ADVANCING FIRE AND RESCUE OPERATIONS THROUGH TECHNOLOGY

SOLUTIONS DESIGNED TO REINFORCE SAFETY, RESILIENCE AND RESPONSE

SURVEY REPORT | FIRE AND RESCUE SERVICES

MOTOROLA SOLUTIONS

FINDINGS FROM THE 2021 MOTOROLA SOLUTIONS FIRE AND RESCUE SURVEY

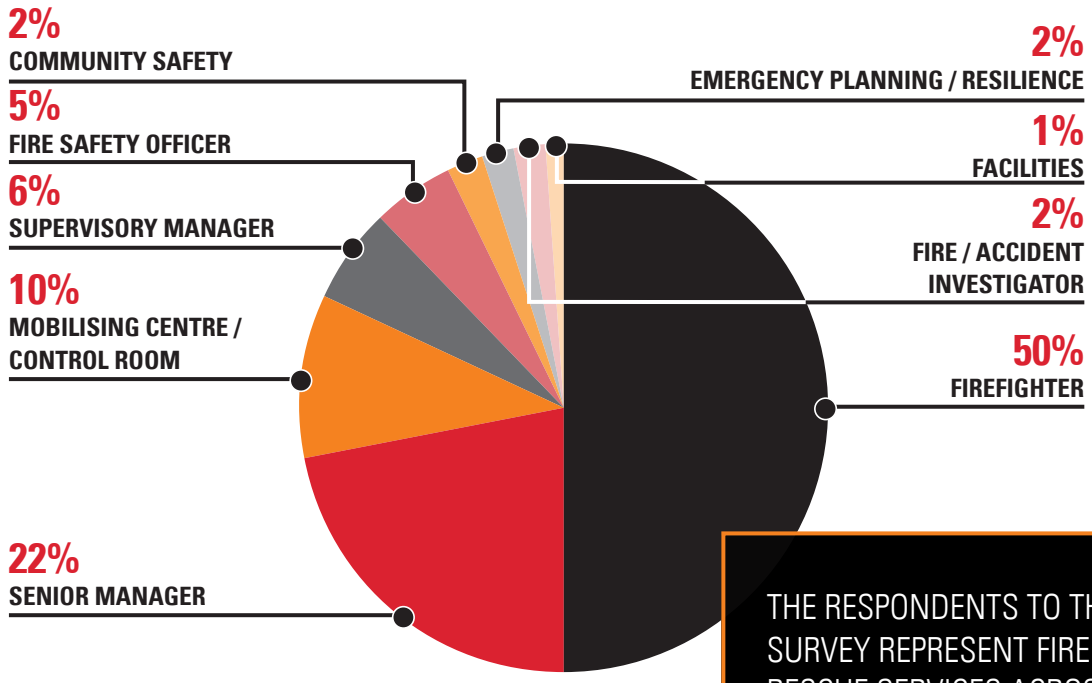
THE ROLE OF A FIREFIGHTER AND THE RESPONSIBILITIES OF FIRE AND RESCUE SERVICES (FRS) THROUGHOUT EUROPE, THE MIDDLE EAST AND AFRICA (EMEA) HAVE CHANGED DRAMATICALLY OVER THE LAST TWENTY-FIVE YEARS. THIS HAS BEEN DRIVEN BY NATIONAL AND INTERNATIONAL EVENTS AND A REQUIREMENT OF GOVERNMENT AND PUBLIC EXPECTATION.

Whereas firefighting and undertaking rescues were traditionally seen as the core function of our FRS, this has now evolved into a more diverse set of responsibilities which include attending large scale environmental emergencies and major multi agency incidents, such as terrorist attacks and chemical, biological, radiological, nuclear, and explosive (CBRNE) events.

The COVID-19 pandemic has also demonstrated the importance of multi-agency collaboration with the need to share resources to achieve a common goal. We have seen firefighters driving ambulances, fire stations turned into local vaccination centres and firefighters administering vaccines. The activities of emergency services need to be supported with a technological infrastructure designed to reduce workload.

The purpose of this report is to highlight the findings of the 2021 Motorola Solutions Fire and Rescue Survey. The report will pinpoint the challenges FRS face around safety, security, and efficiency when it comes to incident response and identify the latest technologies that exist to address these issues. This, in turn, will lead to safer, more resilient, and flexible operations.

