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AI and the Politics of Humanitarian Prediction

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Artificial intelligence is reshaping humanitarian action by enabling organisations to anticipate crises, forecast displacement, and allocate resources before emergencies escalate. Yet, as humanitarian responses become increasingly driven by predictive algorithms, fundamental questions arise over who defines vulnerability, how priorities are set, and who governs the technologies shaping life-saving decisions. This Policy Outlook examines how AI is transforming not only humanitarian operations but also the governance of humanitarian action itself.

Executive Summary

Artificial intelligence is transforming how humanitarian organisations assess crises, anticipate forced displacement and allocate scarce resources. Machine-learning models increasingly draw on conflict indicators, climate data, economic conditions, food prices and historical mobility patterns to forecast refugee movements. At the same time, AI-enabled communication systems are being deployed to facilitate interaction between displaced populations and humanitarian institutions.

These technologies could help shift humanitarian action from a predominantly reactive system towards a more anticipatory model in which preparations begin before needs reach their most acute stage. Nevertheless, artificial intelligence should not be understood as a neutral technical instrument that allows organisations to process information more efficiently. Predictive models can influence which crises become visible, which areas are categorised as high risk and which populations receive priority in the allocation of limited humanitarian resources. Similarly, chatbots and automated information platforms can endanger access to protection, asylum procedures and essential services when they produce inaccurate, incomplete or outdated information.

More fundamentally, the growing adoption of artificial intelligence signals a shift in humanitarian governance itself. Humanitarian organisations are moving beyond responding to crises after they unfold towards managing risk before it materialises. This transition raises important questions about who defines vulnerability, how algorithmic priorities shape humanitarian agendas, and whether predictive systems reinforce or challenge existing inequalities within the international humanitarian system.

The central question is therefore not whether artificial intelligence should be used in humanitarian action, but **for which purposes, based on which data, under whose supervision and through what accountability mechanisms.** Technological efficiency must not displace the humanitarian principles of protection, impartiality, humanity and do no harm.

From Reactive Response to Anticipatory Humanitarian Action

The conventional humanitarian system remains largely reactive. Conflict intensifies, people cross borders, temporary settlements emerge and only then do international appeals for funding, personnel and humanitarian supplies begin. As a result, resources frequently arrive after needs have already escalated, while health, education, water and shelter systems in host communities can become overwhelmed within a relatively short period.

Anticipatory humanitarian action seeks to reverse this sequence. By analysing historical and real-time data, predictive models attempt to estimate the likelihood, scale and humanitarian consequences of an emerging crisis, enabling funding and preparedness measures to be activated at an earlier stage. The **United Nations Office for the Coordination of Humanitarian Affairs' Centre for Humanitarian Data** argues that predictive analytics can create a window for intervention before humanitarian needs fully materialise, potentially producing faster, more dignified and more cost-effective responses.

This shift is particularly consequential in the context of forced displacement. Refugee movements are not determined solely by the immediate intensity of armed conflict. Food prices, unemployment, drought, the collapse of essential infrastructure, transportation networks, border policies and the language used to discuss crises online can all shape decisions to move. The promise of artificial intelligence lies in its ability to combine these diverse signals more rapidly and at a scale that would be difficult for human analysts to replicate independently.

However, forecasting displacement is fundamentally more complex than predicting the movement of an abstract population. It involves anticipating decisions made by individuals and families operating under conditions of violence, uncertainty and limited information. The use of artificial intelligence in this field must therefore recognise that mobility is not merely a statistical outcome, but a survival strategy shaped by political decisions, personal networks and rapidly changing conditions on the ground.

Forecasting Refugee Arrivals Months in Advance

One of the most prominent initiatives in this field is the AI-supported refugee forecasting model developed by the **World Bank** for Uganda. The model analyses more than 90 variables, including conflict dynamics, economic developments, climate conditions, food prices, news reporting and social media language, to anticipate refugee arrivals from South Sudan and the Democratic Republic of the Congo four to six months in advance.

The model was tested using daily refugee-arrival data collected by the **United Nations High Commissioner for Refugees** between 2014 and 2023. Its significance, however, extends beyond its capacity to estimate future arrivals. The forecasts are connected to the World Bank's displacement crisis response mechanism in Uganda. Where projected refugee arrivals are expected to place

significant pressure on public services in host regions, financing can be mobilised earlier to expand water infrastructure, strengthen health facilities and construct additional classrooms.

