BUTTERFLY
DATA

DATA MONITORING WITH OPEN-SOURCE

The combination of the COVID-19 pandemic, EU exit, and the yearly winter pressures on the UK all presented substantial danger to the Civil Contingencies response, thus it was a vital task to monitor economic, social, and health factors on a regular basis in order for the UK to respond swiftly and effectively to any changes.

AT A GLANCE

Facts

- Data was collected through APIs or email feeds
- Data was analysed swiftly in order to facilitate immediate responses to data peaks and troughs.

Tools

- Plotly/Dash (A python library)
- AWS - Storage
- Google Cloud Platform
- Google Sheets

CHALLENGES

The task was to acquire daily statistics from each government agency by emails, API feeds, or commissions and then integrate them into a data pipeline comprising extraction, analysis, and visualisation. It was critical to establish a clear channel of communication between the data owners and the CO team in order to guarantee that the data was represented in accordance with the department's goals. The dashboard had to be designed in such a way that it could readily and clearly illustrate trends and comparisons while also giving enough data and navigational features without overwhelming the user.

OBJECTIVES

The Civil Contingencies Secretariat, the Cabinet Office's lead in UK emergency preparation, tasked a rainbow team with developing and maintaining a live dashboard of metrics to aid and educate ministerial meetings. Regular collection and visualisation of this data enabled trend analysis, allowing spikes or increasing negative patterns to be identified early and fed into the Cabinet Office (CO) decision-making cycle.

SOLUTIONS

First, the team created the dashboard's front end in Python using the Plotly/Dash library. The Google data sheet was then connected to the dashboard using APIs. The dataset was created using commissions distributed by the SitCen to relevant government ministries such as the Home Office, Department of Health and Social Care, Business Energy and Industrial Strategy, and other government departments. Data was also collected via API feeds and stored in an S3 bucket, from which the Prod team could extract when required. These departments defined the metrics' requirements and highlighted the limitations of the data. Confirmation of user needs and the aim of the data owner was a continuous feedback cycle from the production team to simplify data functioning.

The automation of the data flow was then gradually improved to simplify the product, minimise human error, and maximise dashboard efficiency. Finally, the project team successfully handed over the Monitoring Dashboard to the CCS's permanent personnel.

RESULTS

A live visual response dashboard was created using Plotly and Python scripting to extract data inputted into Google Sheets. Initially, data entry was done manually, but as the project progressed, segments were automated to update as new data arrived.