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AI IN EMS

CAN IT ENHANCE DECISION MAKING, RESOURCE ALLOCATION
AND SITUATIONAL AWARENESS IN PUBLIC SAFETY?

EXPANDING CAPABILITIES

Artificial intelligence is permeating all niches of public and private life. Can it enhance decision making and situational awareness in EMS?

Azhar Khan, an associate director who leads the Solutions Specialist and Public Safety Outreach Program Teams for Verizon Frontline, is an advocate for the present and future applications of AI in EMS. This e-book summarizes a recent conversation between Khan and EMS World Podcasts host Mike McCabe.

[Listen to the interview here.](#)

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A recent survey of 1701 first responders revealed extreme interest in the capabilities of AI for preparing for disasters and improving response efforts.



EXCITING POSSIBILITIES

How artificial intelligence can enhance first responders' decision-making and situational awareness during emergencies



By analyzing real-time data, AI systems can improve disaster response by identifying optimal travel routes, automating dispatch processes, and predicting resource needs.

Making the right decisions while being aware of what's happening all around you is among the biggest challenges for first responders during emergencies. Fortunately, artificial intelligence (AI) can address both problems effectively even in the worst of situations.

To find out how, EMS World Podcast host [Mike McCabe spoke with Azhar Khan](#). He is an Associate Director at Verizon Frontline who leads the company's solution specialist and public safety outreach program teams. In his role, Khan is responsible for solution development, providing thought leadership, and supporting various

key public safety industry events.

According to Khan, first responder agencies across America have been looking into AI and other new technologies because they're looking for ways to improve and enhance situational awareness, and to improve and enhance how they operate and function on a daily basis. He knows this to be a fact, because Verizon Frontline regularly asks public safety agencies what they're looking for in new technology.

"At Verizon Frontline, we are constantly looking for feedback from first responders, whether it's formal feedback or informal feedback," Khan told McCabe. "As part of that feedback mechanism, we conduct an

annual survey with first responders like fire, police and EMS just to understand what their pain points are, what are the key initiatives that they're thinking of, and what's on their mind. We then take that feedback and incorporate it into our strategy—pivoting if we need to from where we are to where we need to be."

As part of that feedback process, Verizon Frontline recently surveyed early 1701 first responders. As it turned out, artificial intelligence is something that these first responders and their agencies are extremely interested in. "In fact, roughly 30% of the public safety agencies that we spoke to are currently using or planning to implement



AI,” said Khan. “From a first responder point of view, that’s a good stat to hear.”

That’s not all: “Nearly 75% of those 1701 first responders believe that AI would be anywhere from ‘somewhat important’ to a ‘top priority’ for public safety agencies in the future,” said Khan. “As we know first responders —whether it’s fire, police or EMS—they put their lives online every day to save and protect people in their communities. AI and other technologies can help them do their jobs more efficiently, effectively, faster and safer. AI can also enable predictive policing to help them forecast when and where incidents are likely to occur based on data like crime rates, traffic patterns, weather, and so forth.”

So how specifically can AI be used by first responders to do their jobs better? On this point, Azhar Khan has many ideas.

“AI can play a pivotal role in reducing response times during emergencies,” he said. “To give you an example: By analyzing real-time data, AI systems can help predict potential disasters. It can also automate some dispatching processes for first responders, which are key for effective day-to-day operations. This ensures that

emergency personnel are deployed swiftly to critical locations, potentially saving human lives.”

The benefits of AI for first responders doesn’t stop there. “AI-based solutions can provide first responders with optimal travel routes to save precious time,” said Khan. “I mean, we have all been in situations where there’s a traffic jam and there’s a firetruck or EMS truck trying to go by. In those situations, those AI-enabled tools can provide first responders with the most optimal route to save precious time.”

AI is also being used to help determine the best evacuation routes whenever there’s a hurricane or some other natural disaster underway. “We use a range of different modeling techniques in these situations, and all of them employ AI-based solutions,” Khan said. “That’s a key thing that AI and AI-based solutions can offer to first responders and public safety officials across the country. Finally—and it bears repeating—AI-based tools can provide enhanced and improved situational awareness for first responders, which helps them conduct their job more efficiently and effectively.”

