

Improving 9-1-1 Operations with Artificial Intelligence



Artificial intelligence (AI) technology is a decision-support tool that can detect and assist in managing emergencies by analyzing vast amounts of real-time data. These case studies highlight how AI is easing 9-1-1 call volumes and improving emergency response.

NTIA is dedicated to the continued development of these uses of AI as Emergency Communications Centers leverage Next Generation 9-1-1 systems and technology.

AI-Powered Call Triage

When the Emergency Communications Center experiences a surge in call volume compounded by staff shortages, the traditional call-handling process can lead to delays. All calls, regardless of urgency, pass through the same queue. AI technologies offer a solution by automating initial detection and triage, streamlining call flow. This eases the burden on human telecommunicators, enabling them to focus on crucial tasks like coordinating emergency responses and providing support to those in distress. Furthermore, AI can continuously adapt and improve, enhancing triage accuracy and building stakeholder confidence by analyzing past call data and outcomes.



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In emergency response, AI is not just a tool, but a lifeline. From streamlining non-emergency call triage to enhancing training through virtual scenarios, our use of AI technology is revolutionizing our operations. Despite some technical hurdles along the way, the positive impact on our telecommunicators' quality of life and our ability to meet national standards speaks volumes. As we navigate the complexities of implementation, let us remember that with great AI power comes great responsibility to continuously improve and adapt.

**Mike Brewer, Deputy Director,
Jefferson County, CO**

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National Telecommunications and Information Administration



As a 9-1-1 Director, witnessing AI technology's immediate and transformative impact on our emergency operations has been remarkable. This new technology has revolutionized how we handle crises and has been well-received by citizens and staff alike.

This AI system has increased efficiency by 7-10% and reduced call volume by 30%, allowing us to focus on critical tasks effectively. In April 2024 alone, out of 9,635 calls received by the AI system, 2,920 calls were identified as non-emergency or general information queries that were resolved without call-taker interaction, showcasing a remarkable 30.31% improvement in operational efficiency.

With a monthly cost of \$1,000 or less based on call volume, this innovative investment has proven its worth in enhancing our services. The integration of AI will undoubtedly lead us to a future of significantly improved emergency response and public safety.

Lee Ann Magoski, 9-1-1 Director,
Monterey County, CA



Call Diversion Technology

Most Emergency Communications Centers (ECCs) face a spike in non-emergency calls during a storm. To manage this influx efficiently, the ECC can implement **call diversion technology**. This system automatically directs non-urgent calls, such as weather-related inquiries or damage reports, to the appropriate department without requiring manual intervention. Call diversion

technology can help the ECC minimize wait times and prioritize critical emergency calls.

Automated Callback Systems

In many ECCs, managing a high volume of calls is a daily challenge. An advanced **automated callback** system can help manage the increasing number of accidental calls and hang-ups by capturing caller details instantly, prioritizing callbacks for calls that disconnect before a telecommunicator can respond. The system also offers interactive options for callers to confirm whether they need help or if the call was made in error, streamlining the response process and reducing telecommunicator involvement.



Geofencing Call Hotspots

During a surge of 911 calls following an emergency like a sizeable structural collapse, AI can effectively manage the situation by utilizing **geofencing** to identify the area with the highest number of calls, allowing the center to pinpoint the exact location generating the most calls.

This step enables an advanced telephony system to automatically direct calls within the designated zone to a recorded message outlining critical safety instructions and evacuation procedures. Simultaneously, calls originating from outside the affected area are routed to live telecommunicators for immediate assistance. By harnessing geo-fencing technology for precise location identification and advanced telecommunications systems for intelligent call management, the emergency communication center ensures a coordinated and effective emergency response.



Translation and Transcription Enhance Emergency Response Efficiency and Access

Real-time translation and transcription systems streamline 9-1-1 operations, alleviate the cognitive load on telecommunicators, and expedite critical interventions. These cutting-edge technologies swiftly convert spoken language into text, pinpoint urgent keywords, and deliver immediate translations, enhancing communication clarity and inclusivity. By integrating AI in emergency communications centers (ECCs), organizations enhance responsiveness, optimize resource allocation, and ensure accurate information dissemination during crises. Thorough training and ongoing support are crucial to maximizing the potential of AI in emergency settings, creating a highly efficient and interconnected response framework.



Multilingual Support

In a diverse community served by a 9-1-1 center, AI translation and transcription can instantly translate emergency calls into multiple languages, ensuring that all residents receive the help they need promptly.



Accurate Transcription

AI transcription technology can accurately transcribe critical information, such as addresses, names, and descriptions, reducing the risk of miscommunication and improving response times.



Enhanced Communication

In situations involving individuals with unclear communication, AI translation and transcription can help decipher difficult-to-understand speech patterns, ensuring that call-takers can effectively assist callers in distress.



“Orleans Parish Communications District used AI technology to enhance efficiency and reduce call answer times. Commonly, ECCs begin with non-emergency calls; however, we implemented it first for motor vehicle accident-related 9-1-1 calls. The primary goal was to find an effective tool with a rapid return on investment. We enhanced performance by utilizing AI triage, translation, and transcription, providing staff with more tools rather than pushing understaffed teams to work faster. These AI tools have significantly elevated service quality and reduced the need for overtime.

When all telecommunicators are occupied, AI steps in for call triage, particularly for geofencing to manage calls in the area of a known incident. Additionally, we introduced a one-way language translation feature to facilitate real-time communication with bilingual callers, with plans to implement a two-way translation capability for seamless communication.

Though we still rely on translation services, we have found an innovative way to utilize translation and transcription for the initial call and critical window while waiting for translation services to join the call. Despite the challenges faced as early adopters, the team values these additional tools in their arsenal and the improved compliance with call answer times.”

**Karl Fasold, Executive Director,
Orleans Parish Communications
District, New Orleans**

