

Disaster Message Classifier

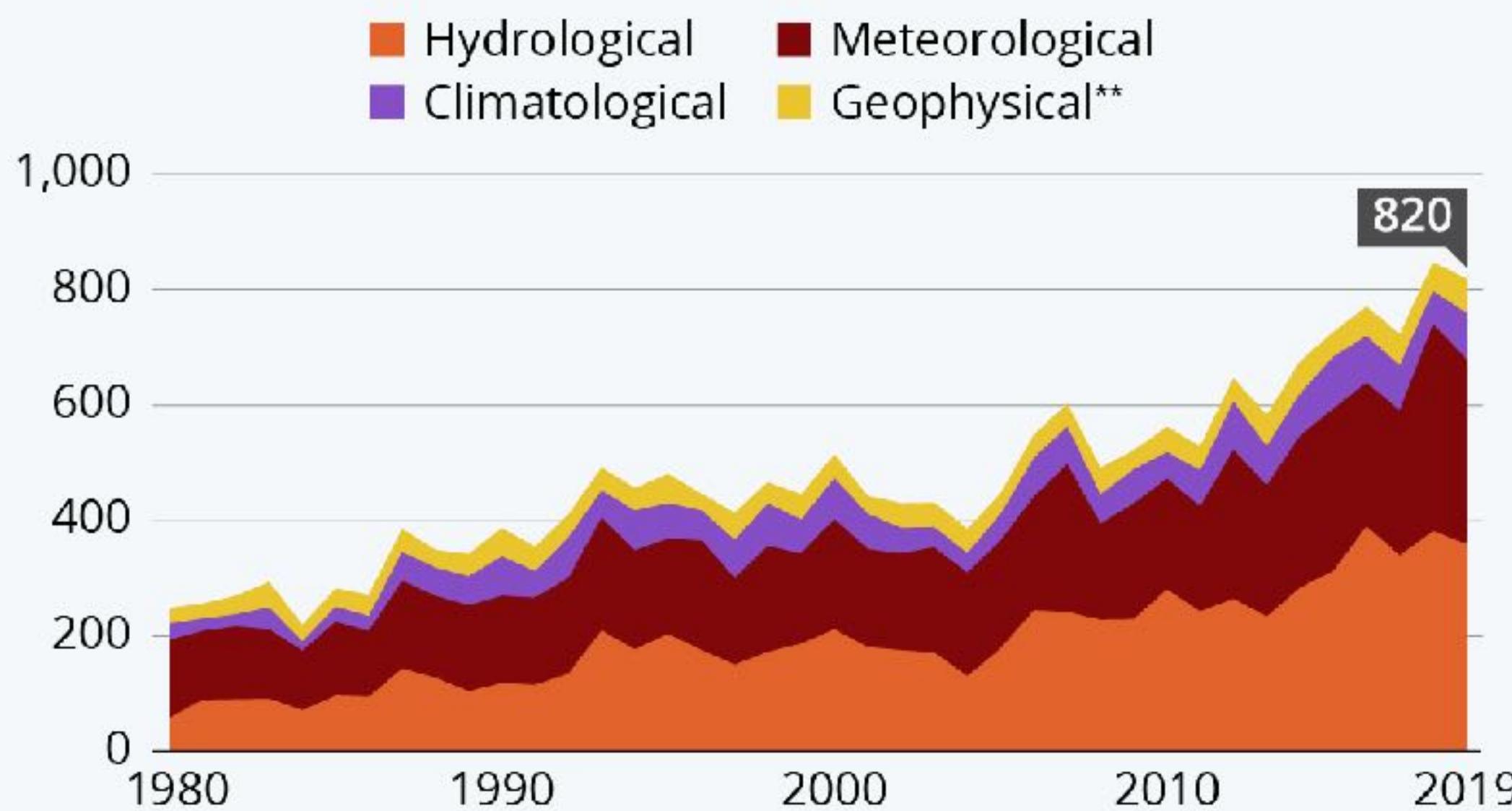
Improving access to critical information during crisis

Suelem Lee



Natural Disasters on the Rise Around the Globe

Number of natural disasters* by type of event (1980-2019)



