arms sale – top 100 companies and global sale - <https://www.sipri.org/databases/>

**Top Arms Exporters 1950 – 2023**:

* **Source**: [SIPRI Arms Transfers](https://armstransfers.sipri.org/ArmsTransfer/ImportExportTop)
* **Raw File**: suppliers\_1950-2023.csv
* **Processed File**: processed\_arms\_suppliers.csv
* **Description**: This dataset provides data on the top arms-exporting countries from 1950 to 2023, organized for analysis of long-term trends in arms exports and supplier patterns.

**Top Arms Importers 1950 – 2023**:

* **Source**: [SIPRI Arms Transfers](https://armstransfers.sipri.org/ArmsTransfer/ImportExportTop)
* **Raw File**: recipients\_1950-2023.csv
* **Processed File**: processed\_arms\_recipients.csv
* **Description**: This dataset covers the leading arms-importing countries from 1950 to 2023, structured to analyze import trends and recipient country dependencies on arms suppliers over time.

**Military Expenditure by Region 1948 – 2023**:

* **Source**: [SIPRI Military Expenditure Database](https://www.sipri.org/databases/milex)
* **Raw File**: SIPRI-Milex-data-1948-2023.xls
* **Processed File**: processed\_arms\_expenditure\_by\_regions.csv
* **Description**: This dataset captures military spending by regions over decades, facilitating the study of regional spending trends and comparative analysis between different parts of the world.

**Top 100 Arms Companies Revenue 2002 – 2022**:

* **Source**: [SIPRI Arms Industry Database](https://www.sipri.org/databases/armsindustry)
* **Raw File**: SIPRI-Top-100-2002-2022.xls
* **Processed File**: processed\_top\_100\_arms\_companies\_consolidated.csv
* **Description**: This dataset consolidates revenue data for the top 100 arms companies, making it suitable for analyzing industry revenue trends, key players, and their performance over time.

**Global Total Arms Revenue 2002 – 2022**:

* **Source**: [SIPRI Arms Industry Database](https://www.sipri.org/databases/armsindustry)
* **Raw File**: Total-arms-revenue-SIPRI-Top-100-2002-2022.xls
* **Processed File**: processed\_global\_total\_arms\_revenue.csv
* **Description**: This dataset includes total global revenue from arms sales, allowing for insights into the overall growth or decline in the arms industry and patterns in global military spending.

**Arms Sales by Regions 1950 – 2023**:

* **Source**: [SIPRI Regional Transfers Database](https://armstransfers.sipri.org/ArmsTransfer/RegionalTIV)
* **Raw File**: regional\_transfers\_1950-2023.csv
* **Processed File**: processed\_regional\_transfers.csv
* **Description**: This dataset represents arms transfers between regions, useful for visualizing trade flows and assessing regional dependencies and interactions in the arms trade.

**Armed Conflicts by Country 1949 – 2023**:

* **Source**: [UCDP/PRIO Armed Conflict Database](https://ucdp.uu.se/downloads/index.html#ged_global)
* **Raw File**: UcdpPrioConflict\_v24\_1.csv
* **Processed File**: processed\_conflicts\_locations\_years.csv
* **Description**: This dataset has been simplified to include only essential details like conflict start and end dates, and parties involved making it easier to analyze the frequency and duration of conflicts globally.

[AI Assistance 1 – Data Wrangling and Processing]( <https://chatgpt.com/c/6726a05f-a0d8-8001-8afc-98eeab6d623c>)

We processed and organized several datasets on arms trade, military expenditure, and conflicts to be analytics-ready and visualization-friendly:

* **Top Arms Exporters and Importers (1950-2023)**: Showcasing major arms suppliers and recipients over time.
* **Military Expenditure by Region (1948-2023)**: Analyzing regional spending trends and comparisons.
* **Top 100 Arms Companies Revenue (2002-2022)**: Consolidated for industry revenue analysis.
* **Global Total Arms Revenue (2002-2022)**: Highlighting trends in the global arms industry.
* **Arms Sales by Regions (1950-2023)**: Structured to explore regional arms transfer patterns.
* **Armed Conflicts by Country (1949-2023)**: Focused on conflict duration, location, and participants for global trend analysis.

