

## **Project Goal:**

Our goal is to distill a sprawling, multi-year survey of disparate European countries into a concise but visually striking story about the ideological divide between genders. We want to empower users to explore gender-based ideological differences by country, generation, and time on an unbiased platform with guardrails that prevent information overload. The visualizations outlined below target this goal by balancing simplicity with robust user freedom.

## **Visualizations (all figures in Appendix):**

### 0. Metric Banner (Figure A)

Each visualization will depend on the user-selected 'active metric'. By 'active metric', we mean one of the six categories listed as buttons in the banner in Figure A. This horizontal banner will be fixed at the top of the page even as the user continues to scroll. Upon selection, an active metric's button will earn a black border and become the subject of visualizations 1, 2, and 3.

These metrics are in fact baskets of indices, aggregated to shield users from the details of the different constituent variables. Users curious about the variables being used for each metric can hover over the metric's button for a list of constituent variables and description of each.

### 1. Bar Chart (Figure B)

We begin with a bar chart overview to orient the user to our dataset. The chart will display a Europe-wide average of the active metric over time for four different age cohorts. Users will use this visualization to understand trends in our variables of interest before delving into gender disparities, acclimating themselves to our data and the fact that it can be stratified age-wise.

### 2. Choropleth (Figures C and D)

Our second visualization is a choropleth map of Europe. There exist two color axes: one for countries where women 'dominate' the active metric, and one where men 'dominate' the active metric. These axes are displayed at the bottom right of our choropleth map. To 'dominate' is to have a higher average self-reported level of the active metric.

We expect users to select an age bracket at the top left and to drag the year slider at the bottom to observe the direction and magnitude of gender differentials over time. For example, because (1) older men are more likely than older women to report loneliness and (2) this gap has grown over time, a user who selects 'Loneliness' on the metric banner and '56+' at the top left of the choropleth map would see purple becoming darker and more abundant as they drag the temporal slider into more recent years. The intensity and proliferation of color is precisely what will emphasize the critical point of gender disparity.

Finally, users can receive in pop-up form a full timeline of the active variable along with gender disparities when they hover over a country of interest (see Figure D).

### 3. Ordinal Country List (Figure E)

With the choropleth map, we provide a general overview of a metric's evolution and a space for outliers to impress themselves upon the user. Our ordinal visualization, meanwhile, will emphasize cross-country comparison by displaying country lists ordered according to the magnitude of the active metric's gender disparity in a given year.

Automated description of exact numbers will pop-up next to hovered-over points, as will a breakdown of the aggregate metric for a given country-gender-year combination along the dimension of respondent age bracket. This robust breakdown will allow users to parse age-based contributions to a country's gender aggregate, finishing the stratification thread begun by the bar chart visualization.

#### **Tools:**

For our foundation, we will utilize the ReactHTML framework, CSS, and JavaScript.

We will employ Python, particularly the pandas library, for data processing tasks. This includes creating and aggregating indices for our variables of interest, as well as grouping survey respondents into age cohorts.

D3.js will serve as our primary resource for accessing the elements necessary for creating dynamic, interactive data visualizations hosted in a web browser.

For developing our project, we will refer to all relevant lectures, with particular attention to Lecture 5 on interactions, Lecture 6 on selecting colors—where we will use Chroma.js as a color palette helper for scaling—and Lecture 8, which focuses in detail on maps.

#### **Extra Ideas:**

While we plan on listing our metrics' variables in a pop-up, it may be fruitful to design an animation that depicts our full processing pipeline: variables being cast as indices, indices combined, and the aggregate index anchored to the start year of 2001. This would appear before the bar chart and orient users to the mechanics of the metrics they may explore.

We could layer a dataset on voting outcomes into our story. Users could learn how the ideological divide manifests in political reality. This could take the form of an interactive scatterplot, where the user selects a metric and (election) year, the x-axis is the gender-based differential, the y-axis is share of votes received by rightwing parties, and each dot is a country.

Finally, to streamline our story, we could move interactivity from the visualizations to the user's scrolling. Our visualizations would be 'locked' to users but would transform into one another while accompanying text appears in a predefined sequence as the user scrolls down the page. To maintain user choice, we could create one pre-defined sequence for each possible metric.

**Website:** the site is live and available [here](#).

Appendix:

Figure A



Figure B

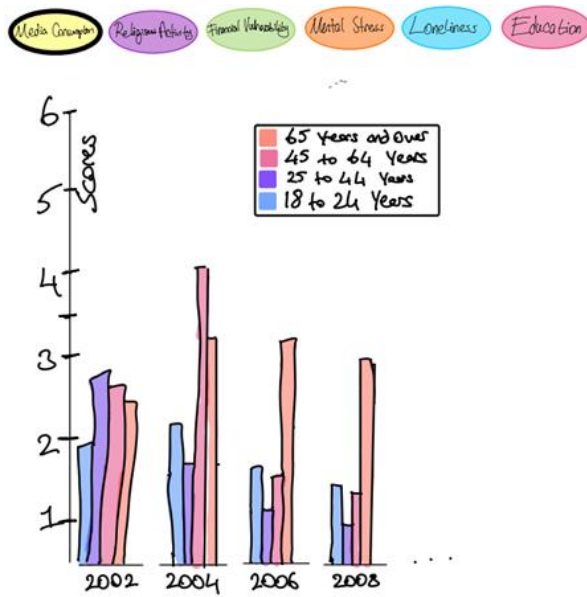


Figure C

