Implementation Strategies for Accessible Emergency Services

This document examines how Sweden, the Netherlands, and France have approached accessible emergency, highlighting national strategies using Total Conversation and other inclusive technologies to support efforts toward equal access to 112 for Deaf, DeafBlind, and Hard of Hearing individuals.

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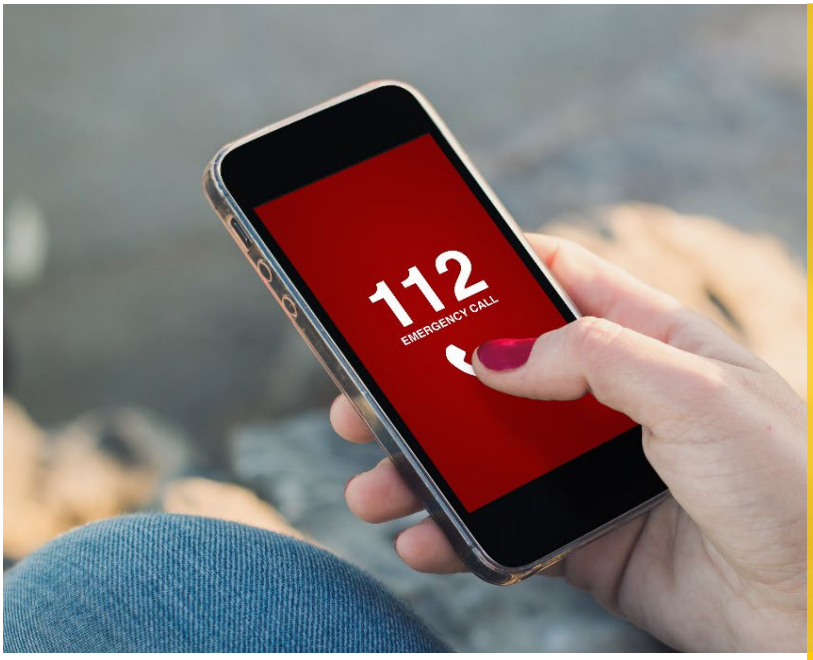

EXECUTIVE SUMMARY

This document explores the evolving landscape of accessible emergency communications in Europe. The European Accessibility Act (EAA) and the European Electronic Communications Code (EECC) are driving improvements in accessible emergency communications across the EU. The EAA mandates functional equivalency, ensuring that people who are Deaf, DeafBlind, or Hard of Hearing can access emergency services on equal terms with others. Total Conversation – integrating audio, video, and Real-Time Text (RTT) – is highlighted as a solution.

To illustrate practical implementation strategies, this document examines efforts in Sweden, the Netherlands, and France. These examples reflect national experiences rather than prescriptive models. Sweden uses relay services and is working toward automatic invocation. The Netherlands ensures direct RTT access to 112 and offers diverse communication channels, including multilingual chat and Video Relay Services. France's centralized 114 service, with call takers that communicate in French Sign language, exemplifies a culturally and operationally tailored model.

The analysis identifies varied national approaches to achieving accessibility, underscoring the importance of interoperability, innovation, and legal alignment. These examples are provided for information purposes only and do not in themselves demonstrate compliance with EU legislation. These insights aim to support EU-wide efforts to deliver inclusive, real-time access to emergency services for all.

This document contains…

- An overview of how Sweden, the Netherlands, and France have implemented or are developing accessible emergency communication.
- Key elements about accessibility requirements and objectives in line with the European Accessibility Act and Electronic Communications Code.
- Examples of Total Conversation and other inclusive technologies that can contribute to functional equivalency in access to 112.

Introduction

National strategies for accessible emergency communication: Case studies from Sweden, the Netherlands, and France

The European Accessibility Act (EAA) provides a legal framework aimed at improving accessibility to emergency services across the European Union. It supports the broader goal of ensuring that people who are Deaf, DeafBlind, or Hard of Hearing can access emergency communication on equal terms with other citizens. This objective is in line with the principle of functional equivalency. The Act complements the European Electronic Communications Code (EECC 2018/1972), including Article 109, which addresses compatibility, interoperability, and continuity of emergency communications across EU Member States.

Total Conversation (audio, video, and Real-Time Text (RTT)) is widely regarded as one effective approach to support accessible emergency communication. Some examples of how it can be implemented:

- Direct video calls to 112, i.e. by equipping PSAPs with personnel proficient in sign language, or
- Invocation of video relay services when needed and if available.

This document explores technological and operational considerations that can support equivalent access to emergency services, while describing examples of national strategies. It also presents implementation strategies in Sweden, the Netherlands, and France.

To explore practical approaches to improving equivalent access to emergency services, this document focuses on three EU Member States: Sweden, the Netherlands, and France. These countries were selected due to their distinct strategies in addressing accessible emergency communications, and the diversity in their national implementations.

