Bulletin

In This Issue

International Association of Emergency Managers

IAEM Scholarship Program Celebrates 25th Anniversary with Special $10,000 Scholarship to Be Awarded

The Application Submission Deadline is May 30, 2025

In 2025, the International Association of Emergency Managers (IAEM) Scholarship Program celebrates its 25th anniversary. The Commission is planning activities throughout the year to mark this milestone. The celebration begins with the program offering a one-time $10,000 award for doctoral research students. It is named to honor Dr. E.L. Quarantelli, a pioneering scholar in disaster research and emergency management. In addition to this special award, scholarships will also be awarded to full-time undergraduate students, as well as full- and part-time graduate students.

The IAEM Scholarship Program 2025 **application period will close at 11:59:59 p.m. EDT, May 30, 2025**. Applications are being accepted in the online application portal. The IAEM Scholarship Program supports the future of emergency management by providing scholarships through a competitive process to students working towards degrees in emergency management, disaster management, or a closely related field of study. Since its inception, the program has provided $195,250 in scholarships to 82 students.

How To Apply

The application portal streamlines the application process for students and reviewers.
■ Applicants use their login and password to access the system; non-members who have not used the IAEM system will register at no cost.
■ A short survey (application) must be completed providing information on the student's program of study.
■ Required documentation, including required essays, must be uploaded.
■ The application and documentation should be handled in two parts. Documentation can be added as it is acquired, or essays are completed. Add documentation to the scholarship application via the Dashboard on the IAEM website (you must be logged in).

Application Tools

The Scholarship Commission noted that submitting an incomplete application is the most common mistake. To avoid this error, the commission created tools to help.

Get to Know Your IAEM Leadership
IAEM-USA Region 4 President

Drew Pearson, CEM, Director, Dare County Emergency Management, North Carolina

In an effort to introduce the IAEM leadership to members and recognize their hard work for the organization, the IAEM Bulletin will be providing profiles on the current IAEM leadership throughout the year. A heartfelt thanks to our volunteers whose hard work makes IAEM successful.

Drew currently resides in Manteo, North Carolina, and has been an IAEM member for 18 years. You can connect with Drew on LinkedIn or email him at USARegion4President@iaem.com.

■ **Biographical sketch:** I serve a coastal community of 40,000 year-round residents on the North Carolina Outer Banks. Our community grows to 300,000 each summer as we welcome visitors to our beautiful beaches. Prior to joining Dare County in 2014, I was a Coast Guard officer for 30 years retiring as a Captain. While in the Coast Guard I was an aviator and incident management professional retiring as the Commander of Sector San Juan Puerto Rico.

I joined IAEM and earned my CEM in 2006. I've participated in the Uniformed Service Caucus, the Awards & Recognition Committee, Disaster Cost Recovery & Finance Caucus, Government Affairs Committee, and the State EM Association Ad Hoc Committee. I'm also a member of the North Carolina Emergency Management Association serving as the chair of the Legislative Committee. Since 2022 I've been a member of the FEMA Region 4 Regional Advisory Council providing the regional Administrator advice on emergency management issues.

As a local emergency manager with a small staff, I truly understand the immeasurable value of partnerships and professional associations like IAEM. Partnerships help us to overcome challenges as we work to keep those we serve safe and helping them when they need it most. Professional associations allow us to share and learn best practices while creating and building opportunities to collaborate that grow our personal and professional networks while advancing our chosen profession.

I'm most proud of the career experience I've had that helped someone in peril, someone needing hope, or someone that just needed reassurance that things would get better.

■ **What are you hoping to get out of being a part of the IAEM leadership team?**: My hope is not to get anything out of being part of the leadership team but rather to use my experiences and perspectives to help achieve our collective mission of advancing our chosen profession and serving our members. ◆

Drew Pearson, CEM, IAEM-USA Region 4 president

IAEM Scholarship Program

■ **Application Instructions** – Download and thoroughly review the instructions to determine eligibility, required documentation, formats, and how to submit.

■ **Application Checklists** – The checklists are available on the application web page, and include the essay topics for specific scholarship application types and list all required documentation.

Special E.L. Quarantelli $10,000 Scholarship Application

To apply for the special E.L. Quarantelli Scholarship, doctoral research students should fully complete the Graduate Student application and indicate on the application survey that they want to be considered for the special award. In addition, the student should submit one additional essay. The topic is on the special E.L. Quarantelli Scholarship Checklist.

Questions

There is an online Frequently Asked Questions page that may solve many issues for applicants. Questions about the program or the application may be directed to Scholarship Program Director Dawn M. Shiley, CAE, at dawn@iaem.com.

The Scholarship Commission looks forward to celebrating this special year with our former awardees, commissioners who have served through the years, and our very special donors.

