

During first discussion we came up with first draft (fig. 1).

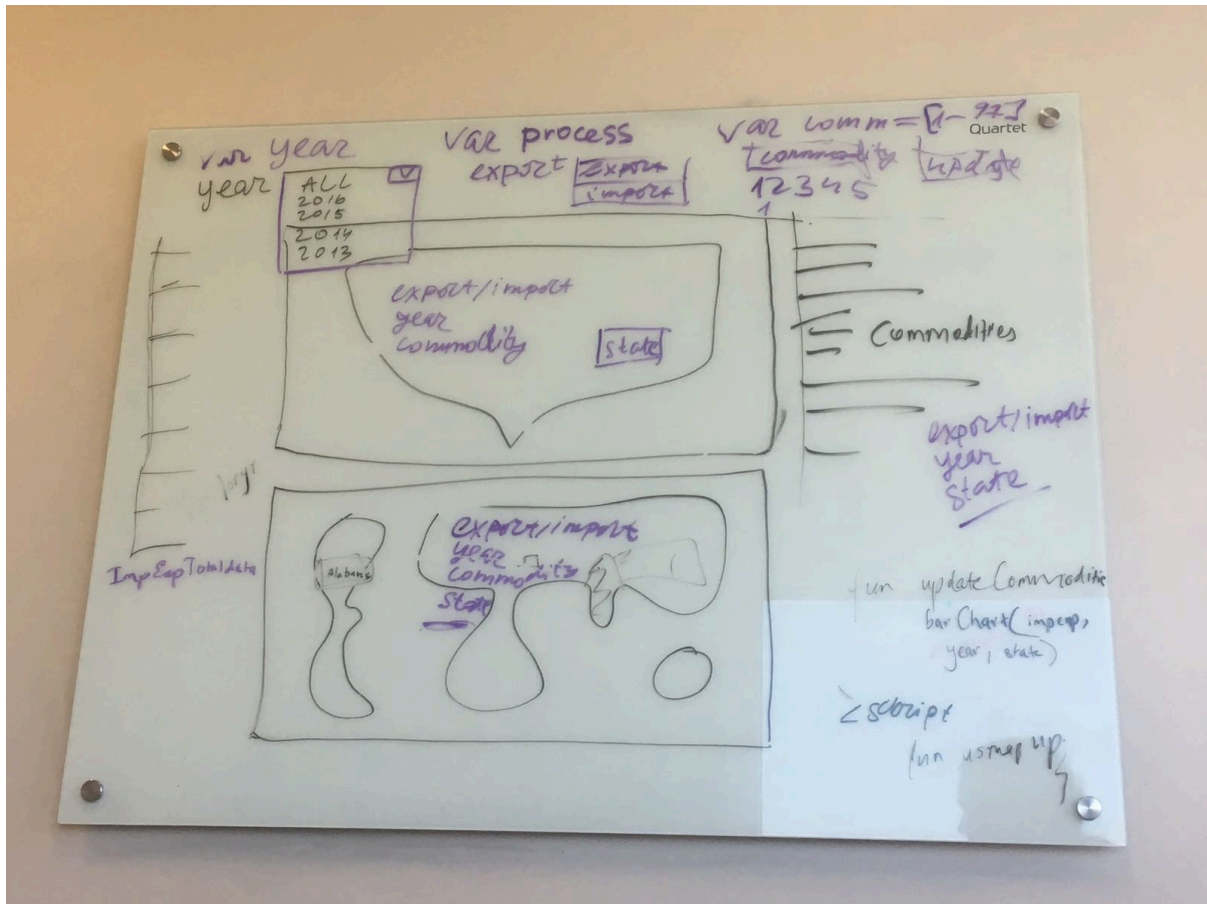


Fig. 1 "First draft of visualization"

The main idea is to put navigation on the top and place all screens on one page in order to avoid extra action for user. Navigation has to allow users to pick: year from 2013 to 2016 or even to choose all years at once; import or export; and commodity from top level of hierarchy to bottom.

In order to see a map properly both World and US, we need to make them bigger, so the task how to place all in one screen is not easy, so we decided to split the screen into two part (Fig. 2). Top part has US map and commodity chart and bottom part has World map and export/import chart.

