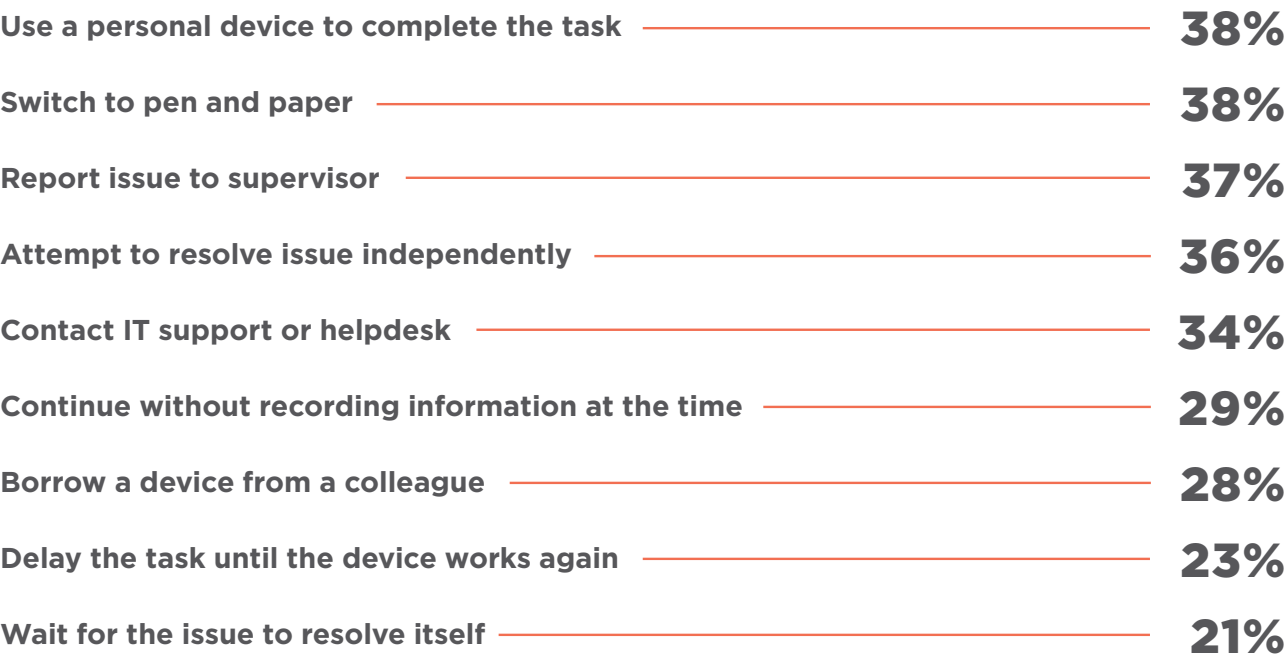
In emergency response environments, downtime should not be viewed as lost productivity – it should be viewed as lost operational capability.



Frontline Teams Are Building Their Own Resilience Mechanisms

When technology fails, frontline workers rely on workarounds to ensure operations continue despite technology challenges.

Actions Taken When Employer-Issued Technology Fails



At the same time, they also reveal underlying weaknesses within formal systems.

29%

continue without recording or reporting information at the time when technology fails.

Workarounds keep services operating, but they also expose the risks associated with relying on frontline personnel to compensate for system shortcomings. The finding that 29% continue without recording information at the time highlights a critical tension: when technology fails, resilience can come at a cost. While critical work gets done, important information may not be captured, creating potential gaps in documentation, communication and accountability.

Technology Downtime Directly Affects Emergency Response

The consequences of technology failure extend far beyond inconvenience.

Device and application issues have a clear impact on frontline performance, with respondents reporting negative effects on stress levels (65%), the time taken to access incident or emergency information (64%), time waiting for authorization (63%), the clarity and accuracy of information shared between teams (60%), access to equipment or medicines (60%) and the time spent on care (58%).

In addition to the negative impact of technology challenges on frontline workers’ mental well-being, the findings also point to several direct operational consequences. This underscores the need for emergency services organizations to prioritize technology reliability as a core component of operational readiness.

Almost three in five say employer-issued technology problems negatively impact overall emergency outcomes (59%) and patient or public safety (58%).