You can help the program support others for many years with a donation to help support the future of the emergency management profession. ◆

IAEM in Action

The IAEM Massachusetts Maritime Academy Student Chapter met with Massachusetts State Representative Steven Xiarhos on April 9.

April 2-3, 2025; Members of IAEM-USA Region 1 and the IAEM MMA Student Chapter represented the organization at the Massachusetts Maritime Academy Spring Career Fair. They connected with undergraduate and graduate students to share more about IAEM membership and ways to get involved to advance their careers.

Attendees from Emergency Management Day on Beacon Hill on April 9, 2025, hosted by IAEM-USA Region 1.

The IAEM Massachusetts Maritime Academy Student Chapter met with Massachusetts State Senator Dylan Fernandes on April 9.

IAEM in Action

L to R: IAEM's Deputy Executive Director Clay Tyeryar, CAE; IAEM-USA Second Vice President Todd DeVoe, CEM; and IAEM-USA Community and Member Engagement Committee Vice Chair Christa Lopez, CEM, gather for a group photo in the IAEM booth during the National Hurricane Conference in New Orleans, Louisiana, on April 16.

Jeffrey Trask, CEM, (left) met with Legislative Aide Juan Anderson-Burgos on April 9.

Jeffrey Trask, CEM (left) met with Massachusetts State Senator John C. Velis (center) to discuss the importance of emergency management on April 9.

On March 16-19, 2025, IAEM-USA Region 6 Vice President Azell Carter, CEM (left), and IAEM-USA Region 6 President Joe Leonard, CEM (right), represented the organization and IAEM-USA Region 6 at the 18th Annual Emergency Management Association of Texas (EMAT) Leadership Symposium in College Station, Texas. They engaged with attendees in meaningful conversations about membership and certification.

IAEM in Action

IAEM-USA First Vice President Josh Morton, CEM; IAEM Government Affairs Director Thad Huguley; CMEC Vice Chair Christian Cunnie; Kentucky member Drew Chandler, AEM; and North Carolina member Wike Graham, CEM, spoke with FEMA leadership and members of Congress in Washington, D.C., on March 26 and continued to stand firm for the emergency management community.

iAEM
International Association of Emergency Managers

IAEM News to Know

Certification

■ **Commissioners Are Needed for the Class of 2028**: Learn more about the requirements and begin your Certification Commissioner application here. For questions about the Certification Commission, please contact Terry Lightheart-Sadler, CEM, at terry@iaem.com.
- Contribute to the future of emergency management.
- Engage with top professionals.
- Enhance your leadership experience.
- Application Deadline: **June 1, 2025**.
- Term of Service: Jan. 1, 2026 – Dec. 31, 2028.

Conference News

■ **Last Chance to Be a Speaker at the IAEM Annual Conference**: The Call for Speakers for the EMvision Talks is now open until **May 9, 2025**. Learn all the requirements and how to submit your proposal in the Submission Guidance.

IAEM Plugged In

■ Secure your spot for the **IAEM 2025 Virtual Conference, happening May 9, 2025**:
- Access 15-plus engaging presentations from emergency management experts.
- Student member registration is free; Emerging professional members are eligible for a discount.
- Those in an emergency management role impacted by recent federal layoffs may request free access to this event.
- Registrants gain access to the sessions for the remainder of 2025.
- Earn credit toward AEM®/CEM® certification and recertification.
- Dual registration that includes the virtual and IAEM Annual Conference.

Gallop to Kentucky:

■ **Plan to join IAEM as we Gallop to Louisville—the 2025 IAEM Wellness Campaign**:
- Participants will enjoy a spirited community atmosphere through an IAEMconnect group, where weekly updates will be shared, and friendly competition encouraged among participants.
- Participation supports the IAEM Scholarship Program and helps IAEM provide funding to students earning degrees
- To streamline participation, staff is setting up a system through the Count.It app, ensuring accuracy and ease of use as the competition develops.
- The top three teams and the leading individuals will receive special recognition, plus every participant will receive a commemorative challenge coin.
- More details as well as registration procedures will be made available soon.

Regional Events

■ **Several IAEM-USA regions are hosting events in the near future**:
- **IAEM-USA Region 2** will host their regional conference "Wicked Problems in Emergency Management" **July 23-25**, at Paul Smith's College in Paul Smith, New York.
- **IAEM-USA Region 7** will host their regional conference on **July 23-24**, at Johnson County Community College in Overland Park, Kansas.
- **IAEM-USA Region 9** will host their regional conference "Adaptation and Innovation: Shaping the Future of Emergency Management in Region 9," on Aug. 12-13, at the Japanese Cultural Center of Hawaii, in Honolulu, Hawaii. ◆

2025 IAEM–USA Region 9 Symposium

Symposium Dates
12-13 August 2025

Early bird <u>registration</u>
Deadline: 13 June 2025

<u>Certification</u> **Exam Available**
14 August 2025 (1- 3:30 pm)