It is for all these reasons that first responder agencies are actively seeking ways to implement AI into their operations. Further reasons include reviewing and reorganizing databases to make their information coherent and accessible, and making it easier for officers to access this information on the job to improve their decision making and awareness.

Deploying AI also helps keep first responder agencies at the cutting edge of technology. This is where they need to be if they are to do their jobs as efficiently and safely as possible. “Whether it’s a fire, police, or EMS agency, they’re trying to make sure that they stay relevant to the people that they’re supporting,” said Khan. “Adding new solutions and deploying new technologies like AI can make sure that first responder agencies stay competitive with what’s going on in the market, while enhancing and improving their day-to-day operations.”

If there’s a moral to this story, it is that AI is ideally suited to address the needs of first responders. This is what Verizon Frontline is hearing from its clients, and why the company is so interested in implementing this technology in its own solutions.

FORCE MULTIPLIER

AI can be a game-changer for improving public safety operations

Today's first responders are drowning in data. There's just too much information coming in for any team of human beings to go through in a timely manner.

Fortunately, artificial intelligence (AI) has stepped up to save the day. In fact, the whole point of this technology is its ability to process, organize, and analyze vast amounts of data, and then present its conclusions to humans. Basically, AI is here to do the grunt work.

In a recent edition of the EMS World Podcast, host Mike McCabe spoke with Azhar Khan about AI's ability to be a game changer in this regard. Khan is an Associate Director at Verizon Frontline, in charge of the company's solution specialist and public safety outreach program teams.

When it comes to sorting through data, AI-enabled systems are not fussy about what they're dealing with. "It could be a crime data database, it could be a weather database," said Khan. "It could be computer-aided dispatch, it could be gunshot detection, or it could be other types of data platforms that are available. Whatever it is, if you are a human being and you're trying to review all of that data on your own, you can imagine how long it's going to take. But AI-enabled solutions can do this work quickly and accurately, providing meaningful insights to first responders in a very short timeframe."

AI's ability to process this data so quickly is what makes this tool so useful to public safety agencies. "As we all know, when you're responding to an emergency, timing is critical," Khan said. "You want to be there, you need access to critical information, and you need to respond to an emergency potentially saving lives. Well,

AI is currently being used to help determine the best evacuation routes during natural disasters.





AI helps public safety agencies to go through all of those multiple data feeds in a faster way. This means first responders have all the information they need available to them sooner than later.”

After hearing Khan’s points, McCabe noted that “one of the concerns in utilizing a method like this—although it is extremely efficient and certainly technology driven—is that it’s not ‘fail safe’. I mean, certainly there’s going to be outliers. What are your thoughts about that?”

“Whenever you’re trying to implement new solutions, there are some challenges that you will face,” replied Khan. “Some are availability of technology, availability of that solution, and availability of that capability that you’re trying to deploy. As well, there are some security risks that are out there, as with any other solution that you can think of. So, in this current age where cybersecurity and other types of ransomware and malware attacks are real and they’re happening across the industry, you need to make sure—before you deploy and implement AI in your environment!—that you have a good security posture. You need to have taken all the right steps and the right approach to make sure that what you deploy is going to be secure from all of these security threats.”

First responders in the EMS sector also have to protect medical records from being stolen by hackers. Doing so can be costly, Khan admitted, “but if it’s done the right way with the right approach, the right solutions, and the right partner, some of those cost factors can be mitigated and minimized.”



Video surveillance is becoming common for public safety, and several AI-enabled systems can provide enhanced situational awareness.

Should such considerations prevent first responder agencies from adopting AI in their operations? Given the many benefits that this technology offers, the answer is no. AI is too much of a force multiplier not to have in your arsenal.

“Cost is always a factor for implementing any new technology,” Khan concluded. “But then you really have to evaluate costs versus implementing some of these new technologies that can potentially improve your day-to-day operations, provide efficiency and operational efficiency, improve how you do your day-to-day work, and help you save lives in the long run.”

