

FIVE REASONS WHY NOW IS THE RIGHT TIME TO REFRESH YOUR TETRA DEVICES

THE POLICING LANDSCAPE HAS CHANGED. FUELING THIS CHANGE ARE A NUMBER OF SIGNIFICANT TRENDS:

GROWING INCIDENTS OF VIOLENT BEHAVIOUR TOWARDS FRONTLINE POLICE OFFICERS

In Germany, 84,831 police officers were the victims of violence in 2020, representing a 5.9% increase from the previous year¹. In the UK, there were 36,969 assaults² on police in the year that followed the national lockdown in March 2020. This represented a 20% rise from the previous year.

INTENSIFIED PUBLIC ATTENTION ON AND SCRUTINY OF POLICING ACTIVITIES

To illustrate this point, police use of stop and search powers are still being aired on a regular basis, and examples of perceived poorly-conducted encounters posted on the Internet by members of the public³.

INCREASED AND CHANGING DEMAND ON THE POLICE SERVICE HAS PUT SEVERE STRAIN ON LIMITED RESOURCES

In many cases, the police service is trying to meet ever-more complex and high-risk demand with strained resources⁴. A key theme among police services is addressing this with an array of change programmes aimed at improving how they use their resources.

PROLIFERATION⁵ OF COMMUNICATION TECHNOLOGY AND BODY-WORN EQUIPMENT THAT OFFICERS MUST LEARN TO USE

Frontline officers face a steep learning curve to effectively use different technologies such as body-worn cameras, professional mobile radios and smartphones, which are often based on siloed back-end applications. Critically, the lack of integration across these applications creates inefficiencies in frontline operations.

INCREASING PROPORTION OF THE WORKFORCE ARE DIGITAL NATIVES WITH NEW EXPECTATIONS FROM TECHNOLOGY

With millennial and post-millennials poised to become the largest generational cohorts within policing⁶, there will be new expectations for modern, effective and user-friendly technology.

Technological developments in the most recent decade have the potential to counter these challenges and to positively impact frontline safety, productivity and police service efficiency. In particular, an array of advancements in mission-critical TETRA radio technology, the communications lifeline for frontline officers, are potentially transformative.

HERE ARE FIVE REASONS WHY NOW IS THE RIGHT TIME FOR LAW ENFORCEMENT ORGANISATIONS TO REFRESH THEIR EXISTING FLEET OF TETRA RADIOS.

1 AUTOMATICALLY TRIGGERED URGENT CALLBACKS WILL IMPROVE FRONTLINE OFFICER SAFETY

THE URGENT CALLBACK CAN INCLUDE THE LOCATION OF THE OFFICER IN DANGER TO WITHIN AN ACCURACY OF 2 METRES

Police officers are trained to press the emergency button when faced with potentially life-threatening situations. When the emergency button is pressed on a TETRA radio, an emergency call is triggered to a defined talkgroup. The control room operator also receives an emergency alert, prompting the immediate mobilisation of support to aid an officer in distress.

Today, many officers are equipped with conducted energy devices (CED) which they are authorised to deploy when faced with an imminent use or threat of violence. In situations where an encounter with a member of the public rapidly turns violent and an officer requires immediate assistance, the emergency button becomes a lifeline. Modern TETRA radios that are equipped with Bluetooth can be configured to trigger an urgent callback message to the dispatcher in the event an officer's CED is drawn, notifying the control room of an officer in danger and requiring urgent assistance. On receiving the callback message, the dispatcher can activate Ambience Listening mode⁷ on the officer's radio to listen in on background noises and conversations and assess the threat. Crucially, this urgent callback message can be sent before the officer even presses the emergency button, thus ensuring that help arrives as quickly as possible.

As a further measure to improve officer safety, the urgent callback message can include the location of the officer in danger to within an accuracy of 2 metres. This is thanks to improvements in positioning accuracy enabled through multi-constellation global navigation satellite systems (GNSS) that are built into modern TETRA devices.

2 CAPTURING CRITICAL VIDEO EVIDENCE IN HIGH-STRESS SITUATIONS

Among the key drivers for the adoption of body-worn cameras in policing is the reduction of complaints against officers from members of the public. A systematic review⁸ covering 30 studies suggested that the introduction of BWCs contributed to a 17% reduction in complaints against the police service.

Body-worn video has also helped reduce the time taken to investigate complaints against the police service. For example, the Police Ombudsman for Northern Ireland found that 30% of investigations were able to be conducted more quickly due to the availability of body-worn video footage.

There have, however, been situations in which the availability of body-worn video footage has neither helped nor hindered an investigation into a police complaint. In particular, during high-stress situations, an officer will likely revert to gross motor actions⁹ - this might include reaching out for safety equipment and pressing the orange emergency button on their TETRA radio in the first instance. It is less likely that an officer in a high-stress situation will in the first instance, activate their body-worn camera and, as a result, captured video footage may not cover the full interaction. Indeed, in one such example of a public complaint against a police service, an officer's BWC was only activated after the deployment of CS spray.

17% REDUCTION IN PUBLIC COMPLAINTS AGAINST THE POLICE

Thus, this leaves open the possibility that the incident complained of by a member of the public could have occurred when BWCs were not activated.

