Paradigm

Applied Artificial Intelligence Solutions for Accessible European Emergency Services

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Abstract. *Artificial intelligence holds real promises for making emergency communication more accessible, yet in the European Union, its actual integration into 112 systems remains patchy and, in most cases, still experimental. This study does not aim to add to the theoretical literature on inclusive technologies; instead, it asks what an applied AI-enabled accessibility framework might actually look like in practice, within next-generation emergency communication systems. Drawing on a structured qualitative review of recent technical benchmarks and policy documents, we propose a Technical Reference Architecture aligned with current European regulatory requirements. The central question we examine is how far AI can genuinely reduce communication barriers for people with disabilities, and perhaps more importantly, what is still stopping this from happening on a large scale. Our findings point to the value of an AI orchestration layer that brings together automatic speech recognition (ASR), Natural Language Processing (NLP), and explainable artificial intelligence (XAI), particularly for callers with sensory or cognitive impairments. The architecture we propose is not built around predictive accuracy alone. It is designed to keep human dispatchers in the loop, making AI-assisted triage decisions traceable and open to challenges. The study also attempts to translate the requirements of the EU Artificial Intelligence Act (2024) into something more concrete: a structured engineering framework that connects system design with the governance principles of transparency and explainability. The broader conclusion is easy to state, even if achieving it is not. Accessibility in emergency communication should be treated as a strategic capability, not an afterthought. No citizens should be left behind during a crisis.*

Keywords: accessibility; artificial intelligence; digital governance; emergency communication systems; Eu responsible innovation.

Introduction

The idea behind universal design is simple: communication systems should work for everyone, including people with disabilities, without needing to be specially adapted for each individual (Story et al., 1998; Mace, 1997). In the context of emergency communication, this is not just a

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matter of fairness, as Bokor, Certan, and Nen (2026) argue, it is a strategic capability that shapes how well societies manage crises and maintain public resilience across the European Union. Put differently, how inclusive a country's digital infrastructure is may say a great deal about how effectively it responds when things go seriously wrong.

There is growing evidence that bringing inclusive design into the development process early, rather than bolting it on afterwards, makes a real difference, especially for people with cognitive disabilities (Xu et al., 2025). In emergency communication systems like 112, this translates into practical requirements: real-time transcription, video relay services, and communication interfaces that can adapt to the caller's needs with AI support.

However, the introduction of artificial intelligence into emergency services is not without complications. Questions around ethics, accountability, and who ultimately stays in control do not disappear just because technology is impressive. AI can analyse speech, handle large volumes of data, and open new ways for people to communicate, but its implementation in high-stakes public services requires clear rules and proper safeguards. This is precisely the territory that the European Accessibility Act (2019) and the EU Artificial Intelligence Act (2024) are trying to cover, with their shared emphasis on transparency, accountability, and human oversight.

It is against this backdrop that the present study was developed. Rather than adding another theoretical discussion, we examine what is actually happening, how far AI has genuinely been put to work improving accessibility in European 112 systems between 2020 and 2025, and what is still getting in the way.

The study is guided by one central research question:

RQ: To what extent can artificial intelligence improve accessibility for people with disabilities within European 112 emergency communication systems?

From this we develop two analytical propositions.

P1: AI-supported solutions are associated with measurable improvements in operational performance and accessibility for people with disabilities within the European 112 systems (2020–2025).

P2: Despite these advances, many accessibility-orientated AI solutions remain at the pilot or experimental stage, strained by challenges around interoperability, institutional coordination, and large-scale implementation.

To explore these propositions, we use a structured qualitative literature review based on the SALSA framework (Search, Appraisal, Synthesis, Analysis), drawing on academic literature, technical reports, and policy documents. The goal is not simply to catalogue what exists but to understand how mature these solutions really are and what it would take to move them forward.

Ultimately, this study is a contribution to a conversation that matters: How do we ensure that advances in AI reach the people who need them most?