SURVEY
RESPONDENT ROLES



THE RESPONDENTS TO THIS SURVEY REPRESENT FIRE AND RESCUE SERVICES ACROSS THE EMEA REGION RANGING IN SIZE FROM 100 TO OVER 2000 OPERATIONAL PERSONNEL, SERVING POPULATIONS OF LESS THAN 100,000 TO OVER 1 MILLION. THE MAKE-UP OF THE FRS INCLUDES WHOLETIME (WT) ONLY, AND A MIX OF WT AND ON-CALL FIREFIGHTERS RESPONDING TO LESS THAN 100 CALLS TO MORE THAN 5000 CALLS IN 2021.

INCIDENT RESPONSE: ELIMINATING CONFUSION

43% OF SURVEY RESPONDENTS FEEL THEY DO NOT CONSISTENTLY RECEIVE OPERATIONAL INFORMATION IN A CLEAR, CONCISE, AND TIMELY MANNER FROM THEIR FIRE CONTROL CENTRE (FCC). WHILST A QUARTER OF RESPONDENTS WERE STILL USING OLDER ANALOGUE TECHNOLOGY WITH LIMITED ACCESS TO ADVANCED FUNCTIONALITY.

The results highlighted several areas where respondents believe the management of an incident could be enhanced with additional communication capabilities. The ability to allow easy group calling and to be able to communicate across a wide-area network were the two top sought-after improvements. Tracking the location of resources was also seen as a major factor in effective incident management.

When focusing on the needs of on-call firefighters there are other, more specific priorities when it comes to effective communication and alerting them to an incident. The ability, on receiving a callout, to distinguish between a life critical incident and a non-emergency response was felt to be important. The use of location awareness so only those within close proximity of the station are alerted, and a simple push button response by the firefighter to accept or reject the callout was also found to be beneficial to both firefighter and FCC.

43%

OF SURVEY RESPONDENTS FEEL THEY DO NOT CONSISTENTLY RECEIVE OPERATIONAL INFORMATION IN A CLEAR, CONCISE, AND TIMELY MANNER

CO-ORDINATED, FEATURE-RICH COMMUNICATION: TWO-WAY RADIOS

The survey exposed an immediate need to improve upon existing communication capabilities in order to mount an efficient and co-ordinated response. Evaluating today's technology in line with these needs, it becomes apparent that they can be met by utilising portable and mobile two-way radios and pagers.

Interestingly, the top concern for those without radios – being unable to communicate with entire teams – was the leading benefit for those with radios reinforcing this as the solution. Other priority features include loud and clear audio and background noise reduction capabilities. Housed in a robust casing to withstand knocks and drops and dust-tight and water-proof to resist damage, purpose-built digital two-way radios can withstand the extreme conditions firefighters find themselves in. Additional features when compared to other devices, is their capability of wider coverage and increased battery life. A final plus-point for those looking to add to their radio fleet, or migrate from analogue to digital is the option of ATEX certified versions to further safeguard firefighters exposed to explosive gases.

THE TOP 4 COMMUNICATION ISSUES NEGATIVELY IMPACTING AN INCIDENT RESPONSE

- INABILITY TO COMMUNICATE WITH ENTIRE TEAMS
- LIMITED GEOGRAPHICAL REACH OF COMMUNICATIONS SYSTEMS
- INABILITY TO TRACK PRECISE LOCATION ACROSS WIDE AREAS
- LACK OF SITUATIONAL AWARENESS BETWEEN INCIDENT AND FCC

INCIDENT MANAGEMENT: TAKING CONTROL

65% OF RESPONDENTS CONFIRMED THAT THE COVID-19 PANDEMIC HAD ACCELERATED REVIEWS OF FCC OPERATIONS AND PRACTICES. WHILST CENTRALISED OPERATIONS ARE STILL PREFERRED, A SHIFT IS BEGINNING TO TAKE SHAPE WITH 18% NOW PLANNING TO INTRODUCE REMOTE WORKING.

Another area of consideration around control room operations and how best to coordinate a response is through cross-agency technology partnerships. 47% of FCCs are planning to form a mobilising partnership with another one.

Under such cooperative arrangements, when one FCC is receiving a high volume of emergency calls and all staff are committed, the system automatically transfers these calls to the partnering FCC to mobilise a response immediately. This also provides the required resilience should an FCC need to be evacuated for any reason. A simple switch of the whole operation over to the partner ensures service is constant until normal operations are resumed.

65%

ARE LOOKING TO ACCELERATE A REVIEW OF FCC OPERATIONS IN LIGHT OF THE COVID-19 PANDEMIC

CENTRALISING CONTROL, SHARING RESOURCES

71% believe for a mobilising partnership to be a success a unified and common technology platform is required. This allows for stable and seamless interoperations between agencies. Software solutions are the gateway to providing a bridge between different communication technologies. More precisely, integrated control room software that harnesses a scalable virtualised platform can address mutual aid requirements and enable seamless collaboration across multiple agencies.

