112 DAY REPORT 2023

EUROPEAN EMERGENCY NUMBER ASSOCIATION

112

eena

With the publication of this document on 112 Day 2023, EENA intends to step back and reflect on the overall progresses in several aspects of emergency communications handling in the European Union, in light with legislation and technology evolutions.

The document was constructed based on qualitative data from publications of different reports by public institutions and EENA and some observations reported by the EENA staff. Unfortunately, the absence of harmonized definitions at EU-level and the inconsistent provision of data by public authorities make the quantitative data provided in these reports hardly comparable, which limited the scope of this document.

This report addresses recommendations to different stakeholders on how to move forward on different topics in order to make the most out of the evolutions in information and communication technologies.

CONTENT LIST

EENA, the European Emergency Number Association, is a non-governmental organisation with the mission to contribute to improving the safety and security of the people. How can citizens get the best help possible if they find themselves in an emergency? This is the question we continuously try to answer.

Today, the EENA community includes 1500+ emergency services representatives from over 80 countries worldwide, 100+ solution providers, 100+ researchers and 200+ Members of the European Parliament. We are proud to be a platform for everyone involved in the public safety community and to provide a space for collaboration and learning.

CONTINUOUS ACCESS TO 112 IS NOT ALWAYS ENSURED

In the last few years, several major national disruptions of access to emergency services have been reported, for instance in France, Belgium and the Netherlands. These should be added to more frequent local outages. More recently, fears of power outages threaten access to 112 as well.

Moreover, issues with the compatibility of VoLTE services have led to many Europeans being unable to access 911 in the USA, raising questions about the consequences of future shutdowns of 2G and 3G in Europe as well.

EENA RECOMMENDS

1. **Member States to make sure they consider all possible aspects to ensure a continued access to 112**, including redundancy in PSAPs and telecoms infrastructure, ensuring that all stakeholders in the chain have the necessary power backups and security measures as well;
2. **Member States to make sure to have proper procedures in case of outages.** For instance, the ability to use public warning systems to communicate a single replacement number to 112 should be considered;
3. The Commission and BEREC to make sure that **plans to shutdown 2G and 3G do not affect the continuity of access to emergency services.**

MOBILE CALLER LOCATION
BIG IMPROVEMENTS BUT STILL ISSUES TO BE SOLVED

Mobile caller location has improved considerably. Only ten years ago, mobile calls were mostly located using Cell-ID, often with an accuracy ranging from hundreds of metres to several kilometres, making it of little use to PSAPs. In 2016, the United Kingdom and Estonia became the first countries to deploy Advanced Mobile Location (AML) which relies on handset-derived location, with an accuracy range under 50 metres in most instances. 23 countries in the EU benefit today from this technology.

Despite this major step forward, improvements remain to be made:
- In most countries, SMS-based AML does not function when roaming. There are several options that could help resolve this issue:

- For AML sent over SMS, a solution has been developed by Orange Belgium that enables AML over SMS to function when roaming. This solution has been successfully implemented in four countries for AML on Android handsets;
- Location over SIP in a Next Generation 112 environment is the long term solution to this issue and its implementation will accelerate in the next few years.

- For Android-based AML over HTTPS (Android Emergency Location Service), being able to retrieve the MSISDN (i.e. the telephone number) when missing would enable the matching of the location with the phone number and thus improve the performance of AML, including for roaming end-users;
- The performance of AML should be improved. In some cases, AML does not function properly on a particular mobile network, and it takes too much time to acknowledge the issue and to solve it. This results in a loss of potentially thousands life-saving locations being sent.
- To that end, the definition of caller location criteria and its enforcement, as mandated by the *delegated regulation supplementing the EECC*, should help resolve this.
- It should be noted that despite its availability since 2016, a few EU countries still do not use AML. Moreover, some countries declare using AML while other sources indicate that AML is not activated (e.g. Malta)*. In some other countries, while AML is functioning and available, some PSAPs or services do not make use of it (e.g. Police in France).

EENA RECOMMENDS

4. **Countries that have not yet deployed AML (Cyprus, Luxembourg, Malta, Poland) should do so urgently.** The Commission should start infringement proceedings against countries that have not implemented AML. Each Member State should encourage all organisations involved in the emergency services chain (from PSAPs to first responders) to make use of AML data;

5. **AML should work when roaming on all smartphones.** National authorities should actively work on deploying solutions; at EU level, BEREC, for instance, could work to find viable solutions;

6. **Member States should strive to improve the accuracy of location information provided by mobile and fixed networks.** For mobile communications, multilateration techniques can provide greater accuracy in 2G/3G/4G networks while the smaller cell sizes and greater cell density in 5G can provide location accuracy under 50 metres;

7. **Caller location accuracy and reliability criteria should be defined** and, to the greatest extent possible, the parameters for these criteria should be coordinated at EU-level to avoid unjustifiable disparities. They should then be adequately enforced by national authorities and/or regulators.