Literature review

Artificial intelligence and accessibility for people with disabilities

Digital technologies can open real possibilities for people who struggle with standard forms of communication, especially in high-pressure situations where the usual ways of interacting break down. AI-based conversational systems, when designed with cognitive impairments in mind, can make communication considerably easier by guiding users through structured, manageable steps (Huq et al., 2022). More recently, generative and adaptive AI systems have started to show what more personalised assistance could look like, though this works best when inclusion is a design priority from the outset, not an afterthought (Khlaif et al., 2025).

However, better technology does not automatically mean better access. AI tools deliver on their promise when people with disabilities are genuinely involved throughout the design and testing process, not just as end users (Deetjen-Ruiz et al., 2024). There is also an important distinction worth making: a system can be technically accessible, having speech-to-text or automated transcription, without being experientially accessible, meaning people can actually use it effectively when it matters. Moore et al. (2023) note that this gap remains surprisingly underexplored.

Artificial intelligence in emergency communication contexts

Emergency environments ask for something different from AI. The challenges are immediate and operational, not abstract. Within systems like 112, AI is being tested to triage calls, supporting dispatcher decisions, and process speech in real time. The results so far are cautiously encouraging, though performance depends heavily on data quality and integration with existing infrastructures (Da'Costa et al., 2025; Tahernejad et al., 2024).

Automatic speech recognition (ASR) is probably the most discussed application. If a system can capture key details of a call without the dispatcher doing everything manually, response times improve. But ASR was simply not built for emergency settings. Background noise, distressed callers, fragmented speech, all these affect accuracies in practice (Luo et al., 2025). This illustrates a recurring tension between what AI can do under controlled conditions and what happens. Supporting architectures must be robust enough to maintain high detection sensitivity, reaching up to 95% in cardiac arrest identification in some pilots (EENA & Corti, 2020), while keeping the dispatcher firmly in control of the final decision.

Governance and ethical considerations

The introduction of artificial intelligence into public emergency services raises serious ethical and governance questions. The European policy frameworks are clear: AI must uphold transparency, accountability, and human rights (European Commission, 2019a, 2019b, 2021), and ensure equal access for people with disabilities (European Parliament, 2024). The principles exist. The problem is to apply them consistently.

Trust and institutional coordination matter just as much as the technology itself (Bokor, Certan & Nen, 2026). Weak governance does not just slow progress, it can quietly reinforce existing inequalities. Access to emergency services still varies considerably across EU Member States, a problem Bokor, Certan, and Nen (2026) describe as'resilience asymmetries'. Better AI alone will not fix this.

Technological progress has been real but uneven. Moving from pilot projects to fully integrated public services has proven harder than expected, held back by differences in institutional capacity and governance frameworks (Bokor et al., 2025). Compliance alone is not enough. A more coordinated European approach is needed, one that places accessibility genuinely at the centre, not the margins (Bokor, Certan & Nen, 2026; Bokor et al., 2025).

The responsibility is currently split between telecommunications authorities, emergency services, and technology providers, with no single body that holds the full picture. AI governance debates tend to focus on algorithmic bias, data protection, and transparency, rarely treating accessibility as a primary ethical concern (Floridi et al., 2018; Wirtz et al., 2019). El Morr et al. (2024) note that disability issues remain peripheral in most AI administrative frameworks. Governance has not yet caught up with the needs of people with disabilities. Building

accountability frameworks that treat accessibility as a shared responsibility, not someone else's problem, is the necessary next step.

Technical Standards and strategic roadmaps

The shift towards next-generation 112 (NG112) is largely guided by the ETSI TS 103 479 (2023) standard, which sets technical requirements for IP-based and multimodal emergency communications. This matters for accessibility because it allows integration of real-time text (RTT), voice, and video, giving people with sensory impairments ways to communicate that suit their needs. AI does not replace human decision making here, it supports it. According to the Final Report of the EENA AI Special Project (2024), AI functions as an orchestration layer within the Public Safety Answering Point (PSAP) environment, managing complex information flows and giving dispatchers actionable real-time insights.