Sweden offers a model where relay services are used by the Deaf, DeafBlind and Hard of Hearing communities to call emergency services. It serves as an example of a country navigating how to provide equal access while exploring the possibility of automatically invoking relay services for people with disabilities.

The Netherlands has a long-standing legal requirement for Real-Time Text (RTT) to 112 and provides a variety of entry points for accessible emergency calls. The presence of multiple channels – ranging from RTT and SMS to multilingual chat and Video Relay Services – shows a commitment to both innovation and inclusivity.

France presents a centralized and specialized model through its dedicated 114 Urgence service. The structure and staffing of 114, including Deaf call takers and integrated video communication, highlight a culturally responsive and operationally unique approach to accessible emergency response.

By examining these three countries, this document aims to identify common challenges, highlight successful practices, and inform discussions about future alignment efforts across the EU.

1 | Section 1: Sweden

1. Background

In Sweden, individuals who are Deaf, Deafblind, or Hard of Hearing (D, DB, HH) can access emergency services by dialling around to 112 through national Relay Services, which are available 24/7. Alternatively, they can send an SMS directly to 112; however, this option requires prior registration with the emergency services.

The Swedish Post and Telecom Authority (PTS) and The Swedish Information and Telecommunications Standardisation (ITS) play a central role in ensuring market compliance and overseeing regulatory enforcement. The following sections summarize Sweden's key developments and challenges.

2. Relay services and emergency communication

A key consideration in Sweden is whether emergency calls should support the automatic invocation of relay services for persons with disabilities. ITS has identified relevant technical and regulatory standards to help guide compliance:

- Standard Requirements: EN 301 549, the European accessibility standard, which is under revision to include relay service provisions. The latest draft (as of December 2024) places responsibility on ICT solution providers to ensure relay service compatibility.
- Technical Requirements: ETSI TS 101 470 (Emergency Communications EMTEL Total Conversation Access to Emergency Services, currently under revision) and ETSI ES 204 009 (Human Factors HF Requirements for Interoperable Total Conversation Services, Informative Annex).
- ES 202 971 (Human Factors HF Requirements for Relay Services, currently under revision) is a key standard defining the requirements for relay services, particularly in the context of emergency communication. Relay services play an important role in supporting accessible emergency calls and helping to meet key goals, like roaming, interoperability, and following communication standards. The ongoing revision of this standard is essential to helping align relay services with evolving accessibility and emergency service requirements across Europe.
- Caller Identity Retention: If relay services are integrated, mobile operators should maintain caller identity to ensure seamless communication through intermediary services.
- EN 303 919: Emergency Communications (EMTEL), Accessibility and Interoperability of Emergency Services.

Sweden currently uses a dial-around approach for Total Conversation and RTT, where emergency calls are first placed to relay services (text or video relay), and the interpreter then connects the call to 112 using voice. However, this method does not support location data transmission, requiring the interpreter to manually determine the caller's location.

3. Roaming and callback challenges

The chosen emergency communication method directly impacts roaming and callback functionality. Sweden's dial-around approach does not support callback functions, potentially leaving users without a way to receive follow-up emergency assistance.

4. Interoperability and technological implementation

Sweden aims to align its emergency communication framework with European standardization efforts while addressing national requirements:

- Total Conversation (Over the Top, OTT, and IMS Integration): Currently, Total Conversation is available via the internet using OTT apps. 3GPP has defined Total Conversation support for IP Multimedia Subsystems (IMS), but the technology has not yet been tested in the Swedish context.
- Location Services Compliance: One method to achieve accurate data information is to implement location information according to PIDF-LO, a method used in the Netherlands to provide location data for OTT apps accessing 112 via relay services.

5. Key next steps being discussed in Sweden

1. Clarify Relay Service Integration: Establish whether emergency communications should invoke relay services and determine responsible stakeholders (ICT providers or mobile operators).
2. Standard Adoption: Align Sweden's regulatory framework with EN 301 549 revisions and 3GPP specifications for Total Conversation.
3. Improve Roaming and Callback Functionality: Address technical challenges to enable reliable roaming and callback services for users with disabilities.

Coordinate with EU Initiatives: Engage with European standardization bodies (ETSI, CEN/CENELEC) to ensure Sweden's emergency communication solutions are interoperable with other Member States.

2 | Section 2: The Netherlands

1. Background

Real-Time Text (RTT) access to 112 has been required by law in the Netherlands since 2014, ensuring that individuals who are Deaf, Deafblind, or Hard of Hearing can communicate directly with emergency services in real time.