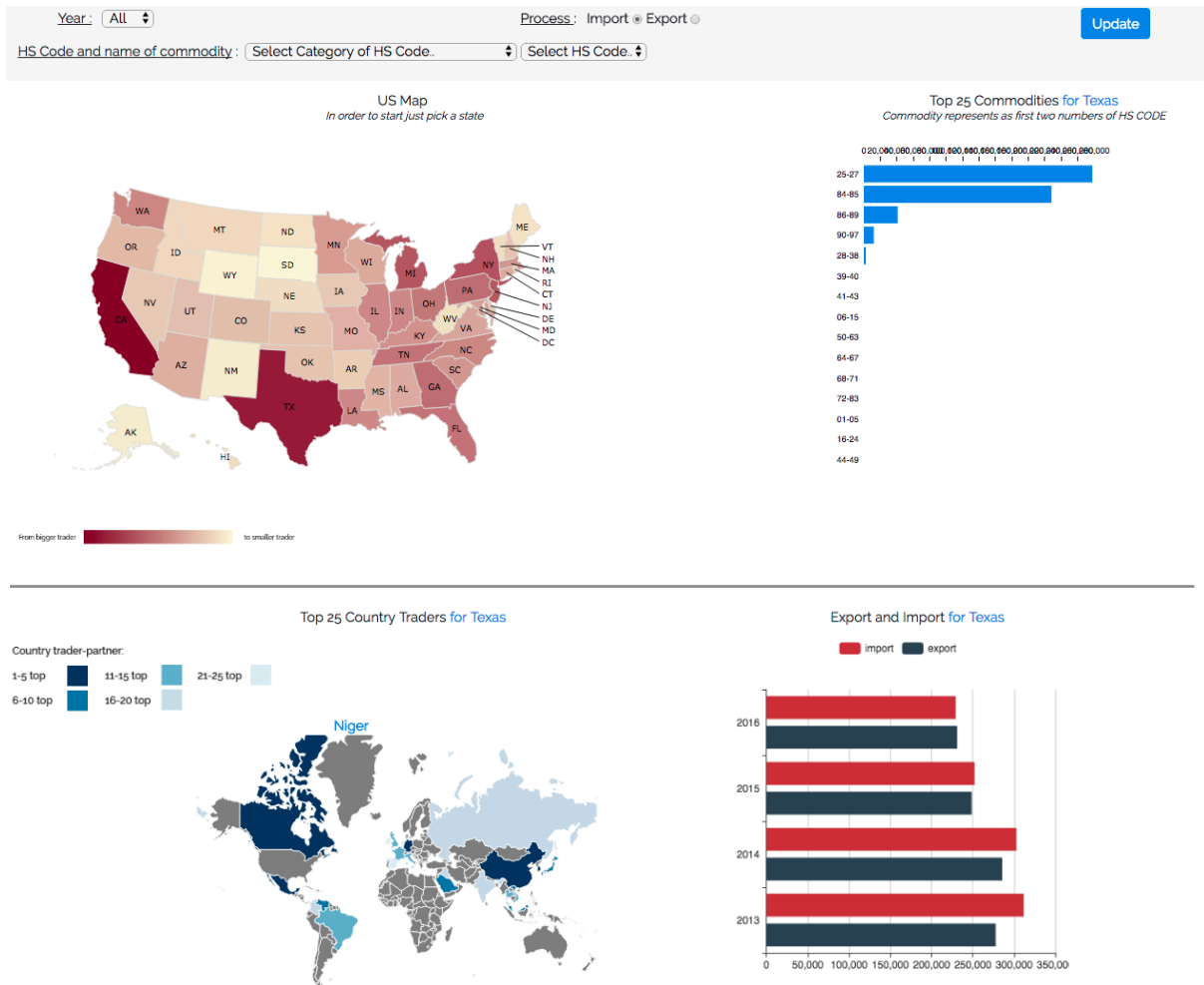


Fig. 2 Print Screen of final visualization

Let's observe visualization and answer some questions by using the visualization:

Who is the most bigger trader in US for all years from 2013-2016 for import and export?

As we see for import it is California and export is Texas (Fig 3-4). In order to show that we used color map and amount of export or import is a range and we encode it as a range of hue, where dark color indicates bigger trader and light indicates smaller trader (Fig. 5).