However, optimism needs grounding in evidence. Domfeh and Dancy (2025) stress that effective human-AI collaboration requires systems that are adaptive, context-aware, and genuinely useful under pressure. Data from more mature pilots is encouraging a sensitivity to cardiac arrest detection reaching 95% (EENA & Corti, 2020) and reductions in treatment time of around 13 minutes (Tahernejad et al., 2024) suggest real operational value.

Explainable Artificial Intelligence (XAI) is another essential piece. The concept emerged from the DARPA Explainable AI programme (Gunning, 2016), which tackled the black-box problem in deep learning by making decisions understandable to human users. In 112 services, explainability is not just a technical nicety, it is a safety requirement. The XAI component of the Technical Reference Architecture (Figure 2) allows dispatchers to see why a particular triage decision is being suggested, so they can confirm, question, or override it based on what they are hearing from the caller.

The EU AI Act (2024) reinforces this, classifying emergency response AI as high risk and requiring strong human-in-the-loop oversight. This matters most to vulnerable callers, including people with disabilities, whose trust in the system depends not just on how the technology works, but on it being transparent and responsibly designed. Explainability, in this sense, is as much a governance principle as a technical one.

Methodology

This research examines the intersection of emergency communication, artificial intelligence, and accessibility for people with disabilities. A structured qualitative literature review investigates how AI currently supports accessibility in European emergency communication systems and identifies ongoing challenges.

The analysis is guided by one research question and two analytical propositions, using qualitative synthesis to assess how consistent and developed the evidence is across sources. This research examines the intersection of emergency communication, artificial intelligence, and accessibility for people with disabilities. A structured qualitative literature review investigates how AI currently supports accessibility in European emergency communication systems and identifies ongoing challenges. The analysis is guided by one research question and two analytical propositions, using qualitative synthesis to assess how consistent and developed the evidence is across sources. No quantitative methods or statistical software were used, as the study is entirely interpretive in nature.

The two analytical propositions: that AI solutions show measurable accessibility improvements (P1), and that most remain at the pilot stage facing implementation barriers (P2),

were defined because of the gaps identified in the existing literature on emergency communication and inclusive technology. This approach is consistent with similar qualitative reviews in the field of AI governance and public sector accessibility (El Morr et al., 2024; Domfeh & Dancy, 2025).

The review follows the SALSA framework (Search, Appraisal, Synthesis, and Analysis) of Booth, Sutton, and Papaioannou (2012), chosen for its flexibility across different fields and its suitability for interpretive analysis in technology, public services, and social inclusion. Table 1 summarises how each phase was applied.

Table 1. Application of the SALSA framework in the study

SALSA phase	Objective	Application in this study
Search	Identification of relevant sources	Systematic searches using predefined keyword combinations related to artificial intelligence, emergency communication systems (112/PSAPs), accessibility, and people with disabilities. Searches covered publications from 2020 to 2025 across academic platforms and European institutional repositories.
Appraisal	Selection of eligible materials	Screening based on predefined inclusion and exclusion criteria, focusing on relevance to accessibility in emergency communication systems, the presence of artificial intelligence applications, and applicability to the European context.
Synthesis	Organisation of evidence	Classification of selected materials into three thematic groups: EENA pilot initiatives, national implementation efforts (e.g., ODIN 112), and AI-supported communication or decision-support tools.
Analysis	Interpretation of findings	Assessment of AI contributions to accessibility, identification of implementation barriers, and evaluation of solution maturity in relation to European inclusion and governance objectives.

Source: Authors' compilation based on Booth, Sutton, and Papaioannou (2012).

Search

Searches targeted academic studies, policy documents, and practitioner reports published between 2020 and 2025, using Google Scholar, ResearchGate, and European institutional repositories. Keywords covered three dimensions: artificial intelligence, emergency communication systems (112/PSAPs), and accessibility or disability. The initial search identified 45 records; the screening process is summarised in Table 2.