When frontline workers are forced to troubleshoot devices, manage connectivity issues or find alternative ways to access critical information, their attention is diverted away from the emergency or task at hand. These disruptions can delay decision-making and increase stress levels in already high-pressure situations. Over time, this creates a domino effect: technology issues contribute to frustration and cognitive burden, which can affect confidence, well-being and the ability to focus fully on delivering the best possible outcome.

In environments where every second and every decision matters, reliable technology is not simply a productivity tool – it is an enabler of frontline performance.



What Frontline Workers Want: Less Friction & More Trust

When asked what technologies would have the greatest positive impact on their ability to focus on mission-critical work, respondents prioritized practical improvements over futuristic innovations.

Applications for real-time communication with colleagues and control rooms (e.g. messaging, push to-talk, video)	33%
Stronger and more consistent mobile connectivity to support applications used in the field	33%
Applications that monitor real-time events and alerts (e.g. scanning social media or other feeds for emerging incidents)	32%
Applications that provide faster and more secure access to case or incident histories	31%
AI-powered applications that reduce paperwork or automate administrative tasks	31%
Applications that can be used through hands-free or wearable technology to support frontline work	31%
Applications that allow secure single sign-on and seamless access across multiple systems	30%
Mapping and real-time situational awareness applications	29%
More flexibility / choice of applications to use	28%
AI-powered decision support to assist in high-pressure situations	26%

These priorities point to a clear theme. Frontline workers are not asking for more technology. They are asking for technology that creates less friction, and systems that are reliable, accessible and designed around operational realities.

By improving network connectivity, ensuring devices are fit for demanding frontline environments, and proactively monitoring system performance, organizations can reduce disruptions before they impact critical work. Consistent access to applications, information and communication tools helps frontline personnel operate with greater confidence, efficiency and effectiveness. As digital dependency continues to grow and climate-related incidents place new demands on frontline services, reliability will become an increasingly important component of operational readiness.





THE HIDDEN HUMAN COST OF DIGITAL DISRUPTION

Technology Stress is Workforce Stress

Emergency services work is inherently demanding, requiring workers to operate under pressure, uncertainty and risk. When technology introduces additional obstacles, it can increase stress and workload.

What impact, if any, do the following have on your mental well-being at work?

% of respondents who report a negative impact related to this issue	
Poor connectivity or system outages	53%
Issues or delays caused by human error	51%
Increased operational pressure or workload	49%
Employer-issued device or technology issues	49%
Lack of support during technology issues	49%
Lack of working or charged devices at shift start	48%
Manual processes, paperwork or duplicated work	48%

The findings show technology reliability has implications beyond productivity. It can influence how frontline workers experience their jobs. Every failed login, dropped connection or uncharged device introduces additional stress into environments that are already demanding, time-critical and emotionally challenging.

However, when technology works well, it can actively improve frontline well-being, with 49% reporting a positive impact when devices are well-managed and easy to use.

The issue is not technology itself, but technology that is poorly supported, unreliable or difficult to use. When designed and managed effectively, it can reduce pressure, build confidence and better support frontline workers.

SECURITY RISK WILL INCREASE AS FRONTLINE TECHNOLOGY EXPANDS

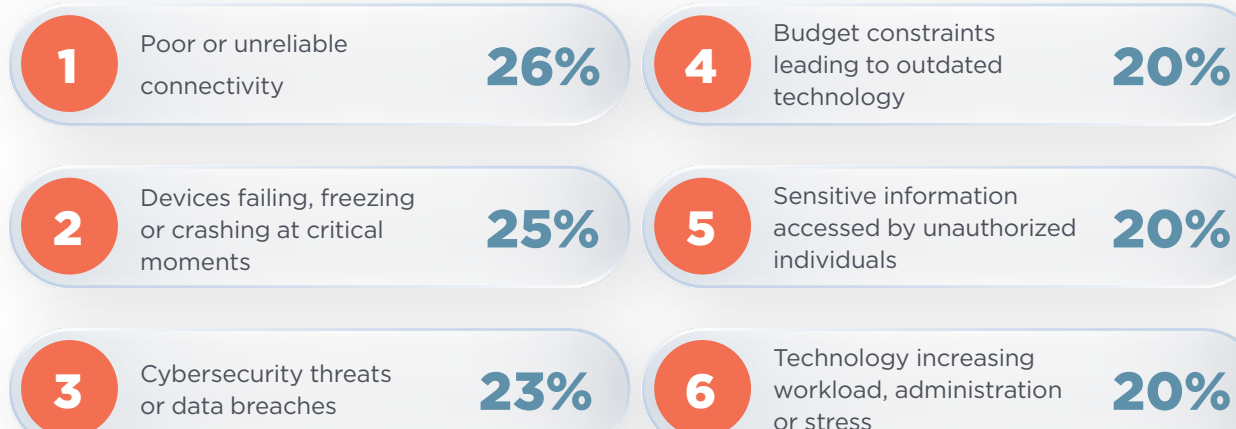
A More Connected Frontline Creates New Risks