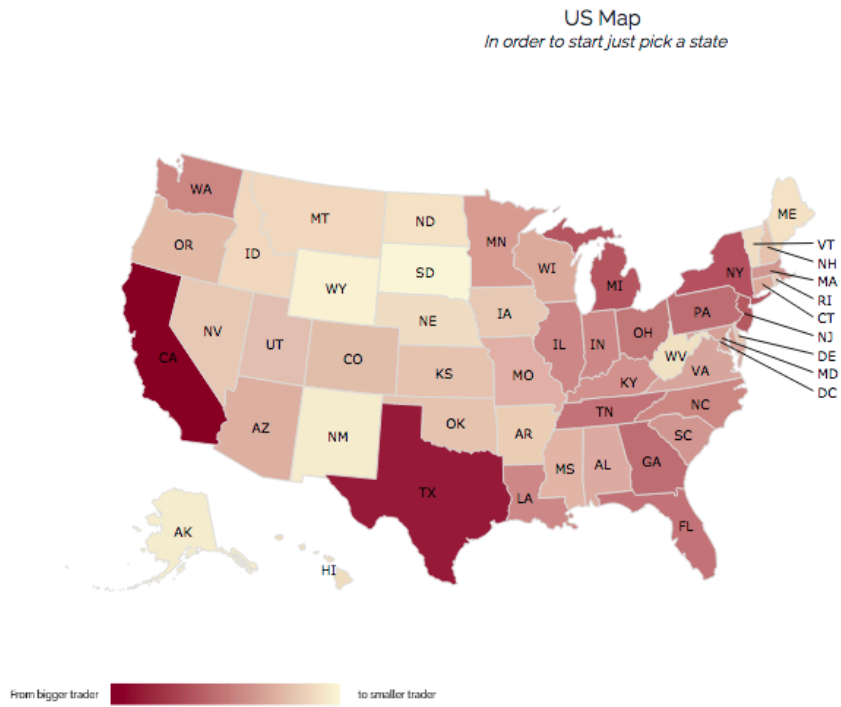


Fig. 3 Most popular state for import is California

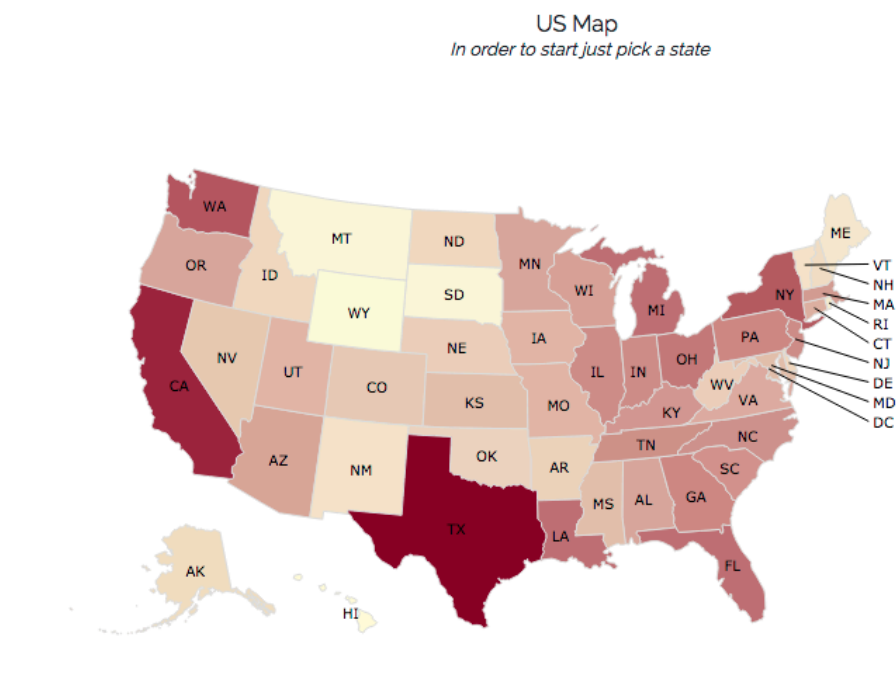


Fig. 4 Most popular state for export is Texas

From bigger trader to smaller trader

Fig. 5 Legend for map, which indicates for each state amount of export or import

What group of commodity/commodity does the California import as bigger exporter?