112 can be accessed in a variety of ways, including

- Using Tolkcontact app and choose to make a direct RTT call to 112 (24/7 available) or choose the option to make a video call to a sign language interpreter who will make a voice call to 112 (available from 7:00 to 22:00).
- eSMS, or SMS to 112. Users must pre-register by SMS, e.g. by texting "aanmelden" (register) to 112.
- 112 NL app, which has a chat feature that uses RTT-type of conversation, and has language translation

Via the Video Relay Services, KPN Teletolk: The KPN Teletolk service is a widely used communication. This service enables users to make phone calls through text and video relay, ensuring accessible communication with hearing individuals and emergency services. Users of the service need to register, and the Health Insurance finances the Over the Top (OTT) app that is used to connect to KPN Teletolk, Tolkcontact.

2. RTT to 112

When users press the icon 112 in the app, they call directly to 112 using RTT. Geolocation is sent to 112 according to PIDF-LO (Presence Information Data Format Location Object)[1]. However, if instead they type 112 and have selected videophone as their preferred service, their call will be connected to 112 via KPN's Video Relay Service using Total Conversation standard. In this case, an interpreter places a voice call to 112 on behalf of the caller.

The adoption of Real-Time Text (RTT) for emergency calls has been notably higher than that of video calls. This trend may be attributed to the ease of use – callers can simply press the 112 button in their app – and the immediate, straightforward nature of text communication during emergencies.

3. Improvements in communication accessibility

In March 2025, the Dutch Parliament passed a motion requiring the government to research the possibility for 24/7 sign-language access and support to Emergency Services. The directive underscores a commitment to enhancing communication services for individuals with hearing and speech impairments.[2] The goal is to implement Total Conversation solutions during 2027, aiming to provide a fully inclusive and integrated communication platform for all citizens.

The Ministry is also examining nighttime call traffic to assess the feasibility of offering 24/7 support for 112 services. This evaluation is crucial to ensure that individuals requiring assistance during nighttime hours have equal access to emergency services. Financial considerations are integral to these developments. Discussions are ongoing regarding potential funding sources and the integration of these services into existing workstations to streamline operations.

[1] PDF-LO standard: *https://datatracker.ietf.org/doc/html/rfc5962*
[2] The decision was made at the Dutch Parliament on 4 March 2025 (26 643 Informatie- en communicatietechnologie) – *https://www.tweedekamer.nl/kamerstukken/detail?id=2025Z03393&did=2025D07645*

4. Number visibility, call back and geolocation

From a technical standpoint, when RTT is used to contact 112, the caller's number is visible to the Public Safety Answering Point (PSAP), facilitating potential callbacks. However, when video relay is utilized, the number displayed belongs to KPN Teletolk, which may impact the callback process. Additionally, the speed at which calls are answered remains a concern, since it needs first to be answered by KPN Teletolk, then the interpreter needs to initiate a voice call to 112.

Geolocation services are scheduled to be activated for these communication methods, and this feature is planned to be tested.

These efforts reflect the Netherlands' ongoing commitment to ensuring accessible and efficient communication services for all citizens, particularly those with hearing and speech impairments.

3 | Section 3: France

1. Background

In France, 114 Urgence (*https://www.info.urgence114.fr*) serves as the dedicated emergency communication service for Deaf, Hard of Hearing, and speech-impaired individuals. The service operates with a team of specialized call takers, some of whom are Deaf themselves, ensuring a communication environment that is both accessible and responsive to the needs of the community.

2. Operational setup

114 is accessed using the app "urgence 114" (Android or iOS). When the app is first launched, the caller must agree to the sharing of their location. This location will be sent along with other emergency information when a video call is initiated. However, if the caller declines to share their location, an alternative SMS-based approach is used to provide the location information. In the latter, Advanced Mobile Location (AML) technology successfully provides location data in 90% of SMS cases, ensuring efficient dispatch of emergency responders.

Calls to 114 are initially handled by a Deaf agent, who communicates directly with the Deaf or Hard of Hearing caller. Simultaneously, a hearing agent is present on the call in a three-party conference setup, which may expand into a four-party call when an external emergency service is added. However, the hearing agent does not actively participate in the conversation unless necessary—they primarily follow the call to ensure smooth coordination with emergency responders.

3. Handling callbacks and number visibility

When a PSAP needs to call back a 114 user, the procedure follows a structured approach:

- The PSAP places a return call to 114, where agents facilitate reconnecting with the original caller.
- The telephone number displayed at the PSAP is always the 114 service number, not the original caller's number.
- While PSAPs note the caller's number for reference, direct calls from PSAPs to a deaf user are not possible, emphasizing the need for intermediary support from 114.

- 114 is able to contact the caller by SMS or by sending a callback notification in the application

4. Technology and compatibility challenges

114 Urgence app is based on proprietary technology. This does not limit its ability to provide seamless, real-time multimodal communication but could limit interoperability with other systems.