Table 2. Summary of search and selection

Screening stage	Number of records
Records identified through searches	45
Duplicates removed	9
Records screened (title and abstract)	36
Records excluded after screening	24
Full-text sources assessed	12
Sources included in qualitative synthesis	12

Source: Authors' compilation.

Appraisal

All 45 records were screened against predefined criteria. Sources were included if they addressed emergency communication systems, applied AI conceptually or operationally, considered accessibility or disability, and were relevant to the European context. After removing duplicates and screening titles and abstracts, 12 sources were included in the qualitative synthesis.

Synthesis

The selected materials were grouped into three themes: EENA pilot initiatives, national implementations such as Romania's ODIN 112, and AI-supported communication or decision-making tools. European policy and regulatory documents were incorporated to situate these developments within broader governance and accessibility frameworks.

Analysis

The analysis examined AI's contributions to accessibility, barriers to broader adoption, and the maturity of existing solutions, with an eye on inclusive testing, ethical design, interoperability, and institutional coordination. Rather than quantifying effects, it assessed evidence patterns and implementation maturity in relation to the two analytical propositions.

Results and discussions

The structured literature review shows that artificial intelligence is starting to affect accessibility practices in European emergency communication systems, but its impact remains limited and uneven. The findings are discussed in relation to the two analytical propositions, interpreted qualitatively, and compared with results from similar research in the field.

Contributions to accessibility of artificial intelligence (P1)

In relation to Proposition 1, the evidence provides partial confirmation. AI-supported solutions are indeed associated with perceptible improvements in accessibility for people with disabilities during the period 2020–2025, but these improvements are neither comprehensive nor consistently implemented on scale. Across the reviewed initiatives, AI-supported tools demonstrate the capacity to reduce specific communication barriers, particularly in situations involving speech, hearing, or cognitive impairments.

The most common contributions involve automated speech recognition and transcription, conversational support systems, and AI-assisted call triage, repeatedly cited in studies on accessibility and interaction support in emergency or assistive communication contexts (Huq et al., 2022; Deetjen-Ruiz et al., 2024; Luo et al., 2025; Bokor et al., 2025). As shown in Table 3, these applications support clearer information capture, more structured interaction, and better prioritisation of emergency calls. They can help callers who struggle to express information verbally or follow complex instructions under stress (Huq et al., 2022; Tahernejad et al., 2024).

These findings are broadly consistent with those of Domfeh and Dancy (2025), whose systematic review of human-AI collaboration in disaster scenarios similarly found that AI tools can enhance situational awareness and response efficiency, while failing to provide transformative system-wide change. Similarly, Tahernejad et al. (2024) reported comparable patterns of incremental operational gains in AI-assisted triage, confirming that the benefits identified in this study are not isolated to the European context of 112.

Table 3. Accessibility-orientated artificial intelligence applications in European emergency communication (2020-2025)

AI application type	Primary accessibility contribution	Targeted disability context	Implementation status	Key limitation observed
Automated speech recognition and transcription	Improved capture and clarity of caller information	Speech and hearing impairments	Pilot or limited deployment	Variable accuracy under stress; language limitations
Conversational support systems	Structured interaction and reduced cognitive load	Cognitive impairments	Experimental	Limited real-world testing with end users
Emotion and stress detection tools	Early identification of caller distress	Cognitive and psychosocial vulnerabilities	Pilot	Ethical concerns and lack of transparency
AI-assisted call triage	Prioritisation of emergency calls	Multiple disability contexts	Pilot	Integration with legacy systems
Accessibility profiling tools	Personalised communication support	Mixed disability profiles	Conceptual or pilot	Absence of standardised accessibility frameworks

Source: Authors' synthesis based on reviewed European emergency communication initiatives (2020–2025).

The review also finds that accessibility improvements are still incremental rather than comprehensive. Most applications enhance existing voice-based emergency systems instead of offering fully multimodal or universally accessible alternatives. Accessibility profiling and personalised communication support rarely advance beyond the initial or conceptual stages (EENA, 2024). This pattern aligns with Moore et al. (2023), who observed that the gap between technical capability and real-world user experience remains insufficiently explored across AI application domains.