Japanese Cultural Center of Hawaiʻi
2454 South Beretania Street
Honolulu, HI 96826

Join us for the IAEM-USA
Region 9 2025 symposium
in Honolulu, HI

IAEM-USA Region 9 Symposium
2025 Sponsorship/Exhibit
Submission Form

https://forms.office.com/r/RtTkZ76JyB

https://www.iaem.org/Events/IAEM-USA-Region-9-Symposium-2025-registration

General Focus Articles:

Contribute to the IAEM Member Calendar

IAEM members stay connected through their participation in the IAEMconnect Community. The community includes a robust calendar to keep members informed of events, IAEM meetings (committees, caucuses, commissions, Boards), webinars, exhibits, upcoming deadlines important to emergency managers, and more.

Submit an Article for the IAEM Bulletin

The IAEM Editorial Committee is currently accepting submissions for future editions of the IAEM Bulletin. Refer to the Author Guidelines for tips and techniques for successfully submitting your article for publication.

The primary focus of the IAEM Bulletin is local. We are looking for articles that provide information and insights useful to other practitioners, in government and private sectors, who are educated and trained professionals. Appropriate topics include: new research results, unique applications, successful programs, real experiences with disasters and/or exercises, reviews of new publications, and viewpoints on important issues facing emergency management. Refer to the Author Guidelines for tips and techniques for successfully submitting your article for publication.

- **Article Format:** Word or text format (not PDF).
- **Word length:** 750 to 1,500 words.
- **Photos/graphics:** Image format (png, jpg).
- **Email article, photos, and graphics to:** John Osborne.

GET CERTIFIED IN 2025!

Ready to take your skills to the next level?
The 2025 Credential Review dates are now available on the IAEM website.

Access and Functional Needs during Evacuation; Public Alerts and Warnings

By Ian Thigpen, Emergency Manager, Klamath County, Oregon

People with Access and Functional Needs (AFN), including people with disabilities, often fail to evacuate when a Public Alert and Warning (PAW) is published. The response community often assumes people with AFNs don't evacuate because they:
- undervalue the risk,
- are overly reliant on government rescue, or,
- lack the physical ability to act.

While these factors may play a role, the reality is more complex and nuanced.

Speed of Notification

Time is paramount. People with AFNs often take longer to understand PAWs, decide to evacuate, and prepare to evacuate. They also frequently require direct care support from a personal care assistant. Personal care assistants may be family members, contracted health services (e.g., hospice), or government services (e.g., developmental disability services). Personal care assistants often do not live with their family members/clients. However, people with direct care support needs may require a personal care assistant to assist them with evacuation. Consequently, time is of the essence. PAWs often take too long to produce and publish to address this need.

Many emergency management agencies have a policy that the first evacuation notification should be an IPAWS/PAW, despite taking five to 30-minutes per message. Oregon uses a three-level "Ready, Set, Go!" evacuation standard. If all three levels are used, "Level 1 - Be Ready,"

"Level 2 - Be Set," and "Level 3 - Go Now!" that would be up to an hour and a half for one set of message notifications. If those zones change, which they often do with rapidly evolving events such as wildfires, it could take several hours for notifications to get out. IPAWS/PAW first message policies are an arbitrary time delay, which wastes crucial evacuation time for people with AFNs.

Resources such as Genasys (formerly Zonehaven) can drastically improve evacuation notification times. In Klamath County, we use the pre-identified evacuation zones in Genasys to enhance communication between the ICS and EOC:
- ICS changes the Genasys Zones' status while on-scene from Normal to Ready, Set, or Go Now! with the click of a button (seconds to publish).
- EOC selects the relevant Genasys Zones from the preloaded polygons in the Mass Notification System (MNS) to geo-reference the PAW.

However, changing the evacuation status of Genasys zones also rapidly notifies the public via the Genasys App for smartphones. Therefore, ICS zone changes notify the public and the EOC concurrently. This improves notification time to Genasys App users by tens of minutes, if not hours, drastically improving survivability for key AFN populations.

Further, there is no incident-specific early warning system for wildfires (i.e., just Red Flag Warnings). Consequently, in Klamath County, we have given dispatch a delegation of authority to issue "Level 1—Get Ready" changes to Genasys evacuation zones with

defined activation criteria. This provides AFN populations with significantly more advanced warning.

Finally, we have added a registration option for personal care assistants in our Everbridge Mass Notification System. This ensures that these partners are notified of every evacuation notice published by Everbridge emergency notification within the county.

Accessible Messages

Evacuation messages must be accessible in format and distribution modality and include content regarding AFN considerations. Messages should include or refer to information regarding accessibility expectations. Messages may include information regarding road closure effects on paratransit or shelter ADA compliance. These more detailed pieces of information may not fit into Wireless Emergency Alerts (WEA) Short Message Service (SMS); however, they can be included in an HTML mass notification, website, social media page, press release, or press conference.