As emergency services become more digitally connected, the risk environment becomes increasingly complex.

The growth of shared devices, personal devices, cloud-based systems and AI applications creates new opportunities for productivity and innovation. It also creates new vulnerabilities.



Top Technology Concerns

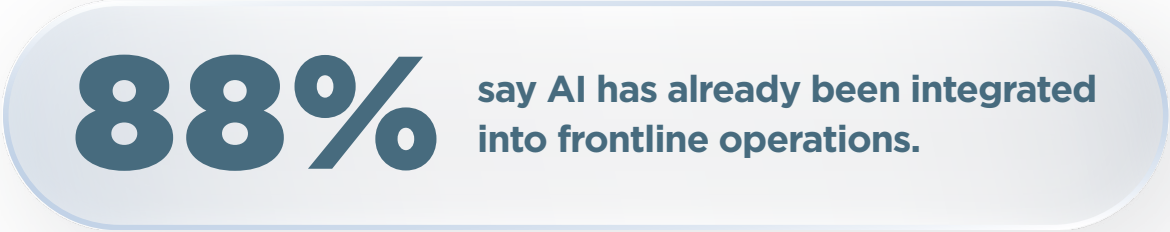


Cybersecurity threats and data breaches are among the leading concerns identified by respondents. However, security concerns sit alongside broader worries about reliability, infrastructure quality and device performance, suggesting frontline workers view technology risk holistically.

A system that is secure but unreliable may still create operational challenges. Likewise, a reliable system that lacks appropriate security controls can introduce long-term risk.

AI is Already on the Frontline

AI is no longer a future technology. It is already being used within frontline emergency response environments.