71%

OF FRS LOOKING TO ENTER INTO A MOBILISING PARTNERSHIP WITH ANOTHER SERVICE BELIEVE A COMMON TECHNOLOGY PLATFORM IS REQUIRED

WORKER SAFETY:
PROTECTING OUR FIRST RESPONDERS

OF THOSE SURVEYED, OVER 50% SAY THEY FEEL UNSAFE AT WORK ON A REGULAR BASIS, WHILST ALARMINGLY ONLY 14% FEEL SAFE ALL THE TIME.

When questioned over what impacts worker safety the most when out in the field, 21% cite the top issue as the difficulty firefighters have in taking an accurate record of events, whilst the second most impactful issue with 18% was being unable to share real-time information with colleagues. Both of which leave firefighters vulnerable to accusations that cannot be disproved, open up potential gaps in securing evidence for investigation reports and bring a lack of awareness of the true danger firefighters could be in at any given time.

Looking to body-worn cameras (BWC) as a device that reaffirms worker safety we asked if they are currently used within the FRS. A resounding 83% confirmed they do not have access to such a device with only 15% confirming they do use a BWC.

83%

OF FRS DO NOT PROVIDE BODY-WORN CAMERAS

TOP THREE ISSUES IMPACTING WORKER SAFETY WHEN RESPONDING TO AN INCIDENT

- DIFFICULT TO TAKE ACCURATE RECORDS OF EVENTS
- UNABLE TO SHARE REAL-TIME UPDATES
- OFTEN MET WITH UNEXPECTED INCIDENTS

SWITCHING UP SAFETY: BODY-WORN CAMERAS

43% of BWC users do so for evidence gathering, whilst 38% have them for their own personal safety. This leaves 19% who actually use them for the purpose of both evidence and safety.

With specially designed features to simplify capturing evidence, such as peer-assisted recording which enables automatically triggered recording based on activated cameras within range, radio integration, video streaming and incident bookmarking, advanced body-worn cameras provide real-time and post-event evidence sharing that defends actions, protects workers and enables a more efficient response. So, if you're a firefighter attending a volatile incident, a lone worker exposed to accusations and complaints, or an Accident Investigator gathering crucial evidence, body-worn cameras can give the all-round support needed.

43%

OF THOSE USING BODY-WORN CAMERAS USE THEM PRIMARILY FOR EVIDENCE GATHERING

EVIDENCE CAPTURE:
PROTECTION ON THE MOVE

WHEN ASKED ABOUT ATTACKS ON FIRE SERVICE VEHICLES, 30% OF THOSE SURVEYED SAID THIS WAS A COMMON OCCURRENCE; MORE SPECIFICALLY IT HAS BEEN REPORTED THAT THEY ARE INCREASINGLY SUBJECTED TO MISSILES BEING THROWN AT THEM WHEN RESPONDING TO INCIDENTS[1].

With incidents like this, it not only puts the crew at risk but also may prevent them from getting to the scene of the emergency and rendering assistance, putting more lives in peril.

Aside from attacks, the top three issues which respondents were concerned about when traveling in fire service vehicles were: being unable to share video in real-time (20%), having no ability to capture evidential data from the vehicle (19%) and a complete lack of situational awareness (15%).

All these issues indicate there is a need to greatly improve information sharing and evidence gathering, especially when crews are facing danger.

30%

CLAIM ATTACKS ON FIRE SERVICE VEHICLES ARE COMMON

TOP THREE ISSUES IMPACTING WORKER SAFETY WHEN TRAVELING IN FIRE SERVICE VEHICLE

- UNABLE TO SHARE INFORMATION IN REAL-TIME
- UNABLE TO CAPTURE DATA FROM VEHICLE
- NO SITUATIONAL AWARENESS

GETTING THE FULL PICTURE:
IN-VEHICLE CAMERAS

When assessing technology available today, in line with the issues highlighted in the survey, it is video recording that stands out as a key enabler, in particular in-car camera systems. With over 30% of respondents believing the ability to gather visual evidence from multiple vantage points would improve both evidence gathering and their safety, the live streaming and video storage capabilities of in-car cameras fulfill these needs.

With minimal interaction from crews required, and with zero distraction from the task at hand, in-car video allows hands-free evidence gathering without the need for additional training. In-car cameras can also integrate with body-worn cameras, as well as wirelessly upload any footage automatically.

A successful deployment of in-car cameras will expedite criminal prosecution should the need arise, provide unbiased evidence of road traffic incidents involving these vehicles and provide valuable situational awareness and heightened safety measures to fire crews in the field.