Research by Sutton and Kuligowski has found that the most effective format for Emergency Alerts and Warnings is: 1) source, 2) hazard, 3) risk, 4) description of the location, 5) action recommendation, 6) timeframe, then 7) additional information (Sutton & Kuligowski, 2019).

SMS Example: *Klamath County Sheriff. WILDFIRE! Sprague River. South of Rim Drive. West of Chelan Street. GO NOW Evacuation! Go to Sprague River Community Center.*

AFN During Evacuation

- Characters: 149 of 160.
- Reading Time: 5 Seconds.
- Flesch-Kincaid Grade Level: 5.19.

X (Twitter) Example: *From Klamath County Sheriff. WILDFIRE! Immediate Threat to Life. GO NOW Evacuation! Sprague River Community north of Rim Drive, south of Tableland Road, and west of Chelan Street. Go to Sprague River Community Center. For more call 1-800-000-0000.*

- Characters: 247 of 280.
- Reading Time: 9 Seconds.
- Flesch-Kincaid Grade Level: 5.16.

HTML Example: *From Klamath County Sheriff.*

WILDFIRE! Sprague River Community. Immediate threat to life and property. GO NOW Evacuation!

Evacuate North of Rim Drive, South of Tableland Road, East of Wheeler Street, and West of Chelan Street.

Use Drews Road or Oregon Pines Road.

Go to Sprague River Community Center.

ADA: No, Men's Restroom. An ADA portable toilet has been ordered.

For more, visit the Klamath County Emergency Management Website or call 1-800-000-0000.

- Characters: 459.
- Reading Time: 17 Seconds.
- Flesch-Kincaid Grade Level: 6.37.

When so few characters are available in SMS and X messages, emergency managers must use plain language. Plain language is also the standard for all accessible messages.

The recommended reading level for government documents is eighth grade or below (Hirsch, 2020). However, people who receive public alerts and warnings often have Limited English Proficiency (LEP). For example, American Sign Language (ASL) is not English, and ASL users learn to read English as a second language. Deaf ASL users typically read English at the sixth-grade level or below (McKee et al., 2015). Artificial intelligence programs, like Grammarly, can be of great assistance in shortening the message while lowering the grade level of the text.

Regarding "Ready, Set, Go!" levels, it is not easy to differentiate between Level 1 and Level 3; (i.e., this is not plain language). Individuals may wonder, "Is this a countdown to launch?" or "How many levels are there?" Further, the Green is "Level 1 – Be Ready," and the Red is "Level 3 – Go Now," which is the opposite of a stoplight. This approach requires training the public to understand a "Level 3 Evacuation," which demands time and money that local emergency managers may not have. Furthermore, when character count is critical, stating evacuation levels is excessive. In contrast, utilizing "Be Ready," "Be Set," and "Go Now" provides clear and helpful ways to communicate evacuation guidance.

Regarding language, migration from Mexico has drastically increased English illiteracy rates among residents in the southern border states, most notably in California, with 18% of the population having LEP (Haldar, Pillai, & Artiga, 2023). For language translation, 24/7 assistance can be provided by contractors like LanguageLine Solutions (which may apply to first responders, 9-1-1, etc., to include ASL video). However, many AFN service provider organizations have language translation capabilities, and including these organizations in

your notification strategy can significantly improve communication with LEP populations.

Evacuations

Rapidly identifying people with AFN is one of the most essential tasks emergency managers need to address. A legacy means to do this was to have a list of people with "special needs." Although this still exists in some places, the practice has rightfully faded. Instead, the aim has been rapidly acquiring addresses and sharing the list with service providers. A county or contracted GIS service can set up this capability.

In Klamath County, we use INTTERRA for wildfire coordination, which has address points available in the system. In an event, I open the INTTERRA map, which has our Genasys evacuation zones populated via live feed, and use the polygon of the evacuation zone to identify all the addresses under an evacuation. Getting the address list is as simple as drawing a polygon and printing a summary report in PDF format. It takes two minutes. I then send that report to Tribal partners, public health, disability services, the Center for Independent Living, paratransit, community corrections, and other key stakeholders. They scrub the addresses against their client list, and the service providers contact their clients directly.

The benefit of this approach is that the list never goes out of date, as the service providers constantly update their contacts. Also, this approach has a built-in call tree from trusted sources who understand the individual's needs. These partnerships require information-sharing agreements; however, physical addresses alone are not Personally Identifiable Information (PII). Partner organizations are not required

AFN During Evacuation

to share contact information or PII with emergency management. However, we ask for counts and ensure that the response enterprise supports transportation and services.