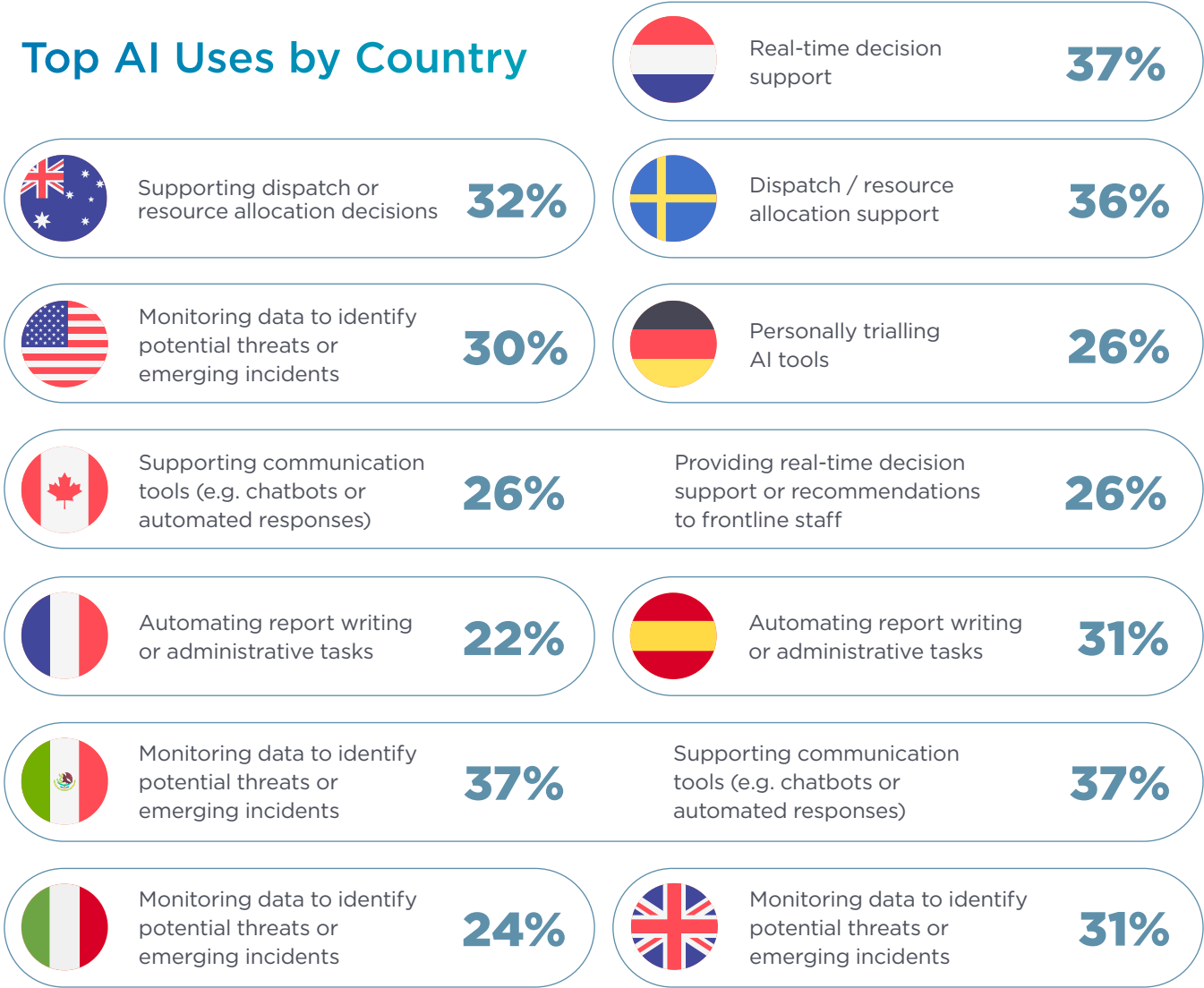


Leading AI Use Cases

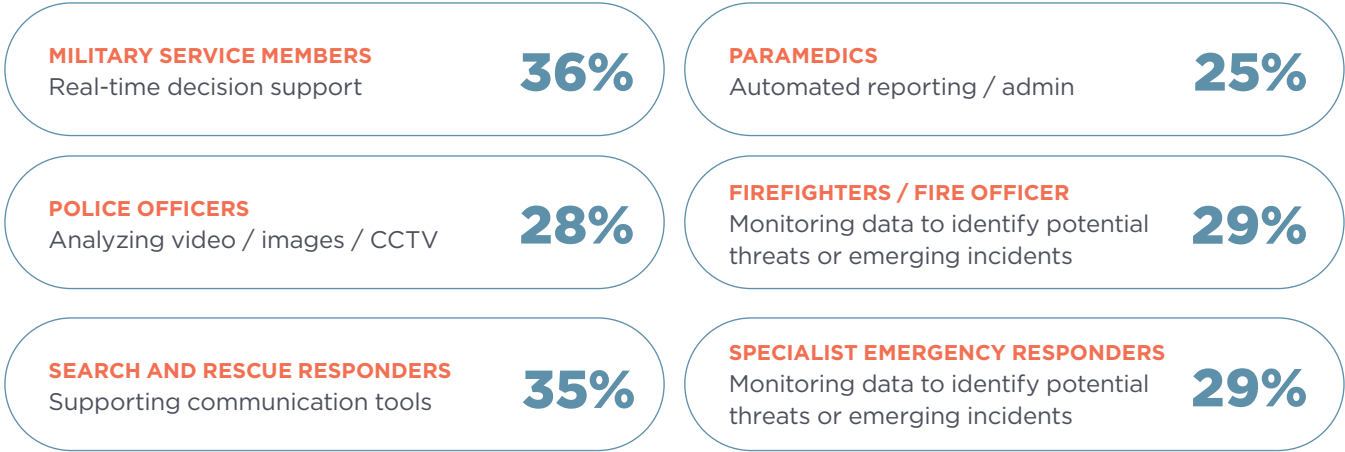


These findings suggest AI has moved beyond experimentation and is already becoming part of day-to-day frontline operations.

Top AI Uses by Country



Top AI Uses by Job



Trust, Security & Accountability: The Next AI Battleground

While respondents recognize AI’s potential, they have concerns around reliability, accountability and professional judgement.