Implementation maturity and limitations (P2)

Proposition 2 is confirmed. The evidence strongly supports the expectation that most accessibility-orientated AI solutions remain in the pilot or experimental stages and have not yet been fully implemented in national emergency communication infrastructures.

As indicated in Table 3, most of the applications identified are classified as pilot, experimental or concept-level initiatives, with limited evidence of sustained system-wide deployment. This mirrors findings from European emergency communication evaluations, where AI tools demonstrate technical feasibility but face significant challenges in scaling beyond controlled or localised contexts (European Emergency Number Association & Corti, 2020; EENA, 2024). These results are also consistent with El Morr et al. (2024), who noted that disability and accessibility concerns remain peripheral in most AI governance frameworks - a structural problem that this study confirms extends to emergency communication systems specifically.

Several recurring barriers explain this limited maturity in implementation. Technical challenges related to integration with legacy infrastructures constrain scalability, while organisational factors - such as the need for specialised training and workflow adaptation, further slow adoption. Accessibility-focused evaluation involving people with disabilities is often limited or absent, reducing confidence in real-world effectiveness (Tahernejad et al., 2024). National deployment remains fragmented across regions and services, leaving accessibility-orientated AI tools unevenly distributed and insufficiently institutionalised.

Conceptual synthesis and governance implications

Taken together, these findings suggest that artificial intelligence currently functions primarily as a future-orientated accessibility tool rather than as a fully embedded component of emergency communication practice. Figure 1 presents a conceptual grouping of the contributions across four dimensions: sensory, communicational, cognitive-emotional, and operational infrastructure.

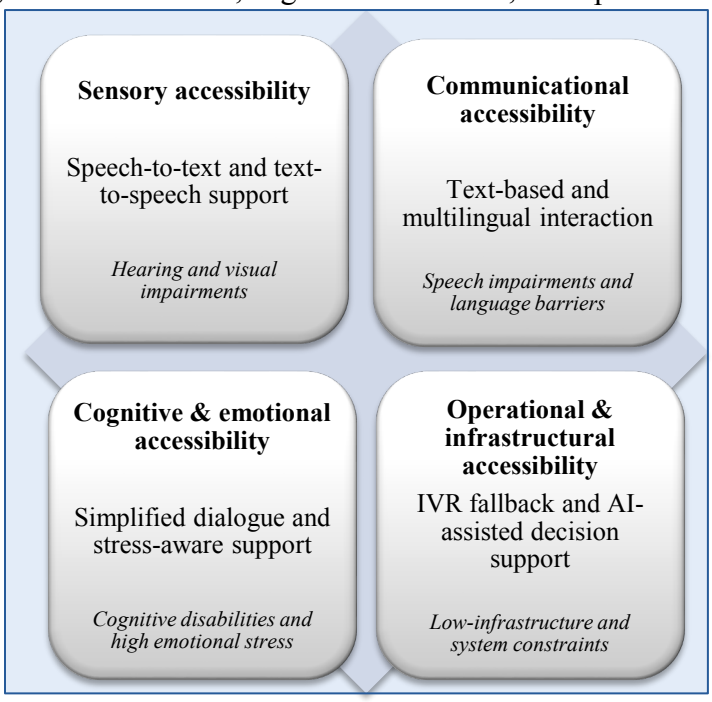


Figure 1. Artificial intelligence as a future accessibility tool in European emergency communication systems

Source: Authors' own conceptual contribution.

Figure 2 proposes a Technical Reference Architecture that aligns these AI functions with the ETSI TS 103 479 (2023) standard. This model ensures that multimodal inputs (voice, RTT, video) are processed through an AI-orchestration layer before reaching the dispatcher, maintaining the human-in-the-loop principle as mandated by the EU AI Act (2024).