Paratransit services often have frequent clients in the area and may know individuals by name. Close relationships between paratransit services and incident responders are less frequent. Law enforcement may prevent paratransit from entering an evacuation zone or require an on-scene escort. Emergency management should expect to foster communication between paratransit and the incident command.

Sometimes, responders on-scene who are conducting evacuation screens and hasty searches come across people with AFNs. Alternatively, 9-1-1 gets a call for evacuation support. In these cases, the responders are often unaware or unskilled in patient movement or transportation. Regarding increasing situational awareness, some programs can help dispatch, law enforcement, and ambulance service providers better understand individuals' unique AFNs. Resources such as smartphone medical information (e.g., Apple Medical ID) and Smart911 can assist first responders by helping responders identify critical resources or dispatching a service provider with the necessary skills or capabilities.

It is also important to do exercises with first responders to practice evacuation assistance for people with disabilities (e.g., helicopter loading for a wheelchair user, evacuation from a multistory building, active shooter room clearing with people who are deaf or blind). These may reduce the need for external assistance in some situations.

Consider that people with disabilities may be a higher priority than others because they are less likely to be able to take care of themselves in austere environments. For example, during Hurricane Sandy, paratransit shut down at the beginning of the evacuation. Consequently, many wheelchair users sat in the rain for hours, watching accessible buses pass by too full to receive a wheelchair user. Many gave up and did not evacuate.

In some circumstances, people with AFNs may be hesitant to evacuate, either when receiving a PAW or when evacuation support is at the door. Sherman Gillums, Jr., director of FEMA's Office of Disability Integration and Coordination, has spoken at length about an "inequity threat" that can lead people with disabilities to choose not to evacuate (Gillums, 2023). An ingrained belief that people do not care about them has grown into a heuristic of distrust of others' interest in their equal access and opportunity. To address this issue, including comments that reorient distrust heuristics from sacrificial protest to public protest may be helpful. For example, "We encourage you to protest inaccessibility at the disaster shelter rather than in immediate danger at home." This tactic will be more effective during preparedness or targeted door-to-door evacuation canvasing rather than through mass messaging. However, local executives can craft a more subtle way of expressing this concept for a public audience in partnership with your Public Information Officer.

Conclusion

AFN barriers during PAWs and Evacuation can be two-sided. They can be a failure of the response or poor choices on the part of the person with AFNs. Both should be addressed for improvement during preparedness and resilience activities.

Visit https://www.thewarnroom.com/ for more information regarding the general structure of Public Alerts and Warnings.

The Flesch Kincaid Calculator used for this article can be found at https://charactercalculator.com/flesch-reading-ease/. ◆

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The Diffusion of Artificial Intelligence in Emergency Management: Adoption, Challenges, and Consequences

By Jason A. Block, CEM, Doctoral Student, Central Michigan University

Artificial intelligence (AI) is transforming emergency management by improving data-driven decision-making, enhancing early warning systems, and optimizing resource allocation. AI applications such as predictive analytics, machine learning, and real-time data processing are proving essential in hazard identification, damage assessment, and emergency response coordination (Haenlein & Kaplan, 2019). However, AI adoption also presents challenges, including data availability, ethical concerns, interoperability issues, and trust among emergency managers. This article explores the integration of AI into emergency management through the lens of Everett M. Rogers' Diffusion of Innovations framework. By examining the rate of adoption and the consequences of AI integration, this article highlights both the opportunities and risks of AI in disaster preparedness, response, and recovery.

The Growing Role of AI in Emergency Management

The increasing frequency and severity of disasters necessitate technological advancements that enhance emergency response capabilities. AI offers several benefits: predictive analytics improve early warning systems and evacuation planning, resource optimization ensures aid reaches affected areas efficiently, and AI-driven situational awareness enhances emergency response through satellite images, social media posts, and real-time sensor data (Sun, Bocchini, & Davison, 2020). AI has been successfully integrated into various emergency management applications, such as monitoring flash floods, predicting tsunami amplitudes, and analyzing global satellite imagery to assess flood risks (Nunavath & Goodwin, 2019). Despite these benefits, emergency managers remain cautious in fully embracing AI due to concerns over trust, data reliability, and ethical considerations.

Challenges in AI Adoption

While AI has proven its potential, its adoption is hindered by several challenges. Data availability and quality remain a key concern, as AI systems rely on vast amounts of information, yet incomplete or biased datasets can impact decision-making accuracy (Kuglitsch et al., 2022). The challenge of ensuring data is accurate and representative is crucial, as incorrect data can lead to misinformed decisions that may exacerbate disaster situations. Ethical concerns also arise, particularly regarding transparency and fairness, as algorithmic biases could disproportionately affect vulnerable communities (Visave, 2024). Additionally, AI must integrate with legacy emergency management systems to function effectively, yet interoperability remains a significant hurdle. Another barrier is stakeholder trust, as emergency managers may hesitate to rely on AI-generated recommendations due to the lack of clarity in AI decision-making. Without transparency in how AI derives its conclusions, decision-makers may struggle to confidently implement AI-driven insights. To address these challenges, interdisciplinary collaboration between AI developers, emergency managers, and policymakers is essential.