AI can be used to analyze 9-1-1 calls to ensure the most timely and measured responses to these callers.



AI TOOLS ON THE JOB

Analyzing 9-1-1 calls, drones, simulation training and video surveillance are just a few cases of AI being used today

In the opening story of this ebook, Verizon Frontlines' Azhar Khan reflected on how artificial intelligence (AI) can generally improve the performance of public safety agencies. In this story, he looks at some of the specific tools that can be enabled by AI.

When it comes to AI, public safety agencies have a lot of questions. "First responders

are asking questions like, 'OK, AI is a great technology, but how does it actually work?' And what are its behind-the-scenes capabilities that they can implement to help them conduct their job more efficiently and effectively?" said Khan.

Khan can list many specific examples of AI tools that are available for public safety today. A case in point: "Video sur-

veillance is becoming common for public safety, and there are several AI-enabled video surveillance and video analytics systems that can provide enhanced situational awareness," he told McCabe. "We just talked about how enhanced situational awareness is a key for first responders. Well, these AI-enabled video analytics solutions can provide that capability to

first responders to help them conduct their jobs more efficiently and effectively.”

Another area where artificial intelligence can help public safety is through the more effective use of drones. “With drones, you can add video cameras and they can use that video to feed a centralized repository, so the first responders who are out in the field have a firsthand view of what’s going on, as do their commanders and other officials at the command center,” Khan said. AI can help process and organize these videos, and even extract information from them to allow viewers to make faster and better informed decisions. The subsequent results can include faster and more appropriate responses, plus better deployment of resources, and enhanced safety for officers and the public alike.

“AI’s data-driven approach can also help yield powerful insights such as predicting areas at the highest risk of fires,” said Khan. “California and the West Coast were hit by wildfires this year. So were New England territories like New York and New Jersey. These powerful AI-based technologies can provide some guidance and some modeling of what are the high risk areas for potential natural fires.”

AI can be used to analyze 9-1-1 calls to ensure the most timely and measured responses to these callers. “The other thing that I would mention is that AI models can analyze data to identify patterns to support predictive policing,” said Khan. “Predictive policing looks at historical data, crime data, social trends and weather patterns to predict—based on those factors—where a crime could potentially occur. Using these predictions, public safety agencies can respond to those crises in a much more efficient and effective fashion.”

As well, AI can help real-time crime centers analyze a wide range of data sources such as traffic cameras, gunshot detectors, and license plate readers. This allows the analysts working there to better detect patterns quickly and pass on this information to officers in the field.

AI can even sift through social media feeds, to tap into non-official camera sources and intelligence unwittingly gathered by the public. “AI-enabled social media monitoring tools can even provide valuable insights into different criminal

activities that are going on, and even the whereabouts of suspects,” observed Khan. “I mean, some people who have committed a crime post about it on social media! By combing through these social media platforms with the help of AI, law enforcement agencies can gather enough intelligence to apprehend some of these criminals.”

Best of all, AI makes it possible to communicate these insights clearly and directly. That’s the kind of clarity officers need when they are confronted with a crisis situation.

When it comes to training, AI is a wonderful tool for helping fire, police, and EMS personnel learn their skills in a realistic and interactive environment. For instance, when it comes to firefighters and police officers, typically they would have to go to

a facility to get training,” Khan said. “With the availability of augmented reality (AR) and other types of technologies leveraging AI-based solutions, they don’t have to travel: They can use AR headsets and AI-enabled platforms to train at their own base locations. Once back on the job, firefighters can use AR headsets to view floor plans of the buildings they have entered, so that they can navigate safely even in thick smoke.”

“Those are some of the ways that public safety agencies can use and implement AI to conduct their business on a day-to-day basis in a much more efficient and effective fashion,” Khan concluded. These are the kinds of capabilities that Verizon Frontline is constantly researching on their behalf.

While cost is always a factor for implementing new technology, those expenses must be evaluated in the context of potentially improving day-to-day operations, streamlining operational efficiency, and potentially saving lives.



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