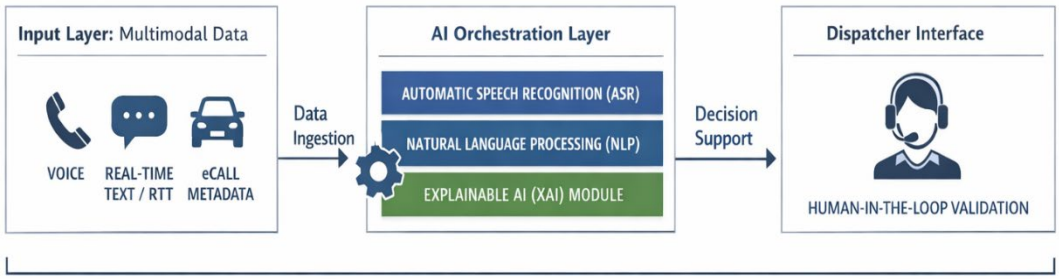


Figure 2. Technical Reference Architecture for AI-Integrated 112 Accessibility Services

Source: Authors' own conceptual contribution based on ETSI TS 103 479 (2023) and EU AI Act (2024).

The proposed architecture differs from the purely predictive AI models discussed in the literature - such as those reviewed by Da'Costa et al. (2025) for emergency department triage, in that it explicitly integrates XAI as a governance mechanism, not just a technical feature. Where existing models prioritise diagnostic accuracy, the present framework prioritises transparency and

dispatcher accountability, which is particularly important when serving vulnerable callers with disabilities.

Technologies such as automated transcription, conversational assistance, and AI-assisted call triage demonstrate how AI can reduce communication barriers when appropriately deployed (Huq et al., 2022; Luo et al., 2025). To move beyond a narrative description, Table 4 synthesises the Key Performance Indicators (KPIs) extracted from the most mature implementations.

Table 4. Performance benchmarks of AI-supported emergency communication systems

Implementation area	Technical KPI	Reported outcome / benchmark	Source
Emergency call triage	Detection sensitivity	95.0% sensitivity in identifying cardiac arrest vs 73% by human call-takers	EENA & Corti (2020)
Response optimisation	Operational latency	Reduction of time-to-treatment by approximately 13.1 minutes	Tahernejad et al. (2024)
Data extraction	Recognition precision	F1-score of 1.0 in extracting key parameters such as mental status indicators	Luo et al. (2025)
Diagnostic support	Clinical accuracy	91.6% accuracy in automated symptom assessment	Da'Costa et al. (2025)
Speech-to-text (ASR)	Word error rate (WER)	6.8% WER in high-stress emergency communication environments	Luo et al. (2025)
Multilingual support	Language coverage	Translation accuracy exceeding 85% for low-resource European languages	EENA (2024)
Multimodal translation	BLEU score	BLEU score 0.45–0.55 for real-time RTT/text to voice translation for dispatcher support	EENA (2023)
Automated caller location	Location precision (AML)	Caller search radius reduced from ~2 km to <50 metres for cognitively disoriented callers	EENA (2024)
Visual accessibility	Video latency (VRS)	End-to-end delay below 150 ms for HD Video Relay Services over 5G for sign language communication	ETSI TS 103 479 (2023)

Source: Authors' compilation based on EENA & Corti (2020), EENA (2023), EENA (2024), Tahernejad et al. (2024), Luo et al. (2025), Da'Costa et al. (2025), and ETSI TS 103 479 (2023).

Note: ASR = Automatic Speech Recognition; KPI = Key Performance Indicator; WER = Word Error Rate; BLEU = Bilingual Evaluation Understudy; AML = Advanced Mobile Location; VRS = Video Relay Service; RTT = Real-Time Text.

Strong qualitative support for Proposition 2 highlights the persistent difficulty of progressing beyond pilot implementation toward mature system-wide integration. Governance and ethical oversight emerge as central modulating factors shaping this trajectory. European policy frameworks emphasise transparency, accountability, and human oversight (European Commission, 2019a, 2019b, 2021), but these principles are unevenly translated into practice within accessibility-focused emergency communication initiatives.