AI Adoption and the Diffusion of Innovations Framework

Everett Rogers' Diffusion of Innovations (2003) theory explains how new technologies spread through a social system. AI adoption in emergency management can be examined through five key attributes: relative advantage, compatibility, complexity, trialability, and observability.

Relative advantage refers to the extent to which an innovation is perceived as superior to the existing solution. AI enhances decision-making, improves efficiency, and reduces response times, making it a valuable tool for emergency management. For example, AI-powered triage systems in healthcare can help prioritize medical response efforts in disaster-stricken areas (Hanwacker, 2024). AI's ability to rapidly analyze large volumes of data provides emergency managers with insights that significantly improve disaster response and preparedness efforts.

Compatibility describes how well AI aligns with current emergency management practices. While AI holds great promise, its successful adoption depends on its ability to complement rather than disrupt traditional emergency management methods. AI-driven solutions must be integrated into existing workflows to gain acceptance among emergency management professionals. Many AI tools have already demonstrated compatibility by aiding in hazard identification, situational awareness, and resource allocation (Aladawi & Ahmad, 2023).

Complexity is another critical

Artificial Intelligence in Emergency Management

factor influencing AI adoption. The technical nature of AI creates a learning curve for emergency managers, requiring training and capacity-building efforts. As AI technology advances, emergency management professionals must be adequately trained to understand and trust AI-driven recommendations. Without proper training, the complexity of AI may hinder its widespread implementation and limit its effectiveness in disaster response scenarios.

Trialability refers to the extent to which AI technologies can be tested before full-scale adoption. Currently, AI is being piloted at various levels—federal, state, and local—to assess its effectiveness in real-world emergency management situations. While AI adoption is already prevalent at the federal level, many state and local agencies are still exploring AI applications through limited trials. For example, FEMA's AI-driven hazard mitigation planning tool is currently being tested to enhance risk assessment and disaster preparedness strategies (FEMA, 2024).

Observability is the degree to which the benefits of AI are visible to others. Demonstrating the tangible impact of AI in emergency management is essential for driving broader adoption. Successful AI applications in disaster management, such as predictive analytics for wildfire detection and flood monitoring, highlight the advantages AI can bring to the field. As more agencies witness the benefits of AI implementation, its adoption is likely to accelerate.

By analyzing AI adoption through Rogers' Diffusion of Innovations framework, emergency managers can better understand the factors influencing its implementation. Addressing compatibility, complexity,

and observability challenges will be crucial in ensuring that AI is effectively integrated into emergency management practices.

Consequences of AI Integration

The decision to adopt AI has both desirable and undesirable consequences. On the positive side, AI enhances disaster preparedness by providing early warnings, optimizing emergency response efforts through improved resource allocation, and expediting recovery through faster damage assessments (Abid et al., 2021). AI-powered tools can assess disaster zones using aerial imagery, allowing emergency managers to prioritize resources and deploy aid effectively. AI's predictive analytics also contribute to mitigating disaster impacts by identifying high-risk areas and recommending preventive measures. However, there are also risks associated with AI adoption. The potential for data bias in AI algorithms could reinforce existing inequalities in disaster response. If AI models are trained on incomplete or biased datasets, they may yield inaccurate recommendations, leading to disparities in aid distribution (Kuglitsch et al., 2022). Over-reliance on automation is another concern, as emergency managers must balance AI insights with human judgment. While AI can process vast amounts of data quickly, human oversight remains critical to ensuring that AI-generated recommendations align with real-world conditions. Ethical and privacy concerns arise due to AI's use of personal and geospatial data, requiring structured regulatory frameworks to mitigate risks. Ensuring data protection and transparency is essential to maintaining public trust in AI-driven emergency management solutions. Given these complexities, emergency managers must critically assess AI's role in disaster response and develop frameworks that ensure ethical

implementation while leveraging AI's capabilities to enhance disaster resilience.

Ethical and Regulatory Considerations

One of the most significant challenges associated with AI adoption is the lack of a comprehensive ethical and regulatory framework. While AI is widely embraced in business and academia, its adoption within government agencies at all levels has been slower (Visave, 2024). Key concerns surrounding full AI integration include the absence of regulatory guidelines, accountability issues, biases, data protection, and policy limitations. Ethical considerations play a crucial role in AI adoption, particularly in disaster management, where issues such as bias, accountability, data privacy, and transparency are paramount. Cross-sector collaboration and policy integration are essential to addressing these ethical challenges, ensuring that AI serves the public good rather than reinforcing systemic inequities.