*More information on this solution on *https://eena.org/knowledge-hub/webinars/solution-aml-roaming/* (consulted on 07 February 2023)

**See for instance the 112 Implementation Report 2020: *https://digital-strategy.ec.europa.eu/en/library/2020-report-effectiveness-implementation-european-emergency-number-112* (consulted on 07 February 2023)

***See for instance in the list of countries where AML is activated on Apple phones: *https://support.apple.com/en-sa/HT204040* (consulted on 25 January 2023)

MEANS OF ACCESS FOR PEOPLE WITH DISABILITIES
TOWARDS MORE ACCESSIBILITY WHEN CONFORMING WITH EU LEGISLATIONS

Considerable improvements were made in previous years to ensure that access to 112 is equivalent to all end-users. Ten years ago, SMS was available in only a few EU countries and a majority of them reported fax or no mean of access for people with disabilities. Since then, the *European Electronic Communications Code (EECC)* replaced "emergency calls" by "emergency communications" in order to make sure that obligations on access to emergency services cover all types of communications. The *European Accessibility Act (EAA)* added an obligation to deploy real-time text by 2027. The new *Roaming Regulation* makes sure that people are informed when travelling to other Member States about the alternative means of access to emergency services in the visited country. And the recently adopted *delegated regulation supplementing the EECC* defined specific criteria for a solution to be considered as functionally equivalent.

In the Member States, the implementation of the legislation has considerably improved the ways people with disabilities can contact emergency services. It must however be noted that these means do differ from one country to another, which is problematic for people travelling to other Member States. The *report from the European Commission to the European Parliament and the Council on the effectiveness of the implementation of 112* published in December 2022 lists the alternative means of access to emergency services in each Member State and presents their characteristics. From this list, it appears that there is still no equivalent way of accessing emergency services when roaming in at least Croatia, Estonia, Finland, Greece, Hungary, Ireland, Luxembourg, Poland, Romania, Slovakia and Sweden. In this regard, it should be noted that the report does not specify whether national emergency applications are interoperable across countries. Furthermore, equivalent means of access to emergency services require pre-registration in Bulgaria, Germany, Finland, the Netherlands, Poland, Romania and Sweden. In addition, the transmission of location information from the person contacting the emergency services is not transmitted to PSAPs for all these solutions. To address this, EENA recalls that AML can also provide PSAPs with location information for people contacting them via SMS.

While many countries report SMS as the primary mean of access to 112 for people with disabilities, technologies such as real-time text (RTT) and total conversation services will offer better interactivity between PSAPs and end-users with disabilities. Work should be done to ensure that handsets, networks and PSAPs are compatible and interoperable with regard to the implementation of IP Multimedia System (IMS) so that RTT communications is available, including when roaming. Next Generation 112 will be a key enabler for this.

EENA RECOMMENDS

8. Member States to ensure that people with disabilities travelling to other countries can contact emergency services in an equivalent manner and are aware of how to do it;

9. Member States to ensure that people contacting emergency services via alternative means of access can also be located when they initiate an emergency communication;

10. European Commission and Member States to make sure that RTT is natively present in all mobile phones and networks;

11. Member States to work towards the deployment of technical solutions and operational procedures to be able to handle RTT and total conversation communications.

NEXT GENERATION 112
NOT ENOUGH PROGRESS ON THE TRANSITION TO IP-BASED COMMUNICATIONS
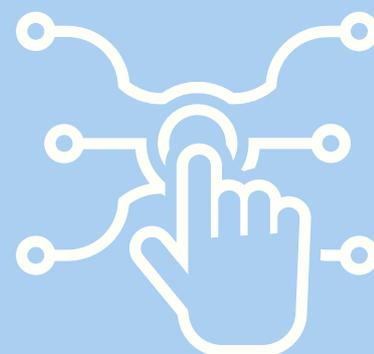
The transition to Next Generation 112 will bring considerable benefits to citizens and emergency services, such as the access to more valuable data, the possibility to use RTT and video and to send pictures and better interoperability between PSAPs.

Unfortunately, only a few Member States have concrete plans to migrate to IP-based communications, while most of them have not yet started to reflect on the matter, despite the European Accessibility Act's requirement to deploy RTT by 2027 at the latest.