Beyond 114, a working group is exploring the use of RCS (Rich Communication Services) for 112 emergency calls. However, as of now, dialling "112" on a mobile phone routes callers only to the regular voice-based 112 service, which does not yet support RTT or other text-based emergency communication methods.

5. Awareness and usage statistics

According to 114 Urgence, 114 handles 100 cases per day, totalling more than 3,000 cases per month. However, public awareness of the service remains limited, particularly within the Deaf community. According to the service management, surveys conducted by 114 indicate that many potential users are still unaware of its existence.

Adding to the complexity of emergency communication in France, there are 12 different emergency numbers, each serving specific needs—for example, maritime emergencies and child protection have separate numbers. This fragmentation may contribute to confusion among users seeking immediate assistance.

6. Standardization and future developments

Since its launch in 2017-2018, 114 Urgence has not fully adhered to international standards such as SIP-based RTT for emergency communications. Efforts to align with these standards remain ongoing, but there is still a need for improvements to ensure full compliance with established accessibility protocols.

However, the application does allow for total conversation with video, audio, and text sent character by character. In addition, it is possible to exchange attachments and use images that work on the same principle as RTT to allow communication with a person with aphasia.

As discussions continue regarding future upgrades and interoperability, the focus remains on enhancing emergency access for Deaf and Hard of Hearing individuals while further developing alignment with European accessibility directives.

4 | Section 4: Additional considerations

1. Supplementary services and emergency callbacks

A potential issue in emergency communication is the handling of Third-Party Service Providers (TPSP), in this case Relay Services. In Sweden, two specific challenges have been identified: Call Forwarding Unconditional (CFU) and emergency callbacks. According to 3GPP TS 22.173, clause 8.2.7.1, network-determined diversion services (e.g., CFU) are precluded from emergency callbacks unless the PSAP itself initiated the diversion. This presents a challenge for relay service users because:

- If a primary relay user places an emergency call using a relay service, the PSAP callback may be misrouted to their mainstream service provider, which uses voice, instead of the relay service.
- This would result in the callback being a regular voice-only call, excluding the required accessibility features (RTT, video, sign language interpretation).

To mitigate these issues, work in ETSI and European standardization bodies may be needed to refine protocols ensuring that emergency calls and callbacks function correctly for relay service users.

2. Future standardization efforts

To further align emergency communication systems with accessibility needs, future standardization work should focus on:

1. Use of RTT in mainstream communication services for primary relay users, ensuring they can choose between direct RTT calls and relay-assisted calls.
2. Emergency communications and callbacks for relay users, ensuring emergency callbacks retain necessary accessibility features.

Continued work on EN 303 919, the European standard for accessible emergency communication is expected to contribute to these objectives.

5 | Section 5: Conclusion and next steps

According to the European Accessibility Act (EAA), Member States must ensure that people who are deaf, deafblind, or hard of hearing can make emergency calls to 112 on equal terms with other citizens. This includes ensuring access to all communication modes in use – such as audio, video, and text – if these are offered to other users. Furthermore, the delegated regulation requires that Public Safety Answering Points (PSAPs) transition to packet-switched technologies by 2027.

The European Accessibility Act (EAA) offers a crucial opportunity to enhance accessible emergency communications across the EU. Challenges identified in Sweden, The Netherlands and France highlight broader issues that require attention at the EU level.

One of the primary barriers remains the reliance on dial-around calling in several Member States, where users must first contact a relay service, which then places a voice call to 112. This approach limits the transmission of location data and disrupts callback functionality, posing

significant risks in emergency situations. A transition toward direct Total Conversation access to 112, along with standardized relay service integration, is widely regarded as a way to improve accessibility.

Another key challenge is ensuring reliable number visibility and callback functionality. In cases where relay services act as intermediaries, emergency call centres may see only the relay service's number instead of the original caller's, complicating emergency responses. Standardized solutions must be developed to ensure that PSAPs can recognize and reconnect with the correct caller when necessary.

As more countries implement Real-Time Text (RTT) for direct emergency calls, the handling of video relay calls remains an area requiring further improvement. The need for 24/7 emergency communication services is still under discussion in a number of EU member states, where nighttime traffic evaluations are ongoing. Ensuring round-the-clock access is critical for achieving functional equivalency in emergency services.

Furthermore, as text and video-based emergency communications expand, strict adherence to RTT and Total Conversation standards is essential to address interoperability issues. Public awareness campaigns must also be prioritized to ensure that people who are Deaf, DeafBlind, or Hard of Hearing are informed about available emergency communication services and how to use them effectively.

Achieving full compliance with the EAA requires sustained collaboration among regulatory authorities, telecom operators, relay service providers, and accessibility advocates. As standardization efforts continue, EU Member States must proactively update their emergency communication frameworks to help make sure that all citizens, regardless of hearing ability, have fair and reliable access to life-saving emergency services.