



# RED ALERT!

Lorenzo Marchetti throws a spotlight on essential citizen safety practices as the new UK public alerting system swings into action

**T**hreats to public safety can come in many different guises, from extreme weather events such as hurricanes and fires and public health incidents, through to terrorist attacks, civil unrest and more. It is always a challenge for public authorities to anticipate and manage unpredictable events that put citizens at risk. Consider some of the most notorious attacks on British soil in the last six years: the bombing at Manchester Arena in 2017, which killed 23 people and injured 1,017; the Westminster car attack, which ran down pedestrians in 2018; the terrorist attack in a Reading public park that killed three and injured three others in 2020; and the Liverpool Women's Hospital bombing that was thwarted by a taxi driver in 2021.

The police, local and national authorities almost always come under scrutiny for not foreseeing the danger signs, but they are also criticised for mishandling events when they do unfold. In many instances, even when a public safety system is in place, the authorities find it challenging to reach everyone, everywhere and every time. The systems they use may also have limited capability such as not offering multi-channel alerting, and if those systems are aging, they may not be equipped to interact successfully with the latest technology including 5G or satellite communication.

In the European Union, public warning technologies have been considered and evaluated for some years and deployed across various countries. The advantages and disadvantages have been weighed to determine what type of system would be most suitable; but despite the implementations, timeframes under the EU Directive

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(2018/1972, which established that by June 2022 all member states should have adopted public warning systems able to reach end-users during emergencies) already having come and gone – there are many EU nations where no population alerting system is yet in place. In 2020, the Body of European Regulators for Electronic Communications (BEREC) listed in its guidelines both cell-based and application-based solutions as viable public warning systems falling under Article 110 of the Directive.

What has been clearly determined by the impact of natural disasters in Europe, such as the floods in July 2021 that hit Germany, Netherlands and Belgium, is that member states would benefit most from phone-based systems. The quickest method for communicating during an emergency is to use people's mobile phones via cell broadcast, which can reach millions of people in mere seconds with clear guidance and without the need for an app download, registration or mobile operator provider distinction. Cell broadcast enables all mobile devices in an affected area to be instantly alerted by drawing an area on a map. Messages are then received simultaneously on each device within that area.

Another alternative technology option is location-based SMS, which uses the infrastructure of telecom operators to send SMS messages to all connected devices. A combination of both cell broadcast and location-based SMS will reach the maximum number of citizens.

The public emergency alert system in the UK, powered by Everbridge's cell broadcast technology, has only just been introduced. Announced by the Government in March, it has been tested on three of the UK's biggest mobile networks – EE, O2 and Three – which represent the majority of UK mobile subscribers and a population of over 65-million residents plus an additional 35-million annual visitors.

The cell broadcast-based system leverages existing telecom infrastructure, with no opt-in required which means that everyone within a geographic area will be alerted if they are at risk from a public safety or security event. The UK system will also support first responder communications and analyse disaster communication effectiveness for subsequent mitigation activities. The implementation project in the UK was one of the first to closely involve the national security apparatus, which was engaged in setting up and checking the implementation of the security requirements, end-to-end. The platform is fully compliant with data privacy regulations including GDPR and allows public safety agencies to send an alert to any device within a few seconds without sharing any personal details, such as names or phone numbers.

So, let's have a closer look at public alerting technology. It must be rapid, reliable, require no prior action by the people it's trying to protect and not suffer from congestion. Ideally it will be disseminated through a multi-channel approach that can communicate effectively to diverse audiences facing any hazard and across all stages of the emergency. Incidents can also cut across geographic, policy, political, cultural, language and legal boundaries which means alerting systems must do the same. There also needs to be balance in the management of public alerting because while speed of response is vital,

decision-makers must consider the full lifecycle of the incident and ensure alerts reach the right people with the right message to elicit the correct response.