* Registered as relevant loss events by MunichRe

** Vulcanic/tectonic activity

Source: MunichRe



statista

<https://www.statista.com/chart/22686/number-of-natural-disasters-globally/>

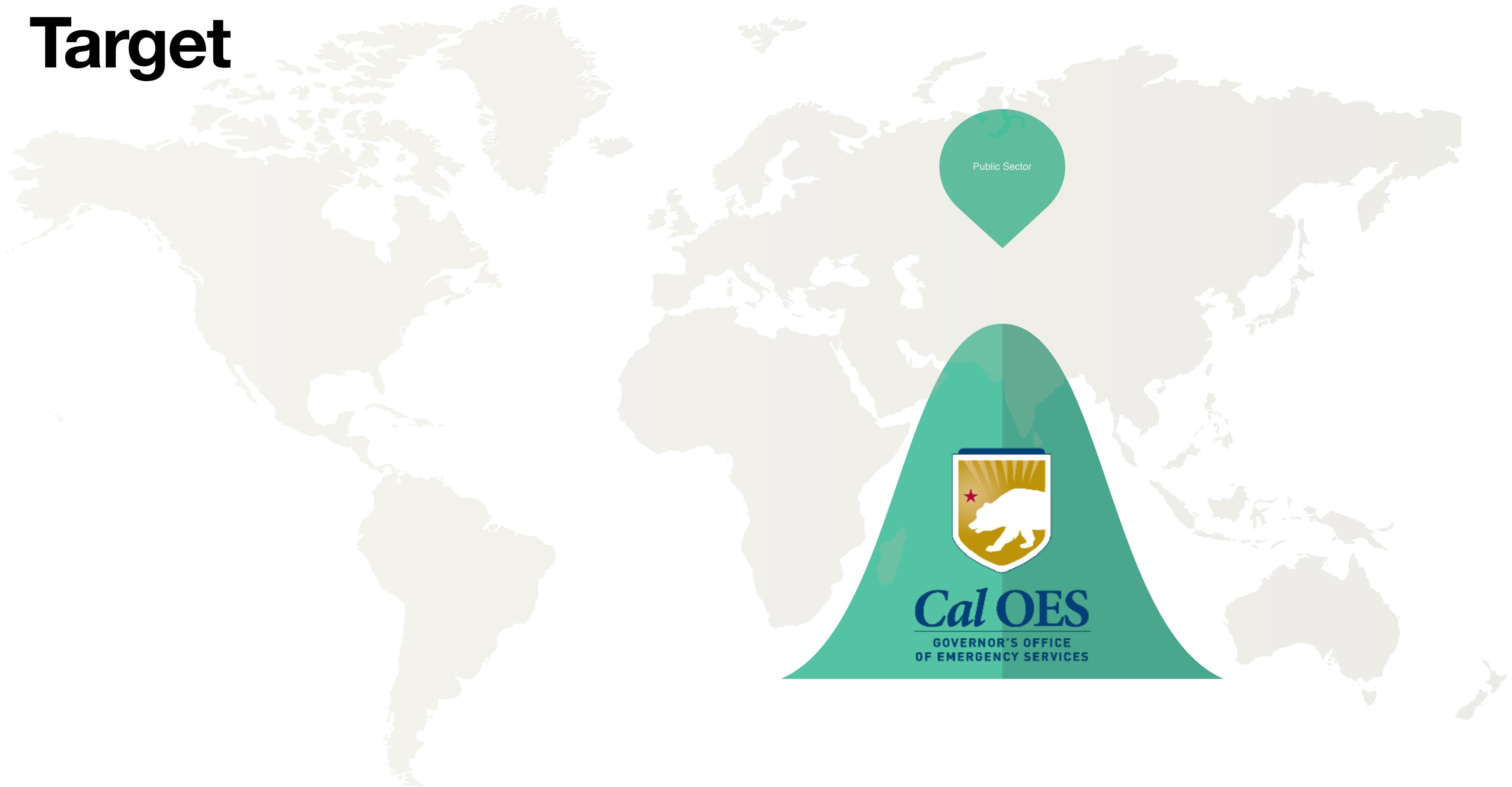
As much as you wouldn't like to believe it, “information is fragmented and hard to come by. A lot of the information was not reliable.”

CalOES NGO California Governors Office of Emergency Services.