In this context, an AI-generated forecast becomes more than an analytical product. It becomes an input capable of triggering institutional action and influencing how resources are distributed. When forecasts are sufficiently reliable and are linked to pre-agreed financing mechanisms, humanitarian supplies can be pre-positioned, personnel can be deployed to critical areas and local service capacity can be reinforced before large numbers of displaced people arrive.

UNHCR is also testing predictive analytics across multiple crisis settings. Its initiatives include analysing internal and cross-border displacement in Somalia, modelling refugee return patterns in Ukraine and examining mixed-movement routes across East Africa, the Sahel and Latin America. AI is also being used in operational areas such as damage assessment, supply-chain optimisation, pharmaceutical stock management and the comparative analysis of national refugee legislation.

These applications demonstrate that artificial intelligence could improve humanitarian preparedness. More timely projections could enable humanitarian institutions and host governments to anticipate demand rather than respond only once systems begin to fail. This could improve protection outcomes for displaced people while also reducing pressure on host communities and mitigating tensions surrounding access to public services.

Yet incorporating prediction into funding decisions also creates new risks. Forecasts may acquire institutional authority even when they are based on incomplete data or rapidly deteriorating assumptions. A model that predicts limited displacement could delay financing and preparedness in a location that later experiences a sudden influx. Conversely, an overestimate could divert resources away from less visible but more severe crises.

From Chatbots to Digital Humanitarian Gateways

A second major area of AI deployment concerns communication between displaced populations and humanitarian organisations. Refugees and asylum seekers frequently require reliable information on registration, asylum procedures, healthcare, financial assistance, accommodation, education and resettlement. Yet call centres, email systems and field offices can struggle to respond to thousands of requests during large-scale emergencies.

Developed by UNHCR's Regional Bureau for Asia and the Pacific, **CareLine** is an AI-supported system designed to classify incoming requests, identify repeated inquiries and direct messages to the relevant operational units. The platform seeks to allow refugees to confirm that their requests have been received and to track their progress, while enabling staff to dedicate more time to individual cases rather than administrative categorisation. UNHCR emphasises that decisions affecting individuals continue to be made by human personnel.

The organisation is also developing AI-supported navigation tools for its country-level help platforms and a broader digital gateway through which refugees could access information on registration, financial assistance, appointments and case status. Such systems are intended to guide users towards appropriate services through simplified language, voice-based interfaces and low-data options designed to reduce digital barriers.

These tools could deliver considerable benefits in multilingual and large-scale humanitarian operations. They may reduce waiting times, improve consistency and make basic information available outside conventional working hours. They could also allow humanitarian staff to concentrate on cases requiring legal, protection-related or psychosocial expertise.

Nevertheless, an error produced by a humanitarian chatbot is not comparable to a routine customer-service failure. Incorrect information concerning a registration deadline, a non-existent distribution point, a border procedure or a supposed legal entitlement can prevent an individual from accessing protection or encourage them to follow an unsafe route. In high-risk environments, misinformation can produce direct and potentially irreversible consequences.

The growing reliance on generative AI introduces an additional concern. Large language models may produce information that appears authoritative while being factually incorrect. In a humanitarian context, confidence of expression can be particularly dangerous because users may not possess the institutional knowledge required to distinguish verified guidance from plausible fabrication.

When Prediction Becomes Power

The central challenge posed by artificial intelligence in humanitarian action is that it does not merely analyse an existing reality. It also determines which aspects of that reality become visible to decision-makers. When a model categorises an area as high risk, funding and personnel are more likely to be directed towards it. Regions classified as low risk, or populations that remain insufficiently represented in available data, may receive less attention and fewer resources.

Predictive systems should therefore be understood not simply as neutral humanitarian instruments, but as emerging infrastructures of governance. Even when algorithms do not explicitly determine who deserves assistance, they can shape which needs appear first on institutional dashboards and which crises are presented as most urgent.