Design methodology:

**Maps**

1. **Dot Map**: Use **processed\_conflicts\_locations\_years.csv** to show conflict hotspots by marking the locations of armed conflicts.
2. **Choropleth Map**: Apply **processed\_arms\_expenditure\_by\_regions.csv** to display military spending intensity across regions by shading regions based on spending levels.
3. **Proportional Symbol Map**: Use **processed\_regional\_transfers.csv** to show the volume of arms trade by region. The size of symbols can represent the trade value.

**Layouts**

1. **Treemap**: Use **processed\_top\_100\_arms\_companies\_consolidated.csv** to visualize market share by company within the arms industry.
2. **Zoomable Circle Packing**: Implement **processed\_arms\_suppliers.csv** to represent the hierarchy of suppliers with bubble sizes corresponding to export volumes.
3. **Sunburst**: Use **processed\_arms\_recipients.csv** for a breakdown of arms imports by country, with each layer showing a subcategory, such as region or year.

**Graphs**

1. **Chord Diagram**: Use **processed\_regional\_transfers.csv** to display relationships and dependencies between exporting and importing regions.
2. **Force-Directed Graph**: Utilize **processed\_conflicts\_locations\_years.csv** to show connections between conflict parties, helping visualize alliances or opposition relationships.

**Charts**

1. **Stacked Bar Chart**: Use **processed\_global\_total\_arms\_revenue.csv** to show the revenue trends for arms companies over the years, allowing for comparison of growth.
2. **Pie or Donut Chart**: Apply **processed\_arms\_expenditure\_by\_regions.csv** to show the distribution of military expenditure across regions.
3. **Multi-line Chart**: Use **processed\_ global\_total\_arms\_revenue.csv** for tracking changes in total arms revenue over time for comparative trend analysis.
4. **Parallel Coordinates Chart**: Implement **processed\_arms\_suppliers.csv** to examine multiple dimensions, such as export volume, country, and regions across time.
5. **Difference Chart**: Use **processed\_arms\_recipients.csv** to compare import volumes across countries or regions by year, highlighting increases or decreases over time.

[AI Assistance 2 – Dot Map]( <https://chatgpt.com/c/6726cfe4-788c-8001-aca0-c59b364e7bf0>)

we worked on enhancing a D3-based interactive Dot Map that visualizes conflict locations and intensities by year. We refined the **legend** by adjusting the positioning of circles and labels to improve readability, defined specific intensity values for "Low," "Medium," and "High" levels, and ensured that the labels aligned properly with the circles. Additionally, we added a **map title** at the top, customized **map colors and background**, and implemented a **tooltip** to display detailed information on hover. Finally, we integrated a **year slider** for dynamic filtering, allowing users to view conflict data by specific years.

[AI Assistance 3 – Tree Map](<https://chatgpt.com/c/6726f5c9-d53c-8001-a649-4d0881e9f2ce>)

We discussed modifying a React D3 Tree Map component, focusing on enhancements like filtering data for the top 20 companies, adding a year-selection slider, adjusting hover opacity, wrapping text inside each box, and positioning the legend. Additionally, we reviewed how to format total revenue in billions within the legend, converting it from millions by dividing by 1 billion. These adjustments aimed to improve the component's interactivity, visual clarity, and data display accuracy.

[AI Assistance 4 – Multiline Chart]( <https://chatgpt.com/c/6727025d-28c4-8001-b1c9-0bdb9799e205>)

We worked on building a Multiline Chart and enhanced the D3.js LineChart component by converting Y-axis values to billions and formatting the ticks accordingly. We added a title and Y-axis label, implemented a tooltip for data points, and fixed syntax errors in the JSX. Additionally, we enabled country selection with checkboxes and created a legend to display corresponding colors, ensuring a responsive and user-friendly design.