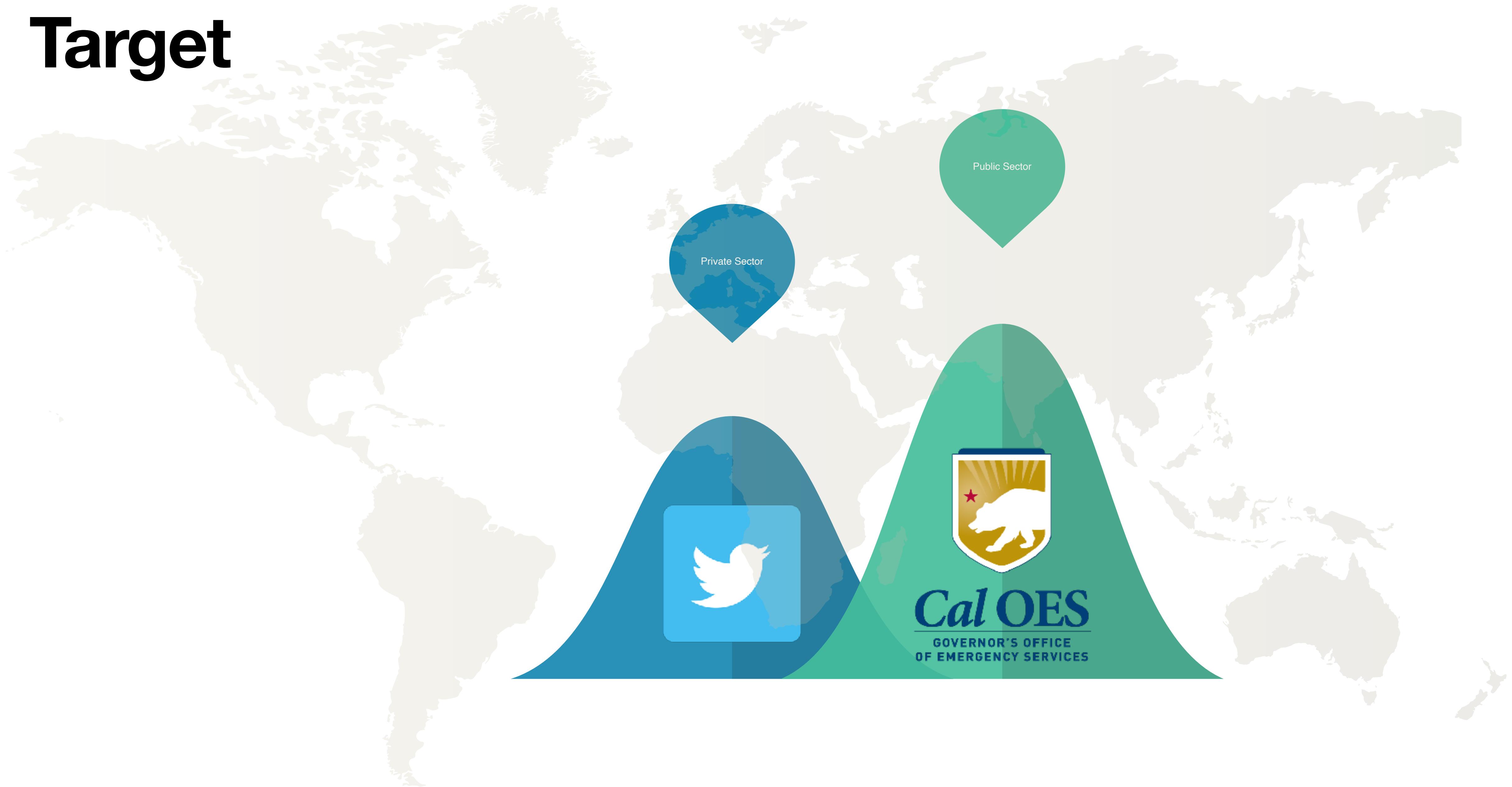
Problem statement

Can we classify Social Media disaster posts during times of crisis to help people make more informed and better decisions?