Recommendations

To ensure the effective integration of AI in emergency management, several key recommendations should be considered. First, improving data quality and accessibility is crucial. AI models require high-quality, unbiased, and representative datasets to enhance predictive analytics and disaster response accuracy. Emergency management agencies should invest in data governance policies that prioritize data integrity and equitable access.

Second, enhancing AI training and education for emergency managers is essential. Since AI complex-

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ity presents a significant adoption barrier, training programs should be developed to increase AI literacy among emergency management professionals. AI-driven tools should be user-friendly and incorporate training modules that ensure emergency personnel can effectively interpret and act on AI-generated insights.

Third, ensuring AI ethical standards and regulatory frameworks should be a priority. Policymakers must establish comprehensive ethical guidelines for AI deployment in emergency management, addressing issues of bias, data privacy, accountability, and transparency. AI decisions must be explainable and subject to human oversight to prevent over-reliance on automation.

Fourth, fostering interdisciplinary collaboration and public-private partnerships can accelerate AI adoption and enhance emergency management capabilities. Governments, technology developers, researchers, and emergency responders should work together to align AI applications with real-world disaster response needs. These collaborations can also help bridge the gap between AI developers and emergency practitioners, ensuring AI tools are tailored for practical implementation.

Fifth, expanding AI pilot programs and trials at the local and state levels can facilitate smoother adoption. While AI has been successfully implemented at the federal level, state and local agencies require structured pilot programs to assess AI effectiveness in their specific operational contexts. Results from these trials should be shared across emergency management networks to improve collective AI knowledge and adoption.

Lastly, promoting public trust and engagement in AI-driven disaster management solutions is critical. Since AI adoption in emergency response directly affects communities, transparent communication, and public engagement initiatives should be implemented. Educating the public on how AI supports disaster response can improve confidence in AI-driven decisions and mitigate concerns about privacy and ethical use.

Summary

The integration of artificial intelligence (AI) into emergency management has the potential to revolutionize disaster preparedness, response, and recovery by enhancing decision-making, early warning systems, and resource allocation. AI applications such as predictive analytics, machine learning, and real-time data processing offer significant advantages in identifying hazards, assessing damage, and coordinating emergency response efforts. However, despite its benefits, AI adoption faces multiple challenges, including issues related to data quality, ethical concerns, interoperability with existing systems, and the need for stakeholder trust.

AI adoption in emergency management can be understood through Everett Rogers' Diffusion of Innovations framework, which examines factors influencing the spread of new technologies. AI demonstrates relative advantages by improving efficiency and decision-making, yet its complexity requires significant training and adaptation efforts. While trialability and observability help drive AI adoption at various levels of government, integration remains hindered by concerns over compatibility with traditional emergency management systems. The consequences of AI adoption include both desirable and undesirable outcomes. On one hand, AI can enhance disaster preparedness, optimize resource distribution, and improve response coordination. On the other hand, challenges such as data bias, ethical dilemmas, over-reliance on automation, and privacy concerns must be carefully managed to ensure AI serves the public good.

To maximize AI's potential in emergency management, key recommendations include improving data quality, expanding AI training programs, establishing ethical standards and regulatory frameworks, fostering interdisciplinary collaboration, piloting AI programs at various levels, and engaging the public to build trust in AI-driven disaster management solutions. Moving forward, AI should be integrated responsibly and ethically to ensure its long-term benefits outweigh potential risks. Addressing these challenges proactively will allow AI to strengthen disaster resilience and improve emergency response effectiveness, ultimately enhancing public safety. AI presents a transformative opportunity for emergency management, enhancing preparedness, response, and recovery efforts. However, challenges related to data reliability, ethics, and stakeholder trust must be addressed for AI to reach its full potential. As AI continues to evolve, its responsible and ethical use will determine its long-term impact on disaster resilience and emergency response. Emergency management must prioritize thorough evaluation and responsible implementation to align with ethical standards and effectively support public safety objectives. ◆

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FEMA Under Review: A Call for Reform and Resilience

By Daniel Scott, M.A., CEM, Founder, Theory-N2-Practice

To meet the challenges of modern emergency management, we must break the cycle of repetition and embrace evidence-based, dynamic approaches that reflect the ever-changing disaster landscape.

On Jan. 26, 2025, President Donald Trump signed an executive order to establish the FEMA Review Council, a pivotal step toward restructuring and revitalizing the Federal Emergency Management Agency (FEMA). The council, co-chaired by the Secretaries of Homeland Security and Defense, will bring together up to 20 members to evaluate FEMA's performance and recommend critical reforms to bolster its efficacy, priorities, and competence.