In order to answer this question we need to pick California on the map and the visualization will be updated accordingly. As we see in Fig. 6 it is group of commodity 84-85 “Machinery/Electrical” and if we want to know exactly we need just click on bar “84-85” and open next level (Fig. 7). So the most popular import commodity to California is 85 “ELECTRICAL MACHINERY AND EQUIPMENT AND PARTS THEREOF; SOUND RECORDERS AND REPRODUCERS; TELEVISION IMAGE AND SOUND RECORDERS AND REPRODUCERS, PARTS AND ACCESSORIES OF SUCH ARTICLES”.

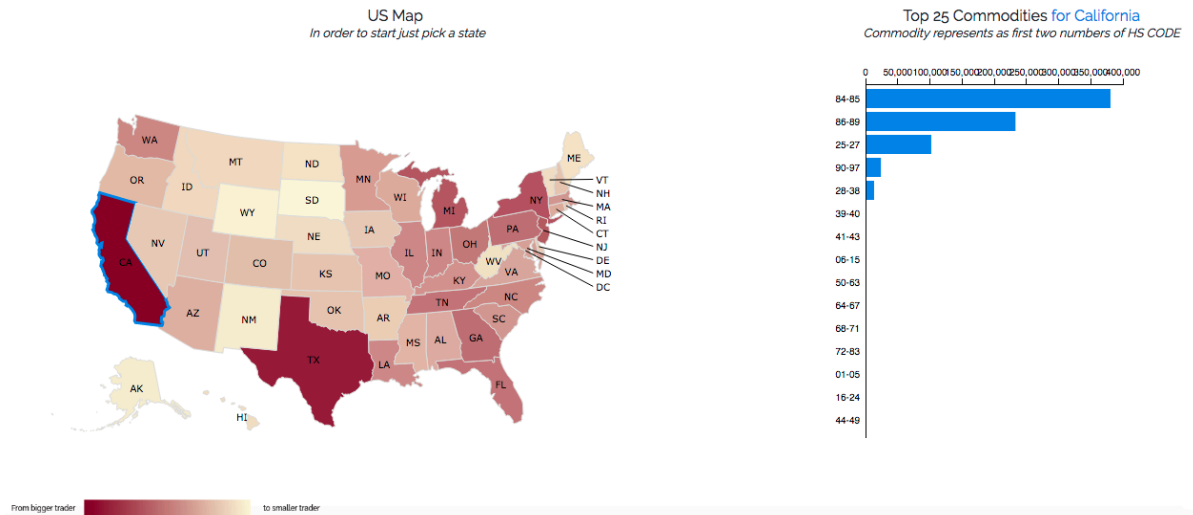


Fig. 6 What group of commodity/commodity does the California import as bigger exporter?

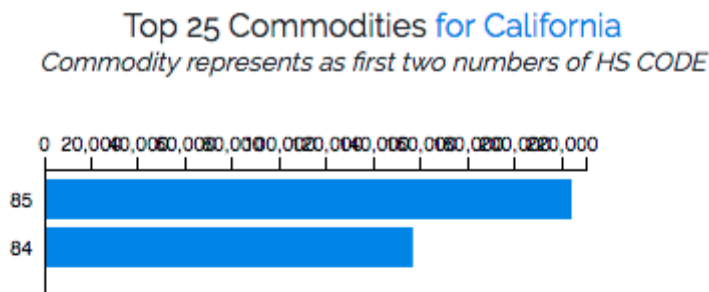


Fig. 7 Most popular commodity as import to California

Who the best trader partner for California as importer?

In order to answer this question, we need look at the world map. As we see in Fig. 7, it is China, Canada, Mexico, Japan and Malaysia. If we explore these country by mouse, we can find that China is the leader, Fig 8. And if we look at export/import chart we can notice that

there are no differences across different year from 2013-2016 (Fig. 8).

Top 25 Country Traders for California

Country trader-partner:

