## Editorial

# Artificial Intelligence Assisted Decision-Making in Current and Future Complex Humanitarian Emergencies*

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The 2024 Emergency Watchlist Report highlighting the International Rescue Committee's (IRC) assessment of the 20 countries at greatest risk of new humanitarian emergencies is critical for all in the greater humanitarian response community.[1] It addresses where emergency efforts are best focused now and in the future. The data, gained from a rigorous analytical process, utilized quantitative and qualitative variables from more than 50 countries. The report has assisted IRC and others in the broader humanitarian community "to determine where to focus emergency preparedness efforts, and what can be done to reduce the impact on affected communities." Furthermore. the report confers that the number of people in humanitarian need increased fourfold between 2023 and 2024, with their lives often in extreme danger, and high levels of insecurity and poverty in eight of the top 10 African countries. A new and significant concern for many in the broader humanitarian community is the rising threat of both pandemics as well as major climate change risks.

Since the 2020 outbreak of COVID-19, posing new threats and difficulties globally[2], the humanitarian agencies and their deployed humanitarian teams have faced "unparalleled challenges" in fragile and conflict-ridden states. This confirms the differences between disasters and pandemics. The former impacts isolated areas or countries and the response is directed locally. In contrast, pandemic impacts are global, necessitating a global approach.[3] The United Nations Educational, Scientific and Cultural Organization (UNESCO) published 2 reports highlighting the increasing risk humanitarian workers face, first due to perceptions of being carriers of COVID-19 and secondly, the increase in "sophisticated disinformation tactics in fragile and conflict-ridden states" that negatively impact their strategic and operational efforts and team security.[4,5] These issues have led to research efforts that attempt to better understand and manage the new "virtual space that surrounds humanitarian operations" in which NGOs face "real threats for future humanitarian operations." These include training on: "understanding the operational environment, communications technology and its impact on humanitarian programs, and using communications technology for security risk management."[6] Many of these needs were never considered requirements for humanitarian workers until the COVID-19 and other pandemic risks emerged, requiring new and innovative training programs. Content from just 1 example includes: "both government and rebel groups denying NGOs access to populations in need, corrupt officials or warlords demanding payoffs, and local violence threatening the safety and even the lives of field personnel."[6] Such training needs were never considered critical until post-COVID-19, other epidemic and pandemic risks, and climate change catastrophes became a daily reminder.[7,8,9]

The composition of humanitarian response teams deployed to climate change and pandemic crises has not been adequately addressed. Admitting that the COVID-19 pandemic was a crisis unlike any other in recent times, one of the earliest to address this challenge chose "five leadership practices that can respond effectively" and help pandemic management and recovery.[10] Leadership qualities include the promotion of rapid problem solving and execution under high stress, chaotic conditions, leaders must organize a multidisciplinary network of teams, united by a common collaborative purpose that includes an "integrated 'nerve center'" that focuses on "workforce protection, supply-chain stabilization, customer engagement, and financial stress testing." Secondly, the teams must be prepared to temporarily shift some responsibilities from the command-and-control element to a network of teams. They emphasize both leadership characteristics as well as the ability to unify teams. Additionally, making decisions amid uncertainty and the ability to wait for a decision until a full set of facts emerge is crucial as is demonstrating sincere empathy as leaders.[11] Equally crucial is the recognition that the disaster response community increasingly agrees that future crisis management must be multidisciplinary, transdisciplinary, and cross-disciplinary in the decisions and choices made by professional responders. This is no easy task but no less a critical one.[12]

As authors of crisis management guidelines and researchers into the wide range of professional requirements facing both pandemics and climate crises, we join a myriad of researchers debating and readdressing the professional criteria and makeup for teams challenged by these humanitarian events.

Recent advances in artificial intelligence (AI) have led to generative models capable of accurate and detailed text-based responses to written prompts ("chats").[13] Recognizing the complexity of these decisions and the expected wide range of opinions, the decision was made to tap an existing AI network with the question: "How to make humanitarian organizations more cross-disciplinary, transdisciplinary, and interdisciplinary?"

The AI response, citing "the International Council for Science (ICSU) focusing on scientific collaboration for global challenges[14] and The American Association for the Advancement of Science (AAAS) with its Dialogue on Science, Ethics, and Religion (DoSER) program,"[15] recommended implementing strategies to foster a collaborative environment within humanitarian organizations. These strategies leverage the strengths of different disciplines to create more effective solutions for the communities they serve. It suggested structuring project teams with professionals from diverse backgrounds such as physicians, engineers, and social workers to tackle problems from multiple angles. Organizing workshops or training sessions where staff from different disciplines learn about each other's expertise, abilities, and limitations, and how it can be applied in humanitarian contexts was also emphasized.