The Delegated Regulation supplementing the EECC requires Member States to submit no later than 9 months after the entry into force of the legislation a roadmap detailing their plans to migrate to IP-based communications. These roadmaps are expected for the end of 2023.

Moreover, the upcoming phasing out of 2G and 3G and thus the migration to IP for all mobile calls poses challenges for which alignment is needed. As shown by the recent impossibility to access 911 in the United States for some European roamers, migration to IP will require end-to-end testing and deployment to validate compatibility and interoperability. Cooperation between public authorities and the telecommunications industry will be key. In the future, it is expected that some Number Independent Interpersonal Communication Services may be required to provide access to 112 as well – to do so, a full IP-based emergency communication system will need to be in place.

EENA RECOMMENDS

12. Member States to adopt a proactive approach to the deployment of IP-based communications, before being urged by legislation to do so. EENA notes that such a migration will take time, that the project planning and budgeting is a crucial step to succeed. A first measure is the establishment of a working group gathering all the relevant stakeholders.

13. The industry to start pilot projects to test or deploy NG112 elements such as SIP calling (i.e. emergency calling over VoLTE) as soon as possible to drive the deployment of NG112;

14. The European Commission to consider setting up a regular discussion platform with Member States and the industry to align on deployment plans, interconnection of systems, standards and regulations when needed.

PUBLIC WARNING

IMPLEMENTATION DELAYED IN MOST EU MEMBER STATES

Article 110 of the EECC requires all Member States to implement public warning systems allowing authorities to alert everyone present in a determined area of an ongoing disaster or imminent threat directly on their mobile phones. According to BEREC guidelines*, two technologies can ensure this: location-based SMS and cell broadcast. While the deadline to implement Article 110 was in June 2022, only about ten countries have an operational public warning system using one of the technologies above. It is now urgent for all Member States to enforce the legislation.

Some Member States, such as Finland, are considering using only mobile apps to alert people on their phones. While they can represent a good complement to cell broadcast or location-based SMS, apps should not be considered as an alternative to these, as they do not ensure the same level of coverage and capacity to reach all end-users. Reality shows that such types of apps are downloaded by no more than 30% of the local population (which does not even include visitors). Hence apps do not ensure compliance with EU legislation but more important than that, it creates situations where many people will not be alerted of a developing danger around their area.

The past years have shown that all European countries are now subjected to a growing number of natural hazards. Civil protection authorities must be prepared to respond to these (sometimes new) risks.

To do so, basic compliance with EU legislation is not sufficient. An efficient and robust public warning system should be multi-channel (including channels that do not require a network connection), secured and involve the population.

Cell broadcast and location-based SMS should both be implemented in order to complement each other. Finally, an operational framework should also be developed to define how the public warning systems will be used in determined scenarios.

EENA RECOMMENDS

15.   Member States to ensure that a multi-channel, secure and operational Public Warning system allows authorities to warn everyone of a developing danger. Location-based SMS and/or Cell Broadcast should be one of the main channels but not the only ones;
16.   European Commission to make sure article 110 of the EECC is properly enforced.

*BEREC Guidelines on how to assess the effectiveness of public warning systems transmitted by different means", June 2020, available on: https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-how-to-assess-the-effectiveness-of-public-warning-systems-transmitted-by-different-means-0 (consulted on 25 January 2023)

FROM NOTHING TO AN ADVANCED AED STRATEGY
DIVERGING APPROACHES TO OUT-OF-HOSPITAL CARDIAC ARRESTS IN EUROPE
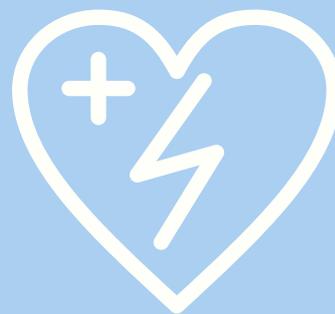
It is estimated that Sudden Cardiac Arrest (SCA) accounts for around 20% of deaths in the European Union*. This figure could be significantly lower if early chest compression and early defibrillation are performed on all the victims. Indeed, research shows that a first defibrillation less than 3 minutes after the cardiac arrest results in a survival rate of 74%**. Yet, less than 5% of cardiac arrest victims are treated with early chest compression and defibrillation***. To help people and emergency services identify the nearest automated external defibrillators (AEDs), digital registries should be developed. These registries would show the location of defibrillators and necessary instructions to access them (location within a building, opening times & days of the building...).

In the past years, such registries have been developed, either through public or private initiatives in several countries. However, this has not been done in many EU countries, or their registries are largely incomplete. Furthermore, in some countries, while registries are available, most people or sometimes even PSAPs are unaware of them.