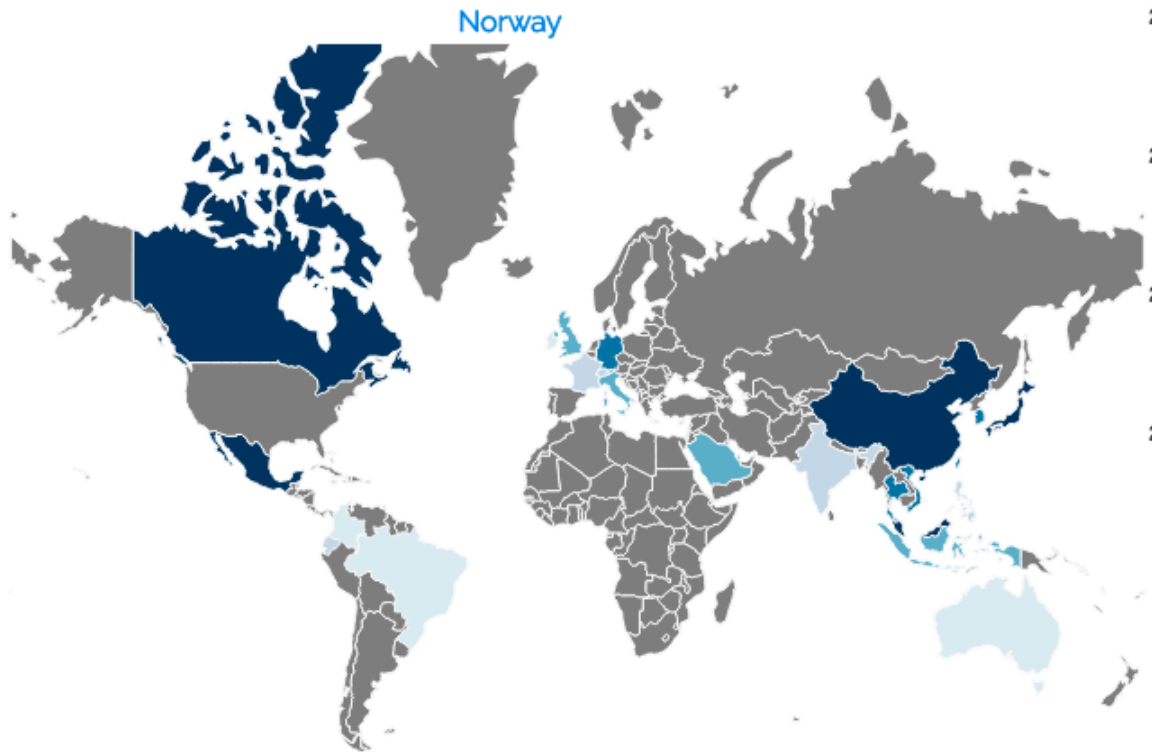


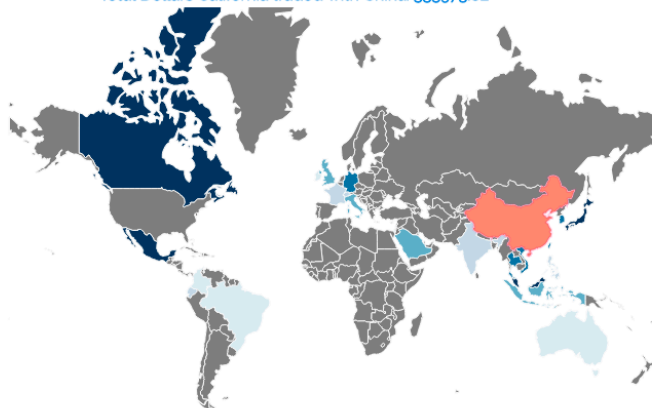
Fig. 7 Top 25 importer to California

Top 25 Country Traders for California

Country trader-partner:



Total Dollars California traded with China: 555973.82



Export and Import for California

 import  export

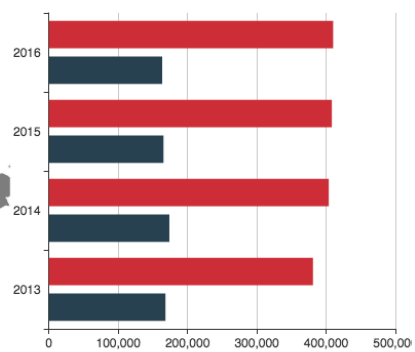


Fig. 8 China is the leader as importer to California

For showing top 25 trader country, we used color map too and the same principle as in US map. Darkest color means bigger trader and lighter means smaller (Fig. 9).

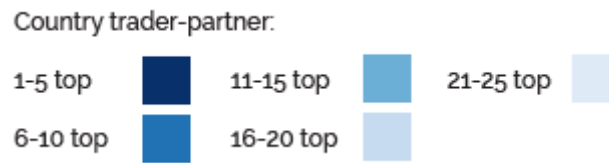


Fig. 5 Legend for World map, which indicates country trader partner from most popular to less.