30%

BELIEVE EVIDENCE GATHERING AND SAFETY WOULD BE ENHANCED IF VISUAL EVIDENCE WAS GATHERED FROM MULITPLE VANTAGE POINTS

STATION SECURITY: ASSET PROTECTION

MORE THAN HALF (51%) OF THOSE WHO RESPONDED TO THE SURVEY BELIEVE THAT THEIR FIRE STATION IS FACING A SIGNIFICANT OR INCREASING THREAT FROM ACTS OF VANDALISM OR THEFT. THE PROTECTION OF PHYSICAL ASSETS HAS NEVER BEEN MORE IMPORTANT AS WE REGULARLY LEARN OF VANDALISM, BURGLARY, ATTACKS ON FIRE STATION BUILDINGS AND THEFT OF LIFE SAVING EQUIPMENT[2].

Thefts are often believed to be undertaken by opportunists[3], however, there has been an increase of targeted thefts of specialist rescue equipment used by organised crime groups[4] for gaining entry to high security premises. This places an additional burden on the already tight budgets of FRS, as it's essential to replace vital life saving equipment and clearly demonstrates the need for enhanced physical security at fire stations.

The lack of resources to monitor stations and detect intruders could also place a temporary burden on neighbouring stations whilst equipment is replaced. Lives will be put at risk as a consequence as response times will inevitably increase as they cover a greater geographical area.

MORE THAN
50%
OF FIRE STATIONS FACE THREATS FROM VANDALISM OR THEFT

SECURING STATIONS: VIDEO SECURITY AND ACCESS CONTROL

Our survey highlighted only 11% of respondents confirmed that their entire premises are covered by internal or external video security. And 60% of respondents believe there is no resource for centralised security management.

To limit the threat of theft or vandalism, video security and access control systems will help protect all areas and, if needed, provide vital evidence for prosecutions. Today's high quality, vandal resistant cameras provide excellent countermeasures against intruders. Features including pan, tilt, zoom (PTZ), wide area or fisheye lenses and low light operation ensure images are captured in all conditions across the entire monitored area. Beyond the cameras, accompanying control room software and access control systems will automate alerts when something out of the ordinary occurs and control physical access by unauthorised personnel.

ONLY
11%
CONFIRMED THE ENTIRE STATION PREMISES WERE MONITORED BY VIDEO SECURITY

CONCLUSION

FIRE AND RESCUE SERVICES, IN COMMON WITH THEIR EMERGENCY SERVICE PARTNERS, FACE AN INCREASING CHALLENGE WHEN IT COMES TO BALANCING THE NEEDS OF THEIR STAFF, THEIR COMMUNITY AND THOSE IN NEED OF ASSISTANCE IN AN EMERGENCY, PLUS FULFILLING THEIR DUTY OF DELIVERING A SERVICE IN A SAFE AND TRANSPARENT MANNER.

From the perspective of the public, they are mostly interested in getting a fire engine when they need one. Whereas the firefighter wants to be provided with the best tools to do the job and have confidence that they can carry this out in the knowledge that their safety, whereabouts and actions are being monitored.

Whilst there is never a single solution to overcome all eventualities, it is reassuring that technology is readily available which can be configured for individual needs. The needs of a metropolitan FRS may be on a different scale to that of a rural FRS, however the risks and challenges remain the same.

Throughout the survey, recurring themes have been the need for reliable interoperable systems, more effective sharing of information and enhanced situational awareness.

Although the technology requirements of an FRS are complex and require multiple capabilities, today's technology provides the ability to capture, store and disseminate information more effectively than ever before. This in turn allows those with the experience, knowledge and understanding of emergency situations to undertake their role without the worry of having to constantly take notes or record specific actions.

> MOTOROLA SOLUTIONS IS HELPING TO MAKE THIS VISION A REALITY BY CREATING THE FIRST ECOSYSTEM TO UNIFY THE TECHNOLOGIES THAT KEEP US SAFE, ON ONE SINGLE PLATFORM – VOICE, VIDEO, DATA, AND ANALYTICS.

To find out more about our solutions designed to keep fire officers safe and operations resilient so they, in turn, can provide the public with a more advanced emergency response visit **motorolasolutions.com**

[1] https://www.northumberlandgazette.co.uk/news/people/i-could-have-been-killed-or-seriously-injured-firefighters-warning-after-vehicle-was-attacked-3446924
[2] https://www.nationalfirechiefs.org.uk/Vehicle-and-equipment-safety
[3] https://www.gloucestershirelive.co.uk/news/gloucester-news/suspects-named-after-fire-station-4969496
[4] https://www.derbyshiretimes.co.uk/news/crime/organised-crime-group-stole-specialist-equipment-derbyshire-fire-station-break-cash-machines-981659

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