Involving the population is crucial and can represent a considerable gain in time.

In some countries such as Denmark, Czech Republic and France, citizens programmes have been developed to allow emergency services to alert pre-registered users that are located next to the scene of an out-of-hospital cardiac arrest (OHCA) and instruct them to provide first aid to the victim before the ambulance arrives on scene. In countries where these programmes are operational, survival rates of victims of OHCA are often substantially higher than in countries who do not have these programmes.****

EENA RECOMMENDS

17.   National authorities to develop digital registries of AEDs. Such registries should be available and promoted to all the population and easily show on a map the location of the nearest publicly accessible defibrillators;

18.   PSAPs to include the data from digital registries directly on their Geographic Information Systems;

19.   Member States to make sure that their population receive training on performing cardio-pulmonary resuscitation on victims of SCA;

20.   Member States to make sure that everyone is legally allowed to use AEDs;

21.   Member States to make sure AEDs are available in most crowded areas and areas with higher incident rates of cardiac arrests;

22.   Emergency services to develop citizens programmes to alert pre-registered users that are located next to the scene of an OHCA and instruct them to provide first aid to the victim before the ambulance arrives on scene.

*European Resuscitation Council, "ESCAPE-NET", available on https://www.erc.edu/projects/escape-net (consulted on 25 January 2023)

**Valenzuela TD, Roe DJ, Nichol G, Clark LL, Spaite DW, Hardman RG. "Outcomes of rapid defibrillation by security officers after cardiac arrest in casinos". October 2020.

***EENA, "AED Mapping & Emergency Response", May 2018, available on: https://eena.org/wp-content/uploads/AED-mapping-emergency-response-1.pdf (consulted on 25 January 2023)

****Iris Oving, Corina de Graaf, Siobhan Masterson, Rudolph W. Koster, Aeilko H. Zwinderman, Remy Stieglis, Hajriz AliHodzic, Enrico Baldi, Susanne Betz, Diana Cimpoesu, Fredrik Folke, Dennis Rupp, Federico Semeraro, Anatolij Truhlar, Hanno L. Tan, Marieke T. Blom, "European first responder systems and differences in return of spontaneous circulation and survival after out-of-hospital cardiac arrest: A study of registry cohorts", The Lancet Regional Health - Europe, Volume 1, 2021

EU-LEVEL COOPERATION ON EMERGENCY COMMUNICATIONS IS LACKING

Emergency communications is partly regulated at EU level, while the organisation of emergency services remains a national competence. Often due to these two legs, it seems that national authorities often wait for EU institutions and agencies to take decisions, while EU-level institutions and agencies wait for Member States to do more.

Unfortunately, this results in a lack of common definitions, lack of coordination and delays as everyone seems to be waiting for the other to act. The recent debate around the definition of caller location criteria exemplifies this issue.

EENA RECOMMENDS

23.   The European Commission to **re-establish an active working group**, formerly named EGEA (Expert Group on Emergency Access), to serve as a discussion platform among Member States and the Commission, with the involvement of the industry and civil society when relevant. This group should have a clearly defined terms of reference, meeting schedule and website where decisions and documents of EGEA are accessible to everyone.
24.   **Member States to be more active at EU-level**, actively supporting European coordination rather than expecting the Commission to take decisions it cannot take on its own;
25.   BEREC has previously expressed that all of its members do not have competence in "emergency services". In some cases, this has resulted in BEREC not taking the lead on matters related to "emergency communications" where it does have significant competence. EENA considers that **BEREC has the competence and should therefore play a central and meaningful role** in tackling the challenges listed in this report.

INTEROPERABILITY ACROSS MEMBER STATES IS NOT PROGRESSING ENOUGH

The EECC provides for a database of E.164 numbers (traditional long phone numbers) to be maintained at EU level. This PSAP directory is currently managed by the European Communications Office (ECO). In practice, this database enables a PSAP in Country A to contact a PSAP in country B when an incident taking place in country B is reported in country A. Unfortunately, 8 EU countries (Cyprus, France, Germany, Italy, Latvia, Malta, Portugal, Spain) are still not part of this directory. Some authorities that are part of the database did not inform all the PSAPs in their country, meaning that the database is not used enough. The very long delays to simply provide and make use of these lifesaving long numbers is worrying to EENA. Full participation by Member States in the PSAP Directory would be collectively beneficial for all Member States and their citizens. This type of cross-border cooperation would also help stimulate and advance discussions on deeper cooperation and discussion on data-sharing in emergency situations with cross-border dimension.