A modern TETRA radio equipped with Bluetooth can be configured to activate a BWC when it is in Emergency mode - for example, when the orange emergency button is pressed by an officer in distress. With current BWCs able to support over 2 minutes of pre-vent recording, this automated functionality helps ensure that vital footage of the interaction leading up to the emergency button being pressed is captured.

3 STREAMLINED OVER-THE-AIR RADIO SOFTWARE UPDATE PROCESS

Operational data such as contact information and talkgroup settings form part of the codeplug configuration in TETRA radios. As organisations evolve and adopt new processes alongside personnel changes, operational data held on their TETRA radios will need to be updated, and this typically involves a time-consuming and onerous radio programming process.

Where codeplug or software updates need to be made to an organisation's entire fleet of radios, the process can take several months, depending on the number of devices involved and technical staff available to implement the changes. Crucially, this can have a negative impact on staff availability as it is often

the case that officers temporarily come off frontline duties while they get their radios updated.

One of the key capabilities of modern TETRA devices is over-the-air programming - a feature that allows radio updates to be performed remotely in the field. By removing the need for radios to be returned to a central location for programming, what would have taken several months, can now be done in just a few hours, with no disruption to frontline operations.

Remote access creates efficiencies for support teams whilst at the same time mitigating risks to the user for critical updates as well as ensuring that they are not unduly deviated from frontline operational roles.

PROGRAMME YOUR TETRA RADIO ON PATROL FROM NOTIFICATION TO UPDATED IN MINUTES

4 SIMPLIFIED BROADBAND PUSH-TO-TALK TECHNOLOGY MIGRATION

The next decade will see the deployment of 3GPP-compliant 4G and 5G broadband networks for mission-critical communications, commonly referred to as MCX systems. In Europe, it is envisaged that MCX systems will co-exist with TETRA networks for a period of time. For example, the Finnish public safety authority, Erillisverkot, has earmarked 2022-2025 as the period during which TETRA and broadband services will be offered in parallel. Similarly, the German Federal Agency for Public-Safety Digital Radio envisions a hybrid network in which TETRA mission-critical voice communications would be complemented by commercial broadband data services for a period of time before eventually transitioning to a dedicated broadband network¹¹.

The lack of a viable off-network solution for MCX systems stands as a potential barrier to a wholesale fleet migration to mission-critical broadband networks¹². As a consequence, national public safety authorities are employing alternative solutions, such as TETRA DMO, to deliver critical device-to-device (D2D) communications alongside MCX services.

Frontline officers face the somewhat daunting prospect of operating multiple communication devices during the period of TETRA and mission-critical broadband co-existence. Potentially, a frontline officer may need to carry a minimum of 3 communication devices, including a mission-critical broadband

device, a remote-speaker microphone and a TETRA portable radio, in addition to other technologies such as body-worn cameras and CEDs. A potential unintended consequence of this proliferation of frontline communication devices is increased stress for officers as they learn and apply these advanced technologies.

To minimise the training requirements for frontline officers, modern TETRA devices can be operated in two modes when coupled with an MCX device:

- **Mode 1:** Act as a remote speaker microphone coupled to an MCX device.
- **Mode 2:** Support TETRA Direct Mode Operation for off-network communications.

This intuitive functionality, provided by modern TETRA devices, ensures that officers can accomplish tasks with a user interface that feels most natural to them.

BY COUPLING TETRA RADIOS WITH MCX DEVICES, THE TRAINING EFFORT FOR FRONTLINE TEAMS CAN BE MINIMISED

5 ENHANCED USER EXPERIENCE TO INCREASE FRONTLINE EFFICIENCY

The growing dominance of Millennials and Post-Millennials within the frontline ranks is changing expectations about policing technology. These generational cohorts, born into a massive technological boom that witnessed the take-off of smartphones and social media, are often referred to as Digital Natives. Consequently, Millennial preferences for modern, smartphone-based user interfaces will increasingly impact frontline policing technology choices.

A smartphone interface with a TETRA radio can enhance and improve its current functionality from the user's perspective. Whether it is enabling user-friendly text messaging via a messaging app UI or providing a streamlined navigational process between talkgroups, a smartphone interface offers superior usability compared to the radio for many use cases.



Frontline officers, however, depend on their TETRA radios for instant communications in high-stress environments, such as when there is a threat to life. Unlike smartphones which are designed to maximise user productivity, TETRA radios act as a communication lifeline and follow high-velocity human factors (HVHF) design principles¹³ - a science that combines and applies knowledge about human senses, cognition and physiology to maximise the human-machine fit. Based on HVHF principles, mission-critical controls such as the emergency and push-to-talk buttons must be easily locatable by an officer in a high-stress situation.

The right communication solution, therefore, is one that ensures optimum performance in the different environments officers find themselves in. As the communication lifeline, it is vital that the frontline officer's radio remains firmly attached to the body, ensuring that the officer always has access to mission-critical radio functions. For normal operating conditions, a smartphone-based user interface would benefit from immediate familiarity, especially with Millennials, and thus help boost frontline efficiency. Modern TETRA devices offer the necessary flexibility for different operating conditions by seamlessly interfacing smartphone devices and delivering an optimised user experience.

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