Fragmented institutional responsibilities, limited inclusive testing, and insufficient coordination between emergency services continue to constrain systematic learning and long-term integration (European Parliament, 2024). Advancing from isolated pilot initiatives to mature, system-wide accessibility solutions will require not only technological development, but also coordinated institutional learning, inclusive governance arrangements, and sustained organisational commitment.

Conclusion

This study moves the discussion from abstract technological potential towards applied artificial intelligence solutions for emergency communication. By proposing a Technical Reference Architecture aligned with ETSI TS 103 479 (2023) and the EU AI Act (2024), it demonstrates that accessibility should be treated as a strategic capability, not a secondary feature, within European emergency communication systems.

The primary contribution lies in operationalising the EU AI Act requirements through Explainable Artificial Intelligence (XAI), providing a practical roadmap for human-in-the-loop oversight in high-risk scenarios. The framework prioritises transparency and dispatcher accountability, distinguishing it from models focused solely on predictive accuracy, which is particularly important when serving vulnerable callers with disabilities.

The findings confirm that AI-supported tools show promising technical performance, but large-scale implementation remains constrained by fragmented governance structures and legacy infrastructures. Progress depends not only on technology, but also on inclusive design practices and stronger institutional coordination across European emergency services.

Several limitations should be noted. The study relies on qualitative synthesis, which may not fully capture operational diversity across all EU member states, and the cognitive workload imposed on dispatchers by XAI systems remains insufficiently explored. Future research should employ empirical longitudinal studies and participatory approaches that involve emergency call-takers and users with disabilities. The framework could also be extended beyond 112 services to other high-risk public sector AI applications, such as healthcare triage or crisis management systems.

Ultimately, accessible emergency communication emerges when technology, institutional responsibility, and human experience work together to ensure that no caller is left behind in a moment of crisis.

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References

Bokor, E., Sava, A., Stănilă, V., & Nen, M. (2025). AI and accessibility advances in 112 emergency call management. Development Through Research and Innovation (IDSC-2025), 199–204. https://doi.org/10.53486/dri2025.25

Bokor, E. C., Certan, D., & Nen, M. (2026). Emergency call accessibility as a strategic capability for crisis management in the EU. International Journal of Emergency Services, 1–15. https://doi.org/10.1108/ijes-09-2025-0050

Booth, A., Sutton, A., & Papaioannou, D. (2012). Systematic approaches to a successful literature review. SAGE Publications.

Da'Costa, A., Teke, J., Origbo, J. E., Osonuga, A., Egbon, E., & Olawade, D. B. (2025). AI-driven triage in emergency departments: A review of benefits, challenges, and future directions.

International Journal of Medical Informatics, 197, 105838. https://doi.org/10.1016/j.ijmedinf.2025.105838

Deetjen-Ruiz, R., Daniel, M. P., Telus, J., & Deetjen, L. (2024). Advancing cognitive accessibility: The role of artificial intelligence in enhancing inclusivity. PriMera Scientific Engineering, 4(2), 58–61. https://doi.org/10.56831/PSEN-04-108

Domfeh, E. A., & Dancy, C. L. (2025). Human–AI use patterns for decision-making in disaster scenarios: A systematic review. arXiv. https://doi.org/10.48550/arXiv.2509.12034

El Morr, C., Kundi, B., Mobeen, F., Taleghani, S., El-Lahib, Y., & Gorman, R. (2024). AI and disability: A systematic scoping review. *Health Informatics Journal, 30*(3). https://doi.org/10.1177/14604582241285743

ETSI. (2023). ETSI TS 103 479 V1.2.1: Emergency Communications (EMTEL); Core elements for network independent access to emergency services. European Telecommunications StandardsInstitute.https://www.etsi.org/deliver/etsi_ts/103400_103499/103479/01.02.01_60/ts_103479v010201p.pdf

European Commission. (2019a). Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (European Accessibility Act). Official Journal of the European Union, L151, 70–115.