EENA RECOMMENDS

26. Member States that have not yet provided a number to the PSAP Directory to do so urgently;

27. Member States to make sure that all the PSAPs in their country are aware of the existence and use the PSAP Directory and have access to it;

28. European Commission to bring clarifications on the mandatory nature of the participation of Member States in the PSAP Directory and launch infringement procedures against countries who are not part of it;

29. Member States that have been participating in the database for many years, and whose leaders are sometimes frustrated with its lack of progress, to consider starting pilot projects among similar minded Member States to test data sharing in addition to sharing E164 numbers in emergency situations with a cross-border dimension.

TOWARDS NEXT GENERATION ECALL
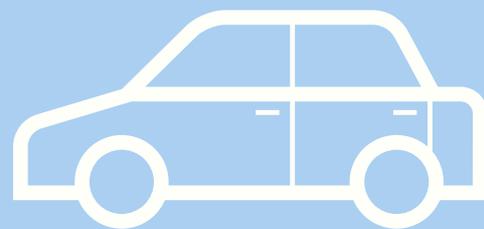
eCall is now available in more and more vehicles in the European Union. Consequently, more than 400.000 eCalls were reported in 2021 in the European Union according to the latest Report from the European Commission on the effectiveness of the implementation of 112. Most emergency services are however concerned over the very high proportion of false alarms (sometimes above 90%), which results detrimental to their operations.

At the same time, eCall is today based on older generations of networks (2G / 3G) which are to be phased out in the next decade. Hence, it is necessary to initiate work on migration of eCall to newer generation of networks (4G/5G) and make sure that this is aligned to national NG112 migration plans.

EENA RECOMMENDS

30. European Commission to propose a new legislation to ensure the transition of eCall to newer generation of networks;

31. European Commission to consider and address the high number of false eCalls;

32. Member States to include Next-Generation eCall in their Next Generation 112 strategic plans.

MANY MEMBER STATES STILL BREACHING EU LEGISLATION

Previous sections show that a majority of Member States have still not met the deadlines set out in the EECC. Not only do these countries risk to be imposed financial penalties by the Court of Justice of the European Union but they also put at risk the safety of their citizens and visitors. It is now urgent to comply with this directive.

EENA URGES

33.   Member States to comply with the European Electronic Communications Code;

34.   The European Commission to monitor the implementation of the EECC and carry out infringement procedures against the countries that fail to meet the objectives of the directive.

THE PROPORTION OF FALSE CALLS HAS DECREASED THANKS TO BETTER USE OF HANDSETS

An often-overlooked improvement in access to emergency services during the last decade is the reduction of false calls, in particular the decrease in pocket calls. Thanks to a better design of smartphones, "pocket calls" became less likely. To reduce the number of false calls, 7 Member States do not allow emergency calls from SIM-less phones anymore. Others have deployed specific procedures for SIM-less phones, for instance routing these calls first to a recorded voice message reminding the callers they are calling 112 before putting them in contact with a call taker.

As noted by the European Commission "the ratio of false calls to the total number of emergency calls still varies considerably among the Member States". To better comprehend why the data differs that much, EENA's opinion is that, first, the definition of false calls should be harmonized, and the same definition be used by Member States when reporting to the Commission.

EENA RECOMMENDS

35. Handset vendors to design the phones and devices with the reduction of false calls as an objective;

36. Member States to consider deploying special procedures for SIM-less calls;

37. Definitions to be harmonized at EU level under the leadership of the European Commission.

MOST EU CITIZENS ARE STILL UNAWARE OF THE EUROPEAN EMERGENCY NUMBER

The last Eurobarometer report on 'Electronic Communications in the [European] Single Market'*, which was published in June 2021 shows that while 74% EU citizens could identify '112' as a way to contact emergency services in their country, only 41% of them could indicate that this number also works for emergencies in another EU country. This number is particularly low in Italy (19%), Spain (22%), Romania (32%), Greece (35%) and Portugal (37%). Three years earlier**, 49% of respondents could identify 112 as the European emergency number. At the same time, awareness of 112 as a national emergency number has risen from 61% in 2019 to 71% in 2021. These figures show that more efforts should be done to promote 112, not only as a national but also as a European emergency number.

EENA RECOMMENDS

38. Member States and the European Commission to launch awareness campaigns to promote the EU-wide availability of 112.

39. Large platforms, particularly those in the travelling sector to participate in such campaigns.

40. Member States and the European Commission to promote the alternative ways for people with disabilities to contact emergency services in the country they are visiting.

*https://europa.eu/eurobarometer/surveys/detail/2232
**https://op.europa.eu/en/publication-detail/-/publication/57889a55-8fb6-11e8-8bc1-01aa75ed71a1/language-en