What, if anything, are your main concerns about the use of AI in frontline emergency services?

Overreliance on AI instead of professional judgement	33%
AI making incorrect or unreliable decisions	33%
Data privacy or cybersecurity risks	30%
AI systems not working reliably in high-pressure or real-time situations	29%
Unclear accountability if something goes wrong	28%
Lack of transparency in how AI systems make decisions	27%
Bias or unfair outcomes in AI-driven decisions	24%

These findings suggest frontline workers want AI to support professional judgement rather than replace it. The challenge is not whether AI should be used – it is how AI can be deployed safely, transparently and accountably within high-pressure operational environments.

Across several countries, the leading AI concern is the risk of it making incorrect or unreliable decisions, reinforcing the need for transparent, accountable AI governance in frontline emergency services.

An Opportunity to Build Trust into the Next Phase of Frontline Technology

As frontline technology becomes more connected, intelligent and distributed, emergency services have an opportunity to build trust into their technology ecosystems from the outset. Frontline workers are not opposed to AI, cloud-based systems or mobile technologies; rather, they want reassurance that these tools are secure, reliable and accountable when used in high-pressure operational environments.

Building that trust will require organizations to take a proactive approach to cybersecurity, governance and data privacy. This includes improving visibility and control over shared and personal devices, ensuring sensitive operational information can only be accessed by authorized users and implementing clear policies around how frontline data is collected, stored and shared.

As AI adoption increases, organizations will also need robust governance frameworks that keep humans involved in critical decisions, provide transparency into how AI-generated recommendations are made and establish clear accountability when AI is used to support frontline operations. By addressing these challenges early, emergency services can reduce risk while giving frontline workers greater confidence in the technologies they depend on every day.



CONCLUSION

When Technology Falters, Emergency Response Pays the Price

Emergency services have successfully embraced digital transformation.

Across frontline operations, technology now underpins communication, reporting, navigation, information access, decision-making and coordination. Mobile devices, applications, cloud-based systems and AI tools have become integral to how frontline workers carry out their roles.

Frontline workers recognize the value of these technologies – when they work.

Large majorities agree that technology improves communication (**78%**), provides faster access to information (**77%**), strengthens accountability (**77%**) and enhances response times (**76%**).

Yet, the research also reveals a new reality: emergency services have become digitally dependent at a time when reliability, resilience and governance challenges remain unresolved.

Today's emergency services are operating in an environment characterized by increasing complexity. Organizations are managing greater dependencies on technology, growing use of shared devices, widespread personal device use, more climate-related incidents, rapid AI adoption, heightened cybersecurity threats and increasing pressure on workforce well-being.

The priority now is ensuring frontline technology is secure, resilient and trusted under pressure.

The findings point toward several areas that will be critical to achieving this goal. Emergency services will need greater visibility across shared devices and users, more resilient frontline connectivity, proactive issue detection, faster troubleshooting and support, secure management of personal devices, fit-for-purpose rugged technology, and responsible governance for emerging technologies, such as AI.

Ultimately, the challenge facing emergency services is not whether to become more digital; that journey is already underway. The challenge is ensuring the technology that frontline workers depend on every day is reliable, secure and resilient enough, secure enough and resilient enough to support them when it matters most.

Technology has become critical infrastructure for emergency response. The organizations that thrive in the years ahead will be those that treat it accordingly.

NOTES ON REPORTING

¹'Often' and 'Sometimes' responses combined.

²Reverse of 'N/A – I never use my personal device(s) to carry out tasks in my role'.

³'Slightly disruptive (Less than 15 minutes lost per shift)', 'Moderately disruptive (15–30 minutes lost per shift)', 'Very disruptive (31–60 minutes lost per shift)' and 'Extremely disruptive (More than 60 minutes lost per shift, please specify)' responses combined.

⁴Reverse of 'N/A – AI has not been integrated into frontline operations at my organisation'.

⁵'Strongly agree' and 'Somewhat agree' responses combined.

⁶'Significant negative impact' and 'Some negative impact' responses combined.

⁷'Shared with others – we each have unique log-in details', 'Shared with others – we share log-in details' and 'Shared with others – no log-in details required' responses combined.