This is particularly problematic in data-scarce environments. In conflict and disaster settings, the most vulnerable people are often those with the least access to telephones, internet connectivity, identification documents and formal registration systems. A model that assigns considerable weight to social media activity, mobile-phone data or online news may overrepresent digitally visible communities while underestimating the needs of rural populations, linguistic minorities and groups living in areas where communications infrastructure has collapsed.

The **International Committee of the Red Cross** has warned that systems trained on data not originally collected for humanitarian purposes may fail to capture context, cultural differences and lived experience. Incomplete or imbalanced datasets can make people who are excluded from digital and administrative systems effectively invisible to algorithmic analysis.

As a result, artificial intelligence may allocate attention not only according to humanitarian need, but also according to which crises have historically generated more data, stronger media coverage and greater donor engagement. Instead of correcting existing inequalities in the international humanitarian system, predictive technologies could reproduce them at greater speed and with an appearance of scientific objectivity.

This challenge is not limited to data quality. The categories through which models interpret displacement are themselves political. Concepts such as vulnerability, risk, irregularity and likelihood of movement are not self-evident. They are defined by institutions and encoded by system designers. The choice of variables, thresholds and outcomes can therefore embed particular assumptions about which forms of mobility deserve protection and which should be regarded as threats requiring management.

False Certainty in Rapidly Evolving Crises

Predictive models learn from previous patterns, yet humanitarian crises are frequently defined by events that disrupt precisely those patterns. A sudden border closure, the emergence of a new armed group, the collapse of a peace agreement, a mass-casualty attack or the destruction of transportation infrastructure can alter the scale and direction of displacement within days.

A technical assessment by the **OCHA Centre for Humanitarian Data** found that conflict-prediction models may perform poorly in forecasting the onset of new conflicts. It also noted that a predicted escalation in violence does not automatically provide a reliable indication of the resulting humanitarian consequences. The Centre therefore recommends that humanitarian organisations avoid relying on conflict models in isolation and instead combine predictive outputs with local data, human judgement, transparent evaluation and models specifically designed to measure humanitarian impacts.

Unless these limitations are openly communicated, predictive systems can generate a form of false certainty. Once a model produces a percentage, probability or risk score, decision-makers may perceive the output as more objective than the contextual assessments of local organisations and field staff. Algorithmic prediction can consequently shift from being a decision-support mechanism to becoming an authority that is difficult to challenge.

This phenomenon is often described as automation bias: the tendency to place excessive confidence in machine-generated outputs, particularly when the underlying methodology is complex or inaccessible. Adding a human reviewer does not automatically resolve this problem. Where staff members lack the time, authority or technical knowledge to question a model, human oversight may become largely symbolic.

A meaningful human-in-the-loop system must therefore give staff the capacity to reject or revise algorithmic recommendations. It must also ensure that local knowledge, community reporting and qualitative evidence can outweigh model outputs where circumstances on the ground have changed.

Privacy, Misinformation and Dual Use

Datasets concerning refugees and forcibly displaced people may contain highly sensitive information, including location, ethnicity, religion, health status, legal status, family relationships and movement routes. UNHCR has acknowledged that allowing AI systems to access internal organisational data could expose individuals to serious risks if information is leaked or improperly accessed. The organisation has also highlighted the possibility that generative AI systems may fabricate statistics, legal provisions, sources or other information.

More data does not necessarily produce better humanitarian action. Information collected for needs

assessment or protection purposes may be repurposed for surveillance, deportation, border enforcement or military operations when it is transferred to other institutions. A model predicting increased movement along a particular route could be used both to expand water and healthcare capacity and to deploy security forces to prevent people from reaching a border.

This dual-use character makes data sharing between humanitarian organisations and state security institutions particularly sensitive. The **ICRC** stresses that technologies are not neutral and that even AI systems developed for humanitarian objectives can carry political and dual-use implications. According to this approach, artificial intelligence should only be deployed where it provides a demonstrable benefit to affected populations. Where effective safeguards cannot be guaranteed, the appropriate decision may be not to use the technology at all.

The expansion of private-sector involvement creates an additional layer of concern. Humanitarian organisations may become dependent on proprietary models, cloud infrastructure and technical expertise controlled by commercial technology companies. Such dependence can limit transparency and make it difficult to determine how models were trained, how data are stored and whether information is used to improve commercial systems.