Target

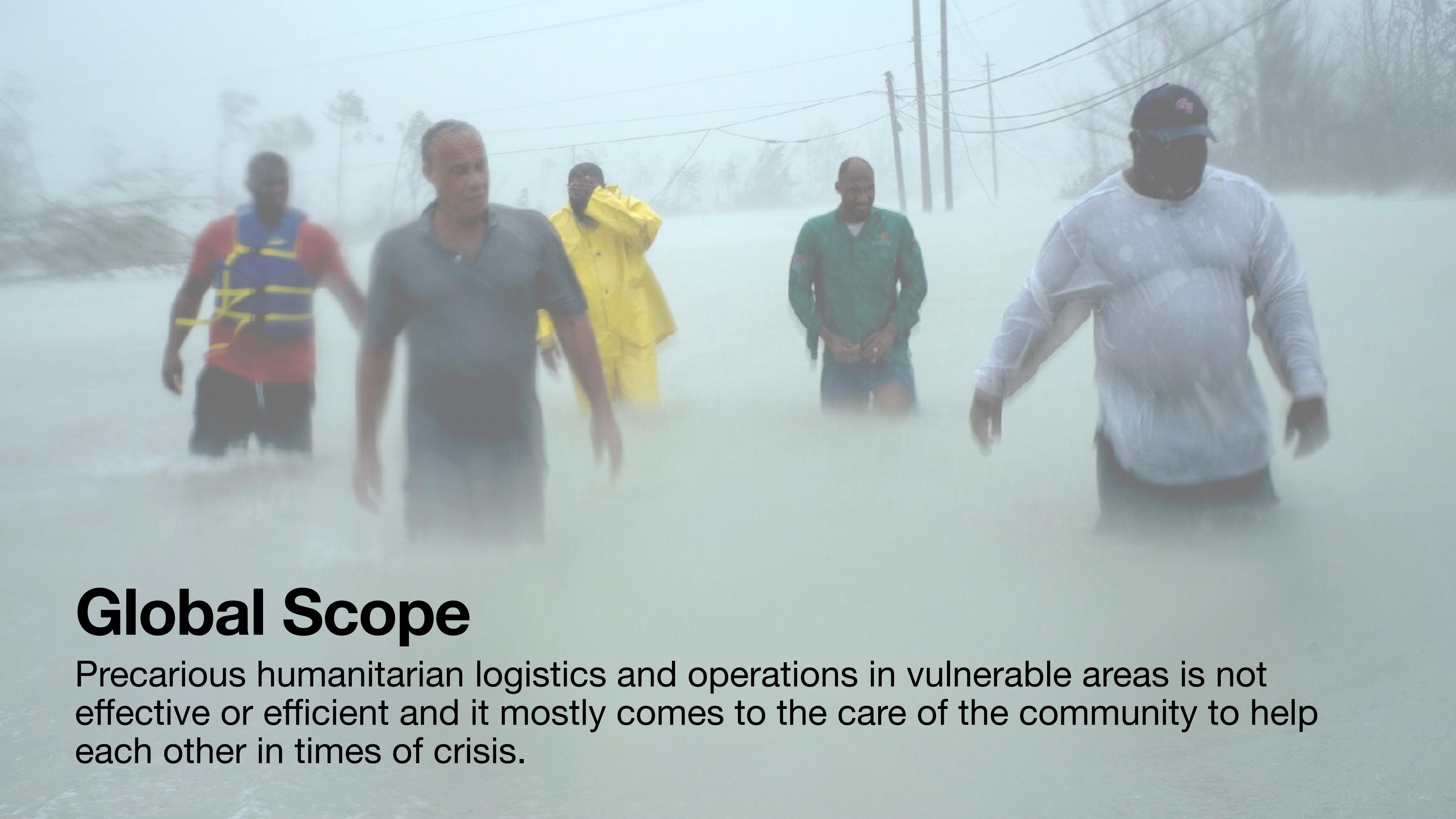


Target



Target



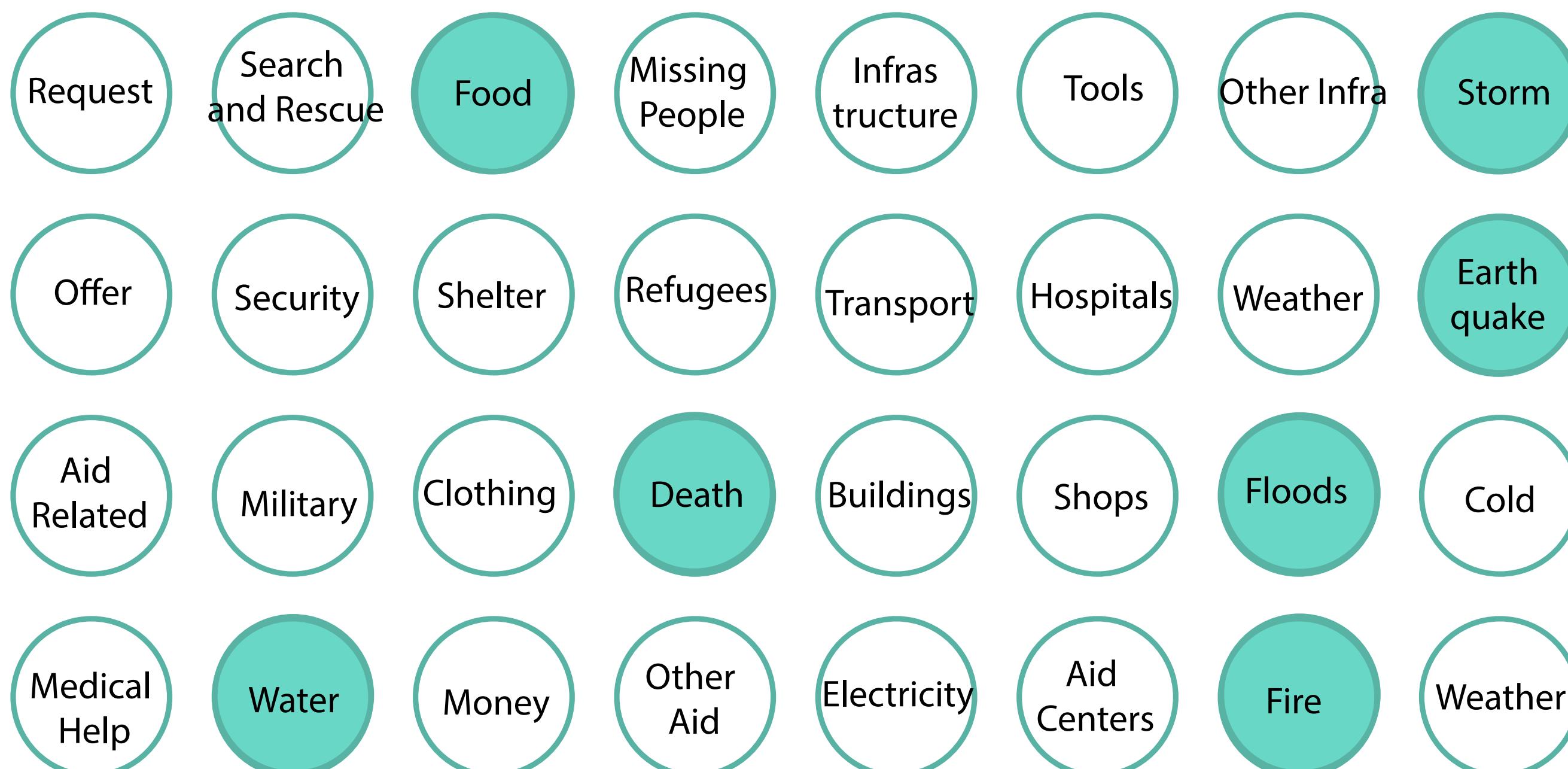


Global Scope

Precarious humanitarian logistics and operations in vulnerable areas is not effective or efficient and it mostly comes to the care of the community to help each other in times of crisis.