This development comes amidst increasing scrutiny of FEMA's operations, fueled by critiques of its response to recent disasters and concerns over political bias and resource misallocation. The council's creation marks a defining moment for the agency, highlighting the urgent need for reforms to restore public trust and enhance disaster response capabilities.

The adage often attributed to Albert Einstein, "**doing the same thing over and over and expecting a different result**," carries profound implications for emergency management. The very nature of disasters—unpredictable, complex, and evolving—demands innovative thinking and adaptive strategies. Yet, reliance on outdated methods or an unwillingness to shift away from familiar practices can hinder progress, leaving communities vulnerable.

Disaster Response Under Fire

Recent events, such as the aftermath of Hurricane Helene in North Carolina, have revealed significant gaps in FEMA's disaster response framework. Delays in debris removal, prolonged displacement of residents, and operational inefficiencies have drawn sharp criticism, including remarks from President Trump: "**FEMA has really let us down. Let the country down**." These sentiments echo broader frustrations about the agency's ability to manage large-scale crises effectively.

Such critiques underline the need to comprehensively evaluate FEMA's response protocols, deployment strategies, and resource management. For FEMA to regain its footing, it must confront these issues head-on, leveraging the council's recommendations to implement meaningful change.

Addressing Political Bias and Mission Scope

The executive order also sheds light on allegations of political bias within FEMA, including claims that personnel were instructed to withhold assistance from individuals who supported President Trump's campaign. Furthermore, FEMA has faced criticism for diverting resources to initiatives beyond its core mission, such as allocating over $1 billion to support illegal immigrants.

Whether substantiated or not, these allegations erode and destroy public confidence in FEMA's impartiality and focus. Restoring trust requires the agency to reinforce its commitment to equitable, mission-driven service.

Proposed Actions:

■ **Internal Audits and Transparency**: Conduct comprehensive internal audits to address bias and resource mismanagement allegations.

■ **Reaffirm Core Mission**: Align all agency activities with FEMA's primary mandate of disaster prevention, mitigation, response, and recovery.

■ **Ethics Training**: Implement mandatory training to ensure all personnel adhere to principles of fairness and impartiality.

Rebuilding Public Trust and Operational Capacity

Acting FEMA head Cam Hamilton has sought to reassure staff and the public of the agency's essential role in national security and disaster response. However, restoring public trust will require more than reassurances—it will demand tangible improvements in FEMA's operational effectiveness and accountability.

Key Reform Areas:

■ **Efficiency in Disaster Response**:
● Streamline debris removal and housing assistance processes to reduce delays during recovery efforts.
● Utilize predictive analytics to anticipate resource needs and allocate personnel accordingly.

■ **Accountability Mechanisms**:
● Establish independent oversight through the FEMA Review Council to ensure decision-making and resource allocation transparency.
● Regularly publish performance metrics to demonstrate progress and areas for improvement.

FEMA Under Review

■ **Focus on Workforce Development**:

• Expand training programs to address emerging disaster trends, such as urban flooding and climate adaptation.

• Enhance recruitment efforts to bring in logistics, technology, and community recovery specialists.

The Path Forward: A Moment for Transformation

Establishing the FEMA Review Council represents a critical opportunity to reshape FEMA's future. By confronting its shortcomings and embracing reform, FEMA can emerge as a stronger, more resilient agency equipped to meet the growing demands of disaster management.

For FEMA to succeed, it must adopt a forward-thinking approach that prioritizes preparedness, efficiency, and accountability. This includes leveraging data-driven strategies, fostering collaboration across federal and state agencies, and ensuring that every action reflects its mission to protect and support communities in crisis.

Conclusion

As disasters increase in frequency and intensity, FEMA's role as the nation's emergency management cornerstone has never been more vital. However, recent critiques have exposed vulnerabilities that must be addressed to restore public confidence and enhance the agency's effectiveness. Creating the FEMA Review Council is a step in the right direction, signaling a commitment to reform and accountability.

Ultimately, FEMA's success will depend on its ability to learn from past missteps, prioritize its mission, and adapt to an evolving disaster landscape. By embracing these changes, FEMA can reaffirm its place as a trusted leader in safeguarding the nation against crises and ensuring resilient, prepared communities. ◆

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EM Calendar

April 25	IAEM Webinar— Champions of Change: Empowering Career Transitions with Confidence
April 29-May 2	2025 Preparedness Summit Henry B. Gonzalez Convention Center San Antonio, Texas
May 9	IAEM Plugged In; The IAEM-USA Virtual Conference
May 27-30	Texas Emergency Management Conference Fort Worth Convention Center Fort Worth, Texas
July 23-24	2025 Specialized Analytic Seminar Series: Privacy, Civil Rights, and Civil Liberties U.S. DHS Office of Intelligence and Analysis (I&A) State, Local, Tribal, and Territorial Engagement Kansas City, Missouri

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