

# Milestone 2

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- [Link for Sketches](#)
- [Link for initial Website](#)

## Overview

**Motivation:** Over the last decade, and especially in 2025, the collective brain of humanity has turned its attention to the difference between where goods like food and cars are *made* and where they are *consumed*. Motivated by the desire to reduce transportation emissions or by national security concerns, humanity appears to be peeking under the hood of the global trade system, with the subject debated everywhere from government circles to taxi rides.

**Our approach:** Our goal is to provide intuitive insights regarding global trade. Specifically, to move from aggregate statements such as "country X has a trade deficit of Y billion dollars" and closer to statements such as "country X is not food independent" or "country X stopped exporting product Y after event Z".

To this end, we will follow a linear storytelling approach where we zoom in from aggregate trade figures towards more detail. We will explore certain product categories like food and mineral fuels that are the most important from a geopolitical point of view. During these explorations, we will follow a "rake" approach and illustrate specific country examples. The goal is not to be comprehensive but to pique the interest of the user. At the end of the linear part, the user will be able to focus on countries or trade sectors they are interested in through an interactive section.

## Core Visualizations

- Interactive but non-mutable world maps that provide an overview of trade dynamics and serve as the starting point for exploring different product categories.
- Standard column charts that illustrate the difference in trade volume across categorical data such as product categories and countries.
- Non-mutable time series charts for illustrating temporal trends when appropriate for the narrative (e.g., impact of event on trade).
- Text elements that forward the story, possibly coupled with custom figures that make the story more material (e.g., Yemen has a large food deficit -> here is a satellite view of Yemen to remind the user of the material connection between land, the production food, and food trade).
- Free exploration map and accompanying time series charts at the end of the story. The user should be able to select specific product categories and years and get accompanying temporal and spatial information.

## Additional ideas

- Focus on bilateral trade relationships for different product categories as part of the storyline. Through a Sankey diagram that shows surpluses on the left and surpluses on the right, the user can start pondering on "what happens if the flow of X from country Y to country Z stops?".
- Exploration of more countries that went through special periods of time like wars and embargos.
- Explore more goods categories like fertilizers, textiles/clothes, pharmaceuticals, vehicles, and weaponry.
- Explore niche cases, e.g. countries with bizarre trade balances that are determined by concerns other than production and consumption like profit shifting or re-export. Alternatively, niche product categories - for example it appears that the export of umbrellas and toys is dominated by a single country.

## Tools

We will be using React to render the website, and a combination of typescript, CSS, and HTML to create the framework. To design Maps, Sankey diagrams, Treemaps, and common visualizations such as bar charts we will be using Echarts. Should the flexibility of Echarts prove limiting, and for more custom visualizations, like an image of a car that is colored proportionally to the volume of exports (if appropriate), we will use D3 directly. We will host our website on GitHub pages and generate the datasets it needs using Pandas.

## Relevant Slide Decks

- Up to 4.2 for fundamental building blocks (JS, D3, Dataset).
- 5.1 to create natural transitions between the components of the story.
- 6.1 for a consistent color palette and clear maps.
- 8.1 For map projections and Sankey.
- 10 For representing relationships
- 11.1 Bar charts, flows.
- 12 Storytelling