Data set

15000 messages
36 Target Variables



Preprocessing

brooklyn
@failurechild

Hurricane Sandy here is directions to my school...u know what to do

Reply Retweet Favorite

48 RETWEETS 21 FAVORITES

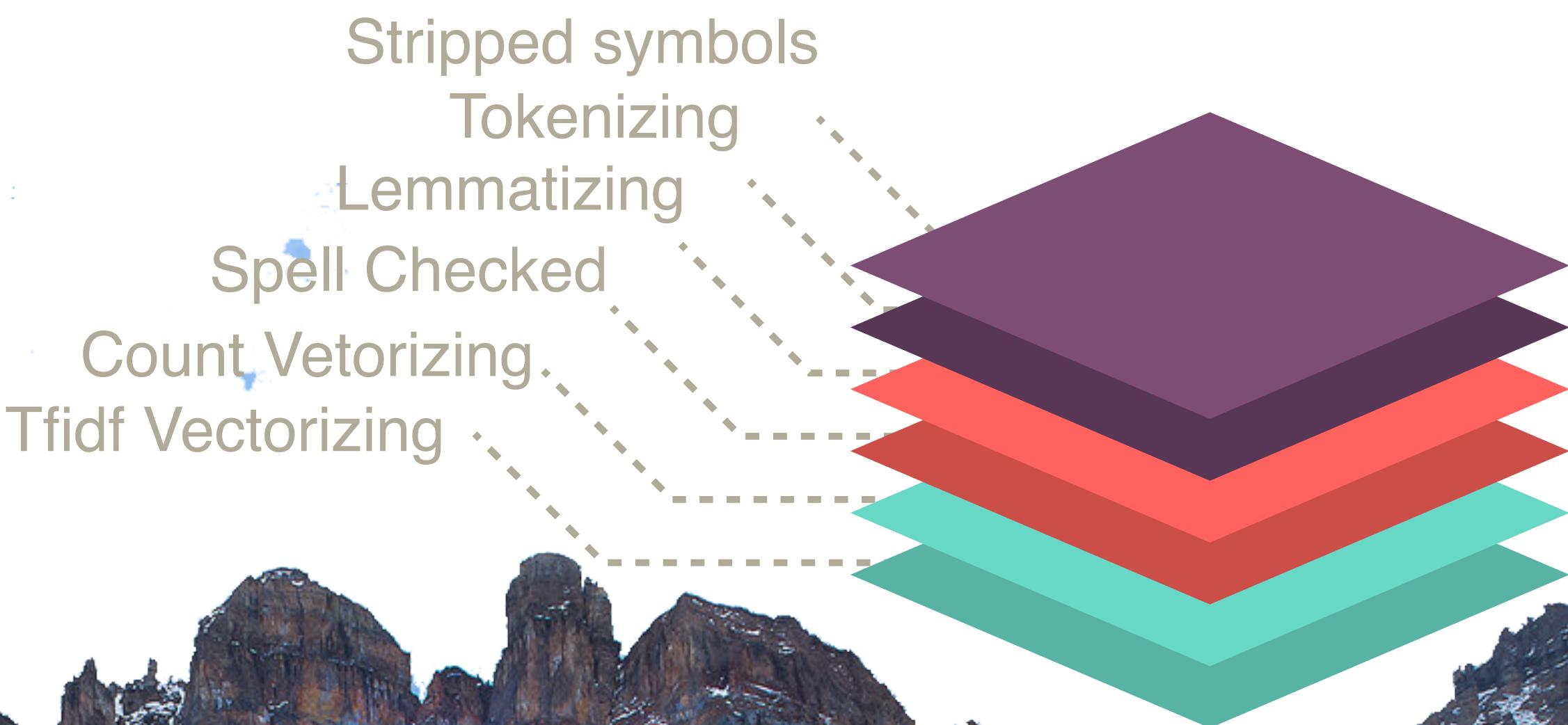
Steve Doocy

@sdoocy

Just saw ominous sign about hurricane #Sandy, an end of the world long line of ppl at the liquor store. #Sandyaintdandy