Beyond questions of transparency, this trend reflects a broader redistribution of authority within the humanitarian system. As predictive models, cloud infrastructure and foundation models become concentrated in a small number of commercial technology firms, humanitarian organisations risk becoming dependent not only on privately owned software but also on external actors that increasingly shape the analytical foundations of humanitarian decision-making. The governance of humanitarian AI therefore extends beyond ethical model design to encompass issues of technological sovereignty, institutional autonomy and accountability over critical digital infrastructure.

The humanitarian sector must therefore consider not only whether an AI application is effective, but also who owns the underlying infrastructure and who ultimately controls the data. Public-interest humanitarian objectives may not always align with commercial incentives.

Principles for Responsible Humanitarian AI

First, decisions affecting an individual's life, legal status, protection claim or access to essential services should not be fully automated. However, the presence of nominal human oversight is insufficient. Staff members must possess the authority, expertise and institutional support required to question, amend or reject an algorithmic output.

Second, every forecast should be presented alongside its data sources, confidence intervals, geographical limitations and most recent update. Model performance should not be reported solely through aggregate accuracy rates. It should also be evaluated separately across different groups, including women, children, persons with disabilities, rural communities and linguistic minorities.

Third, all AI-based platforms that provide information directly to refugees should contain a clear and accessible mechanism for escalation to a human staff member. Matters concerning legal status, border procedures, return, resettlement or immediate security risks should not be handled exclusively through automated responses.

Fourth, humanitarian organisations should establish explicit institutional barriers preventing data collected for assistance or protection purposes from being repurposed for border enforcement, surveillance, military operations or deportation. Data minimisation, encryption, purpose limitation and restricted retention periods should be incorporated into system design from the outset rather than treated as secondary compliance measures.

Fifth, predictive models should be subject to independent technical, ethical and human-rights assessment. OCHA's efforts to establish a catalogue and peer-review framework for predictive models represent a significant step towards greater transparency and reproducibility. Yet independent review must extend beyond model performance to include the social and political consequences of deployment.

Sixth, humanitarian organisations should preserve alternative decision-making channels. Funding mechanisms and early-action systems should not become entirely dependent on a single model or data provider. Predictions should be triangulated with field reports, community assessments and regional expertise.

Finally, refugees and refugee-led organisations should not be treated merely as end users of AI tools. They should participate in identifying the problems these systems are intended to address, selecting relevant data, developing test scenarios, evaluating outputs and designing complaint mechanisms. Even the most technically sophisticated model cannot reproduce local knowledge, relationships of trust and lived experience.

Conclusion

Artificial intelligence offers the humanitarian system new opportunities to act earlier, use resources more effectively and provide information to a far larger number of people. Uganda's refugee forecasting initiative, UNHCR's early-warning projects and communication platforms such as CareLine demonstrate that these possibilities are no longer theoretical.

Nevertheless, the success of artificial intelligence cannot be measured solely by how accurately it predicts the number of displaced people. The more important measure is whether it makes the most vulnerable populations more visible, better protected and more capable of exercising their rights.

A system that relies on distorted data, obscures its uncertainty or allows humanitarian information to be repurposed for security objectives may appear technically successful while failing in protection terms. Similarly, a chatbot that responds rapidly but provides inaccurate legal information cannot be regarded as an effective humanitarian innovation.

The objective should therefore not be to maximise the use of artificial intelligence in humanitarian operations. It should be to deploy AI only where it demonstrably serves humanitarian needs, strengthens rather than replaces human judgement and remains accountable to the people whose lives it affects.

Humanitarian organisations are entering an era of what might be described as algorithmic humanitarianism, in which prediction, prioritisation and resource allocation are increasingly mediated by data-driven systems. The challenge is not to resist this transformation but to ensure that algorithmic efficiency remains subordinate to humanitarian principles. Artificial intelligence should expand the capacity to protect vulnerable populations, not redefine vulnerability according to what is most easily measured.

The future of humanitarian action will depend not only on whether institutions can predict crises earlier, but also on whether they can govern the power created by prediction. Artificial intelligence may enable humanitarian organisations to see displacement sooner. It must not determine whose suffering is visible, whose needs are prioritised and whose movement is treated primarily as a security risk.