2021 AI Launch Lab Hackathon
Data Visualization Challenge

Overview

Cities are laboratories for climate innovation; solutions piloted in cities are frequently scaled up to provincial and national governments. Cities are also where people live, and connecting climate and cities gives individuals a more tangible role to play in shaping their communities and their world. Benchmarking cities helps identify leaders and laggards, accelerating adoption of best practices across borders and oceans. Drawing on data sets compiled by the Carbon Disclosure Project, hackathon teams will visualize progress (or lack thereof) on decarbonization. These visuals will serve the global network of over 30,000 Climate Reality Leaders as they meet with city representatives to accelerate progress. Visualizations will be evaluated on clarity, creativity and interactivity.

Challenge Description

The pace of data production is growing exponentially. Sports stats, financial markets, personal health analytics - our increasingly connected world allows the measurement of just about anything under the sun, and often in real time. Look for data on how we are collectively responding to the climate crisis, however, and you'll find it difficult to turn up accurate and timely data that is sufficiently granular to effectively inform action.

Recognizing the unique role of municipalities in addressing both sociological and technological barriers to rapid emissions reductions, the IPCC commissioned a special report on cities, due to be published during the 7th Assessment Report cycle in the mid-2020s.

Your challenge, should you choose to accept it, will have you craft a visualization of GHG emissions data from global cities to draw attention to either 1) which cities are showing the rest of us the way to rapid decarbonization, or 2) the dearth of accessible city-wide GHG data. Visualizations will be evaluated on their clarity, creativity and interactivity with bonus points for social media virality!

The global data set used for this challenge was assembled by the Carbon Disclosure Project and includes municipal greenhouse gas emissions data submitted to the CDP between 2016 and 2020 (the most recent of which being published January 15, 2021) and covering years ranging from 1990-2019. This excel workbook includes both the CDP's raw data, as well as a master sheet that has been cleaned up by removing duplicates, blank entries, outliers and less relevant columns. Of the 3300 initial data points, only one in six (532) made it through these screens, and among those data, only 338 separate cities are represented. For context, Canada alone contains over 5100 municipalities.

Participating cities need to be encouraged to measure and publish their data to ensure accountability of climate targets and to empower the millions of municipal councillors and staff worldwide to take part in crafting solutions. The required investment in improving data collection frequency and methods must be prioritized if governments are expected to make evidence-based decisions.

Questions that your visualization could seek to address include:
• Which cities are most transparent with their climate data?
• Which cities are shrinking their carbon footprint fastest?
• Which cities have the lowest per-capita emissions?
• What relationship exists between data transparency and emissions reductions?

Using the raw data in the rest of the workbook, you may consider tackling these questions:
• What characteristics do leading cities share?
• How does a city's average temperature affect its per capita emissions?
• How do higher GDP/capita cities perform versus their lower GDP/capita peers?

Your visualization may also choose to combine the CDP data with other datasets to shed further light on the conditions that enable a city to take ambitious action and set the pace for others, such as the National Climate League's Stat Tracker, the Actuaries Climate Index, or other data sets collected by the CDP.

Several types of data visualization are possible, including (but not limited to):
• Infographics: Weather Underground, Climate Risks
• GIFs: Global Temperature Change, Polar Sea Ice
• Interactive: The Point of No Return
• Animations: US Coastal Sea Level Rise, Carbon Budget, Temperature Anomalies
• Charts: EV Benefits, Vulnerability/Population Growth,
• See also the 2019 Standings of the National Climate League

The data visualizations produced through this challenge will be circulated among The Climate Reality Project's 30,000 global policy advocates, drawing attention to leaders and laggards among cities represented.

Workflow
1. Familiarize yourself with this data set pulled from CDP's open data portal.
2. Scan the web for existing visualizations of city climate progress
3. Explore best practices in data visualization: clarity, interactivity, aesthetics
4. Scope your vizualization: which data will you visualize and what message will it convey?
5. Choose data viz software that fits your vision: Tableau, Giphy, Canva, Venngage, Visme
6. Plug in the data & tweak until your visualization is optimized for clarity, creativity and (if applicable) interactivity!

Questions?
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