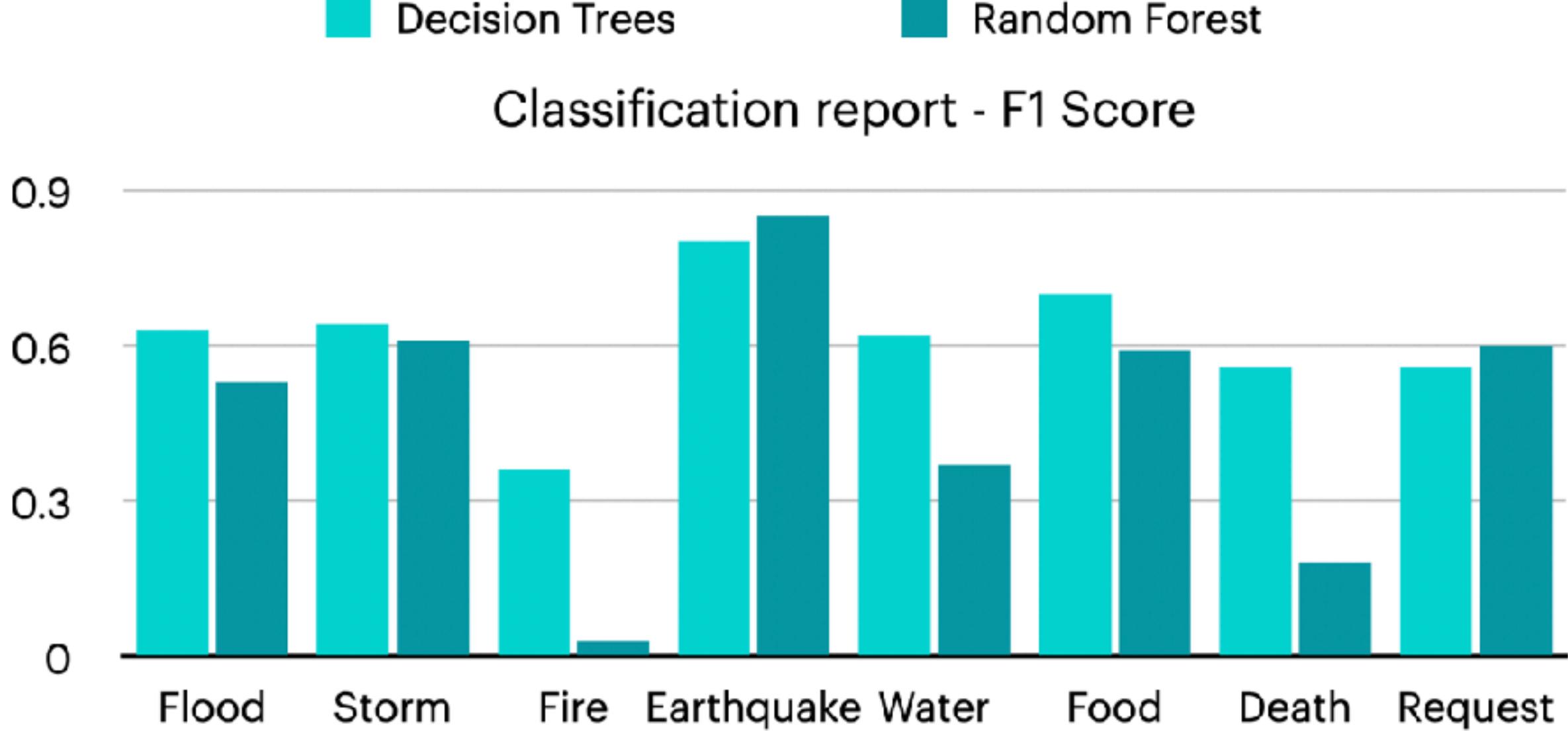
Reply Retweet Favorite

57 RETWEETS 16 FAVORITES

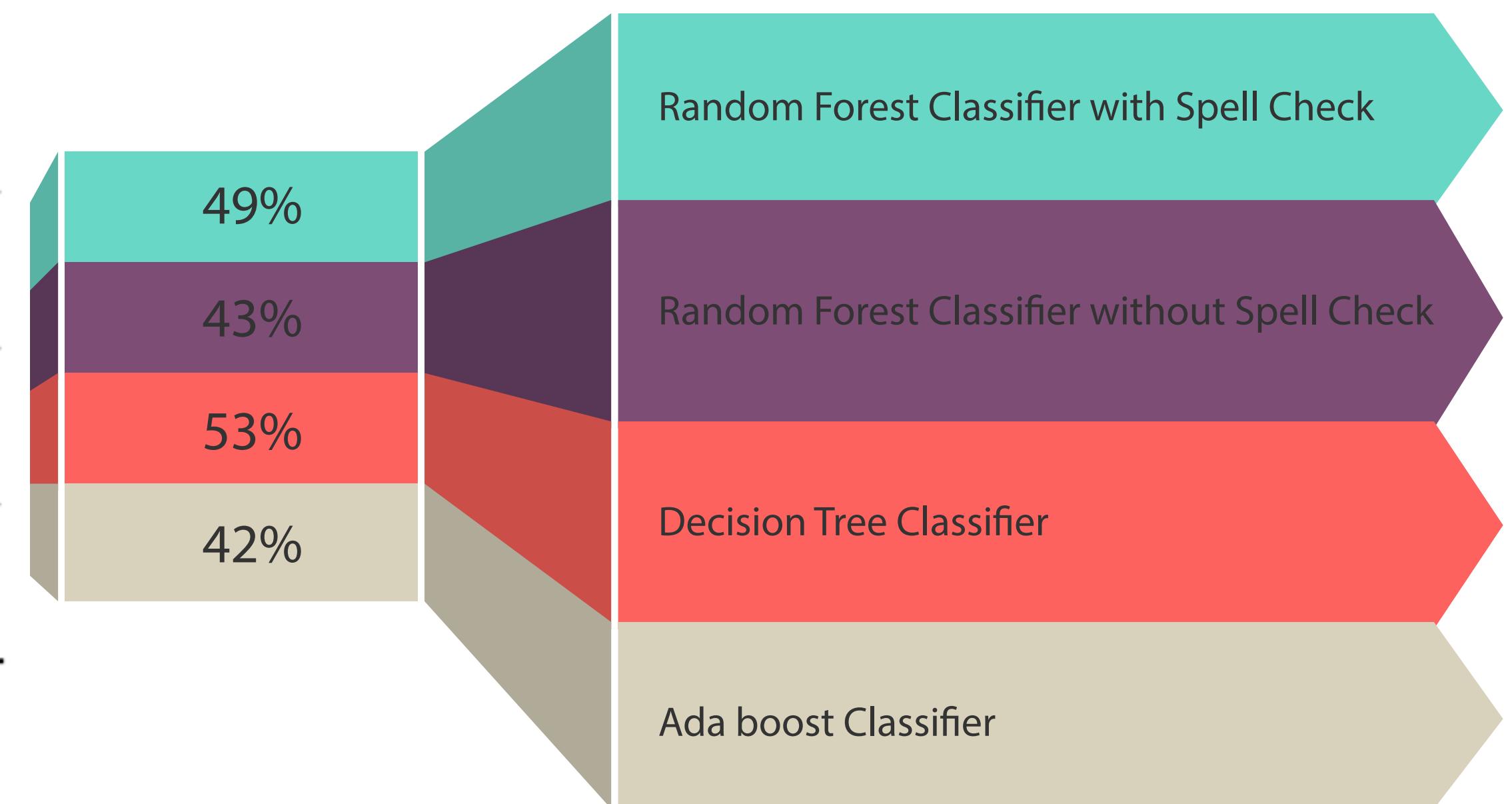


Model Evaluation

Multioutput Classifier



Micro Average of F1 Score



Streamlit app

Disaster Message Classifier



About this project

Social media is being explored as tool for disaster management by developers, researchers, government agencies and businesses.

The disaster-affected area requires both cautionary and disciplinary measures. The need for decision-making system during emergencies and in real time poses problems classifying emergencies.

Conclusions

- Providing contextualized and timely information during times of crisis helps people make more informed and better decisions.
- When we are looking to crisis questions or other humanitarian large scale problems. There is an opportunity to collaborate in a global scale.
- Social media platforms can be efficiently used for supply chain management by professionals, organizations and readers for their operations.

Next Steps

For Model performance

- Attempt to retry Resampling, under-sampling and BalancedBaggingClassifier to normalize data.
- Attempt for class_weight hyper-parameters by putting less weights on the majority class instances.
- Aggregate realtime twitter messages for temporal location information.
- Aggregate to Google Earth Engine to identify and outline public satellite image to illustrate disaster affected area.

How to enable and disable location services at the device level

Step 1

Go to your device's **Settings** feature and tap **Privacy**.

Step 2

Tap **Location Services**.

Step 3

Next to **Location Services**, drag the slider to turn the feature on.

Step 4

Then, locate the Twitter app in the list and tap **Never** or **While using the app**.

So enable your location services ...and

**Thank you for listening.
Any questions?**

Instructions for:

