NEXT GENERATION 112

BRINGING EMERGENCY RESPONSE BACK TO THE FUTURE!

A pilot project, launched by the European Emergency Number Association (EENA) in 2019, has been trialling cases of Next Generation 112 to push Europe increasingly towards the use of more messenger services and video calls in a bid to create a more accessible emergency response. Report by Rose Michael, EENA's Knowledge Officer.

Tech industries like the Internet of Things (IoT), smart cities and 5G will continue to develop as they are set to receive significant investments in Europe: the European Commission has earmarked €700m for the 5G partnership[1] while the European Innovation Partnership on Smart Cities and Communities (EIP-SCC) has pledged €1bn to 300 smart cities by 2020[2].

These fields are not only thriving, there is also a lifesaving role for them in emergency response. What if paramedics could be instantly alerted by a smartwatch if someone's heart stops beating? How about if heat sensors could help emergency services understand the extent of a major fire?

However, emergency services cannot exploit the potential of these developments, as they simply are not ready to receive such data. The future is already here, but we are not embracing it.

INTERNET PROTOCOL CALLS

This is where Next Generation 112 (NG112) comes in. To start taking advantage of modern-day technologies, emergency services need to make use of Internet Protocol (IP) communications. And this is what NG112 is all about. In short, IP calls can carry much more varied data than traditional phone calls, including text, photos, video, and much more.

However, despite already being deployed in the USA and Canada (where it's known as NG911), Next Generation 112 is almost non-existent in Europe; 61% of Europeans were using instant messaging services in 2017[3], but most emergency services can only be contacted through voice call. The new pilot project by the European Emergency Number Association (EENA) looks set to change this by trialling cases of NG112 across Europe.

What concrete benefits can NG112 bring to citizens' safety? Whether it's an individual emergency or a large-scale disaster, the more information received by the emergency about the situation, the quicker, more appropriate and safer the response.

Data beyond a traditional voice call can make a huge difference when responding to emergencies, helping to improve situations involving citizens who are in danger or distressed. If emergency services can receive varied data, we can go far beyond a photo of an emergency scene. Information about pre-existing medical conditions, caller location and phone battery status can also give emergency responders a more complete picture.

EMERGENCY DRONES

In hard-to-reach areas, drones can livestream video footage to emergency services, providing details of the terrain, environment and status of the victims.

In the same vein, trials with maritime search and rescue have already been carried out in Canada. During these trials, drones were used to identify the presence of victims in the water, with

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the data sent to the coastguard before the rescue operation was launched.

At the EENA Conference 2019, Maria Jacques, Director of the Emergency Services Communication Bureau, described the transformation of emergency response in Maine in the US, where NG911 is saving $1m annually. Importantly for major disasters, Next Generation emergency response is not just about how citizens alert emergency services, but also how call centres communicate with each other.

In times of disaster, centres can be overloaded with a flood of incoming calls, as most centres are unable to re-route calls. With NG112, a network can be created to interconnect the centres. This can create 'back-ups' just in case one centre becomes unavailable, which could also be caused by a denial of service cyber-attack, for example. Equally, data and information can be shared more easily between the different agencies involved in crisis response.

NG112 can be seen as a way to improve and enhance today's emergency services, making them more relevant, accessible and reliable. It can significantly contribute to bridging the gap when it comes to accessibility: many of the 80 million people with disabilities in Europe[4] could benefit from text or video services.

However, it will also pave the way for new, developing and future technologies to be widely integrated into emergency response. So, what will the near future of crisis response look like with NG112?

PUBLIC WARNING SYSTEMS

Warning people of upcoming threats and nearby emergencies can be literally lifesaving. If citizens have time to react to a crisis and take steps to stay safe, loss of life can be significantly reduced. Recent EU legislation will require all Member States to use mobile phone networks for public warning. Practically, this means that those in the vicinity of an emergency will receive an alert on their mobile phones.

The best public warning systems are a 'blend' of methods, using all means possible to reach people in danger. Next Generation 112 can allow emergency services to take advantage of the 11 billion connected objects in Europe.

Public warning messages could be broadcast out loud from home speakers, for example, ensuring that people in danger are reached in their homes. As well as warning people of nearby threats, NG112 will allow data from smart cities to actively keep people safer in emergencies. Systems such as the Active Emergency Response System prototype could react to natural disasters such as earthquakes by opening evacuation routes and shutting off gas pipelines.

NATURAL DISASTER MANAGEMENT

Harnessing big data also has a huge potential for natural disaster management, particularly as one tragedy can be followed by a subsequent disaster (such as a tsunami after an earthquake). Real-time analytics can contribute enormous value to decision-making processes.

Which citizens need help most urgently? Which area has a flood already reached? Useable, lifesaving data is out there, but without a reliable way to receive such data, whether it's in the form of maps, evacuation routes, images or other media, emergency responders currently can't make use of it.

There are a multitude of possibilities for NG112 and the path is transitional. Emergency services need to first be able to receive the necessary data, before they can begin to take full advantage of today's technology to save lives.

In a society that relies on instant messaging and video calls, emergency services currently risk becoming isolated as one of the only services accessible exclusively via traditional phone call. This will only worsen as technology develops and emergency response becomes increasingly out of touch with the reality of communications today.

Embracing NG112 now will not only make emergency services more relevant and accessible, but it will open the way to make use of today's developing technologies and those of the future. EENA's new project, focusing on real-life environments, will help build the foundations for practical deployment of NG112 and the future of emergency call-handling in Europe.

Reference Sources:
[1] European Commission, Towards 5G
[2] EIP-SCC, General Assembly 2018
[3] Digital Information World
[4] European Disability Forum