European Commission. (2019b). Ethics guidelines for trustworthy artificial intelligence. Publications Office of the European Union. https://ec.europa.eu/digital-strategy/sites/digital-strategy/files/ethics-guidelines-trustworthy-ai.pdf

European Commission. (2021). Proposal for a regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act). Publications Office of the European Union. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206

European Emergency Number Association & Corti. (2020). Detecting out-of-hospital cardiac arrest using artificial intelligence: Pilot project report. EENA. https://eena.org/wp-content/uploads/2020_01_13_Corti_Report.pdf

European Emergency Number Association. (2023). Implementation of RTT and Total Conversation in Europe (Version 2.0). EENA Knowledge Hub. https://eena.org/knowledge-hub/documents/implementation-of-rtt-and-total-conversation-in-europe/

European Emergency Number Association. (2024). Artificial intelligence in emergency communications: Final report. EENA. https://eena.org/knowledge-hub/documents/ai-special-project-final-report

European Parliament & Council of the European Union. (2024). Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act). Official Journal of the European Union, L series. http://data.europa.eu/eli/reg/2024/1689/oj

European Parliament. (2024). The EU strategy for the rights of persons with disabilities, 2021–2030: Implementation briefing. European Parliamentary Research Service. https://www.europarl.europa.eu/RegData/etudes/BRIE/2024/767095/IPOL_BRI(2024)767095_EN.pdf

Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., Luetge, C., Madelin, R., Pagallo, U., Rossi, F., Schafer, B., Valcke, P., & Vayena, E. (2018). AI4People — An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. Minds and Machines, 28(4), 689–707. https://doi.org/10.1007/s11023-018-9482-5

Gunning, D. (2016). Explainable Artificial Intelligence (XAI). Defence Advanced Research Projects Agency (DARPA). https://www.darpa.mil/program/explainable-artificial-intelligence

Huq, S. M., Maskeliūnas, R., & Damaševičius, R. (2022). Dialogue agents for artificial intelligence-based conversational systems for individuals with cognitive disabilities: A systematic review. Disability and Rehabilitation: Assistive Technology, 19(3), 1059–1078. https://doi.org/10.1080/17483107.2022.2146768

Khlaif, Z. N., Alshakhshir, R., Hamamra, B., & Joma, A. (2025). Reimagining inclusive education: The assistive power of generative AI in promoting accessibility and equity. British Journal of Visual Impairment. https://doi.org/10.1177/02646196251382469

Luo, X. Y., Zhou, L., Adelgais, K., & Zhang, Z. (2025). Assessing the effectiveness of automatic speech recognition technology in emergency medicine settings: A comparative study of four AI-powered engines. Journal of Healthcare Informatics Research, 9(3), 494–512. https://doi.org/10.1007/s41666-025-00193-w

Mace, R. L. (1997). Universal design in housing. Centre for Universal Design, North Carolina State University.

Moore, S., Liao, Q. V., & Subramonyam, H. (2023). fAIlureNotes: Supporting designers in understanding the limits of AI models for computer vision tasks. arXiv. https://doi.org/10.48550/arXiv.2302.11703

Story, M. F., Mueller, J. L., & Mace, R. L. (1998). The universal design file: Designing for people of all ages and abilities. Centre for Universal Design.

Tahernejad, A., Sahebi, A., Abadi, A. S. S., & Safari, M. (2024). Application of artificial intelligence in triage during emergencies and disasters: A systematic review. BMC Public Health, 24(1), Article 3203. https://doi.org/10.1186/s12889-024-20447-3

Wirtz, B. W., Weyerer, J. C., & Geyer, C. (2019). Artificial intelligence and the public sector — Applications and challenges. International Journal of Public Administration, 42(7), 596–615. https://doi.org/10.1080/01900692.2018.1498103

Xu, Z., Liu, F., Xia, G., Duan, Y., & Yu, L. (2025). A scoping review of inclusive and adaptive human–AI interaction design for neurodivergent users. Disability and Rehabilitation: Assistive Technology. https://doi.org/10.1080/17483107.2025.2579822