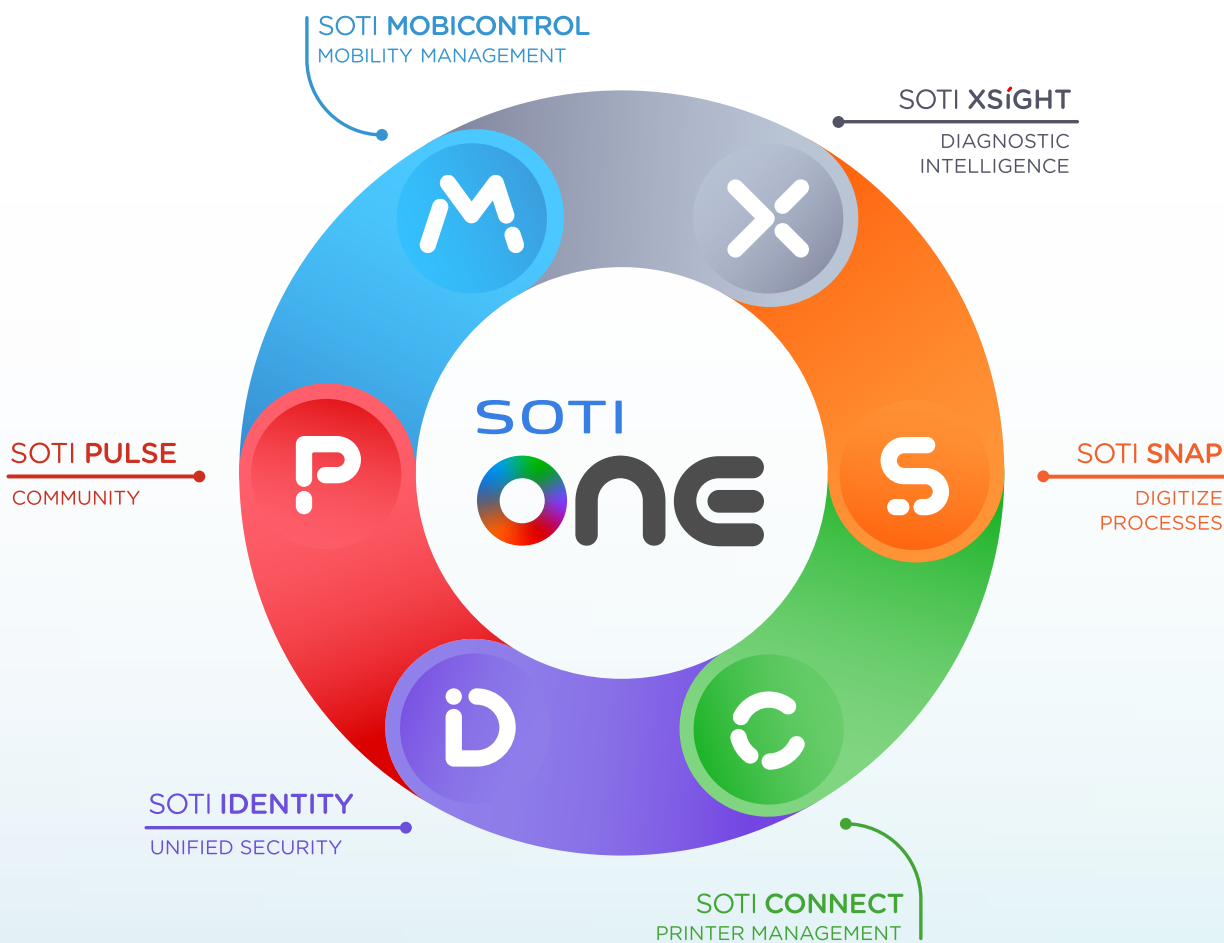
⁸Mean

⁹'Significant positive impact' and 'Some positive impact' responses combined.

¹⁰Reverse of 'N/A – AI has not been integrated into frontline operations at my organisation'.

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SOTI is a proven innovator and industry leader for simplifying business mobility solutions by making them smarter, faster and more reliable. With SOTI's innovative portfolio of solutions, organizations can trust SOTI to elevate and streamline their mobile operations, maximize their ROI and reduce device downtime. Globally, with over 17,000 customers, SOTI has proven itself to be the go-to mobile platform provider to manage, secure and support business-critical devices. With SOTI's world-class support, enterprises can take mobility to endless possibilities.



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