Because public alerting systems are technology-based, their development and ongoing effectiveness does have to take into account the awkward topic of obsolescence. The pace of innovation in communications tech is undeniably relentless. 5G and subsequent advances will bring even faster and more ubiquitous digital services and increasingly these will be enhanced through machine learning and artificial intelligence.

## DECISION-MAKERS MUST ENSURE ALERTS REACH THE RIGHT PEOPLE WITH THE RIGHT MESSAGE

Which means that an effective system cannot be built on a solution that becomes unusable or outdated in a few years – it must be capable of adapting to developments and changes in the way the public communicates. It is pointless to focus on the application of new technologies to old models. That said, public alerting systems should also be retrospectively functional, for example, users of 3G phones must be able to receive emergency alerts.

There are several best practices that should be considered by national and local authorities for a full-scale public alerting system if it is to meet the requirements of reaching all citizens, leaving no one behind and ensuring a multi-agency response to any incident or event.

### COMMUNICATE ACROSS ALL PHASES OF THE INCIDENT

If possible, plan ahead for the most likely incidents that might occur and prepare citizens. When the event happens the public needs to be alerted as quickly and as efficiently as possible. Authorities then need to respond or to communicate through the response phase, ideally in the local language and through two-way communication. This includes to those who can help to let them know what to do. During the recovery phase it's also essential to keep communicating, which can help to mitigate the ongoing impact of the event.

### COMMUNICATE WITH ALL STAKEHOLDERS

This means everyone from citizens and visitors to community volunteers, emergency services, support agencies and government departments. All resources available to support an incident should be known and contactable when an incident occurs across multiple channels and with the ability to automatically send messages in the appropriate language to improve the effectiveness of communication to international travellers.

### COMMUNICATE WITH THE RIGHT PEOPLE AT THE RIGHT TIME

At each stage of an incident, authorities need to be able to answer the questions: who can help? Who is



impacted? Who needs to know? For each category of stakeholder, authorities should know what is the best way to go about contacting them based on the precise nature of the incident and communication that needs to be sent and to seamlessly engage in two-way communication to check on whether they are safe and to receive requests for assistance.

### LEVERAGE LOCATION INTELLIGENCE

Where do people live and work most of the time? Where are they now? Can authorities access historic ‘snapshots’ of where people were six hours ago? By using location intelligence and building situational awareness, emergency services and local authorities

## THE QUICKEST METHOD FOR COMMUNICATING DURING AN EMERGENCY IS PEOPLE’S MOBILE PHONES

can track the location of those that might need help, determine the density of people in an incident area, or how they are moving because of the incident. If a hazard has been unidentified in an area – such as the poison in Salisbury – it will become necessary to alert all individuals who have been in the area over the previous 24 hours using historical location data. Location information can be critical in determining the message to send to the public in any given area or the allocation of emergency services. With geolocation, it’s even possible to build models related to population densities at given times or

predict the likely location of an individual based on their previous historical behaviour.

### MAXIMISE THE EFFECTIVENESS OF TECHNOLOGY

A combination of cell broadcast and location-based SMS, with situational awareness capabilities, covers all bases. But public alerting technology is always evolving and it’s important to consider the role that new and emerging tech will play. 5G offers improved signal strengths, range, material penetration, bandwidth and location data. Machine Learning can analyse huge swathes of data to find patterns and make predictions that would take humans months. AI can be used to help with advanced decision-making and situational awareness for authorities. Soon, we will see the addition of chatbots that are fed information through machine learning so people in danger can get assistance.

The UK, like any other country that is embarking on a new method to keep its people safe, can learn from other countries such as Norway, Sweden, Iceland, the Netherlands, Estonia, Australia and New Zealand when it comes to ensuring its public alerting system is effective. By involving all stakeholders and authorities in its practical deployment it will help to improve engagement and effectiveness and adapt the system based on the unique characteristics of the country, especially as weather-related events, such as wildfires and flooding, are on the rise. Finally, it will be essential to communicate to, and educate the public and visitors so they are more ready to understand how public alerts can help keep them from danger and invest their trust in the system ●

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