PREDICTIVE ANALYTICS IN HUMANITARIAN RESPONSE

THE CENTRE FOR HUMANITARIAN DATA

Although predictive analytics is not a new field, its application in humanitarian response has only just begun. The increasing availability of data from a variety of sources, together with advancements in statistics and machine learning, is generating a growing interest in using models to gain insight and trigger anticipatory action.

When it comes to modeling for humanitarian operations, the goal is to analyze current and historical data to predict an event or some characteristic of an event (the probability, severity, magnitude, or duration). Predicting an event involves anticipating a new shock such as a disaster, disease outbreak, or conflict outbreak. Predicting the characteristics of an event could include population movements, worsening food insecurity, or precursors to drought.

> "One of the biggest opportunities we have is to try to use data, and especially the tools of predictive analytics to get ahead, to be more anticipatory, to predict what is about to happen and to trigger the response earlier."
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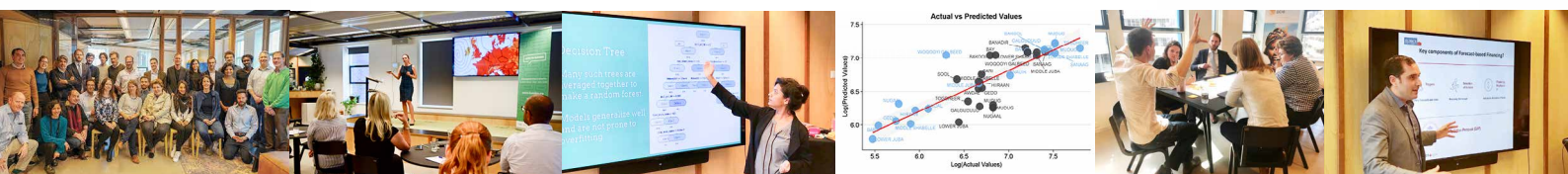> Mark Lowcock, Under-Secretary-General for Humanitarian Affairs

THE CENTRE'S FOCUS

The Centre initially explored aspects of predictive analytics through our 2018 and 2019 Data Fellows Programme. The Fellows developed pilot models (for Somalia and South Sudan) and frameworks for model governance. Based on requests from UN leadership and increased demand from partners, the Centre will now include predictive analytics as a core aspects of our work.

By creating an early signal of need that is tied to pre-agreed financing and actions, the response has the potential to be faster, cheaper and better, with more lives saved and protected.

We will focus on the following three areas:

1. Modelling	We will develop new models and support existing partner models for use in humanitarian operations.
2. Quality Assurance	We will offer a peer review process that brings together experts in the field to assess the ethical, technical, and humanitarian relevance of OCHA and partner models.
3. Community	We will build capacity and community by convening events, developing case studies, and offering training on predictive analytics.

PEER REVIEW FRAMEWORK

The Centre has established a draft Peer Review Framework for Predictive Analytics in Humanitarian Response. The goal of the peer review process is to create standards around the use of predictive models against three criteria: ethical, humanitarian relevance and technical.

1. The **ethical review** involves identifying all stakeholders and concerns related to how the model could be used. For instance, a model may need to be adjusted in a scenario in which a false negative is unacceptable for affected populations or a false positive is unacceptable for a donor.

2. The **humanitarian relevance review** will assess the actionability of the model output for the crisis context.

3. The **technical review** will assess the code and technical documentation of the model to identify and evaluate the theoretical foundations, data sources, parameters, analysis methods, limitations, and interpretations.

The Centre's Peer Review Framework is focused on predictive model development and outputs and will prioritize models being considered for informing humanitarian decision making. Through peer review, the Centre seeks to ensure models can be understood and trusted by all stakeholders including affected people.

If your organization is interested in working with the Centre to peer review your model, contact us at centrehumdata@un.org.

RELATED LINKS

- **OCHA USG Mark Lowcock Video Message on Predictive Analytics**

- **Predictive Analytics Workshop Recap Blog**

- **Predictive Analytics Workshop Report**

- **Predictive Analytics Workshop video**