The AI also recommended clearly defining project goals that require collaboration across disciplines to create a shared purpose that motivates cross-disciplinary interaction. Developing communication protocols to allow clear and efficient information exchange between disciplines—including joint meetings, shared reports, and training on interdisciplinary communication—was highlighted as crucial. Furthermore, incorporating the knowledge and perspectives of the communities being served can lead to more holistic solutions that address not just immediate needs but also root causes. Evaluating projects based on their overall impact on the community, rather than just the success of individual disciplines involved, encourages collaboration toward a common goal.

Additional tips included ensuring leadership actively promotes a collaborative culture and values diverse perspectives. Offering incentives for successful cross-disciplinary projects was suggested to encourage continued collaboration. Creating platforms for staff to share best practices and lessons learned across disciplines was also recommended. While the AI responses might seem to accurately reflect previous research agendas and recommendations, the AI summary might prove helpful to the numerous humanitarian and governmental players striving to organize, provide, and launch a workable structure to what are generally complex, multiagency, and multi-professional requirements and responses.

The following table (Table 1) summarizes the AI-generated strategies for enhancing interdisciplinary collaboration in humanitarian organizations:

**Table 1.** AI-generated strategies for enhancing interdisciplinary collaboration in humanitarian organizations

| Strategies | Actions |
|---|---|
| **Foster a collaborative culture** | **Encourage Open Communication:** Promote open communication and knowledge sharing through workshops, seminars, and meetings. |
| | **Interdisciplinary Teams:** Form teams from diverse disciplines for enhanced problem-solving and innovation. |
| **Establish clear goals and objectives** | **Unified Mission:** Define and communicate the organization's mission and objectives clearly to all members. |
| | **Integrated Planning:** Develop plans that outline roles and contributions of various disciplines toward organizational goals. |
| **Enhance training and education** | **Cross-Training Programs:** Implement training programs to provide staff with knowledge from other disciplines. |
| | **Continuous Learning:** Encourage professional development through courses, certifications, and workshops on interdisciplinary approaches. |
| **Leverage technology and data** | **Interdisciplinary Tools:** Use tools and platforms that facilitate collaboration and data sharing among disciplines. |
| | **Data Integration:** Combine data from various disciplines for a comprehensive view of humanitarian issues. |
| **Promote research and innovation** | **Interdisciplinary Research Projects:** Fund research projects involving multiple disciplines. |
| | **Innovation Labs:** Establish labs for interdisciplinary teams to develop and test new ideas. |
| **Build strategic partnerships** | **Collaborative Networks:** Build networks with academic institutions, NGOs, government agencies, and private sector organizations. |
| | **Joint Initiatives:** Launch programs with partner organizations that require interdisciplinary collaboration. |
| **Implement interdisciplinary frameworks** | **Holistic Approaches:** Adopt systems-based approaches considering interconnections between sectors such as health, education, and socioeconomic development. |
| | **Integrated Assessments:** Use tools that combine insights from various disciplines to evaluate needs and impacts. |
| **Encourage leadership and governance support** | **Supportive Leadership:** Ensure leaders support and participate in interdisciplinary collaboration. |
| | **Inclusive Governance:** Create governance structures with representatives from different disciplines in decision-making. |
| **Facilitate community engagement** | **Participatory Approaches:** Engage communities using approaches that value local knowledge and expertise from various fields. |
| | **Multidisciplinary Stakeholder Involvement:** Involve stakeholders from different sectors in planning and implementation. |

Importantly, the potential for AI to enhance expertise in the face of rising climate and pandemic threats worldwide cannot be overstated. By enabling precise assessments and rapid deployment of specialized teams to developing world crises, AI offers a transformative tool in improving response effectiveness.[16] This integration of AI can significantly bolster the capacity of humanitarian efforts, ensuring that the right expertise is available where it is most needed, thus mitigating the impact of these global threats.

The intersection of advanced AI capabilities with humanitarian response strategies presents a unique opportunity to address the complex and multifaceted challenges posed by climate change and pandemics. By fostering cross-disciplinary collaboration and leveraging AI for precise assessments and rapid deployments, we can create a more resilient and responsive humanitarian infrastructure. This proactive approach not only enhances our ability to manage current crises but also prepares us for future emergencies, ensuring that vulnerable communities worldwide receive the timely and effective assistance they need.[17,18]

While AI responses can provide valuable insights and innovative strategies, it is important to recognize that these responses may vary greatly depending on the specific model used and the timing of the inquiry, which can lead to inconsistencies. This variability underscores the necessity of thorough verification to ensure accuracy, as AI-generated information can sometimes be distorted or lack proper references. Consistent verification and cautious use of AI, particularly in generating new content, are essential to mitigate these potential issues and ensure the reliability of AI-assisted decision-making in humanitarian efforts.

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