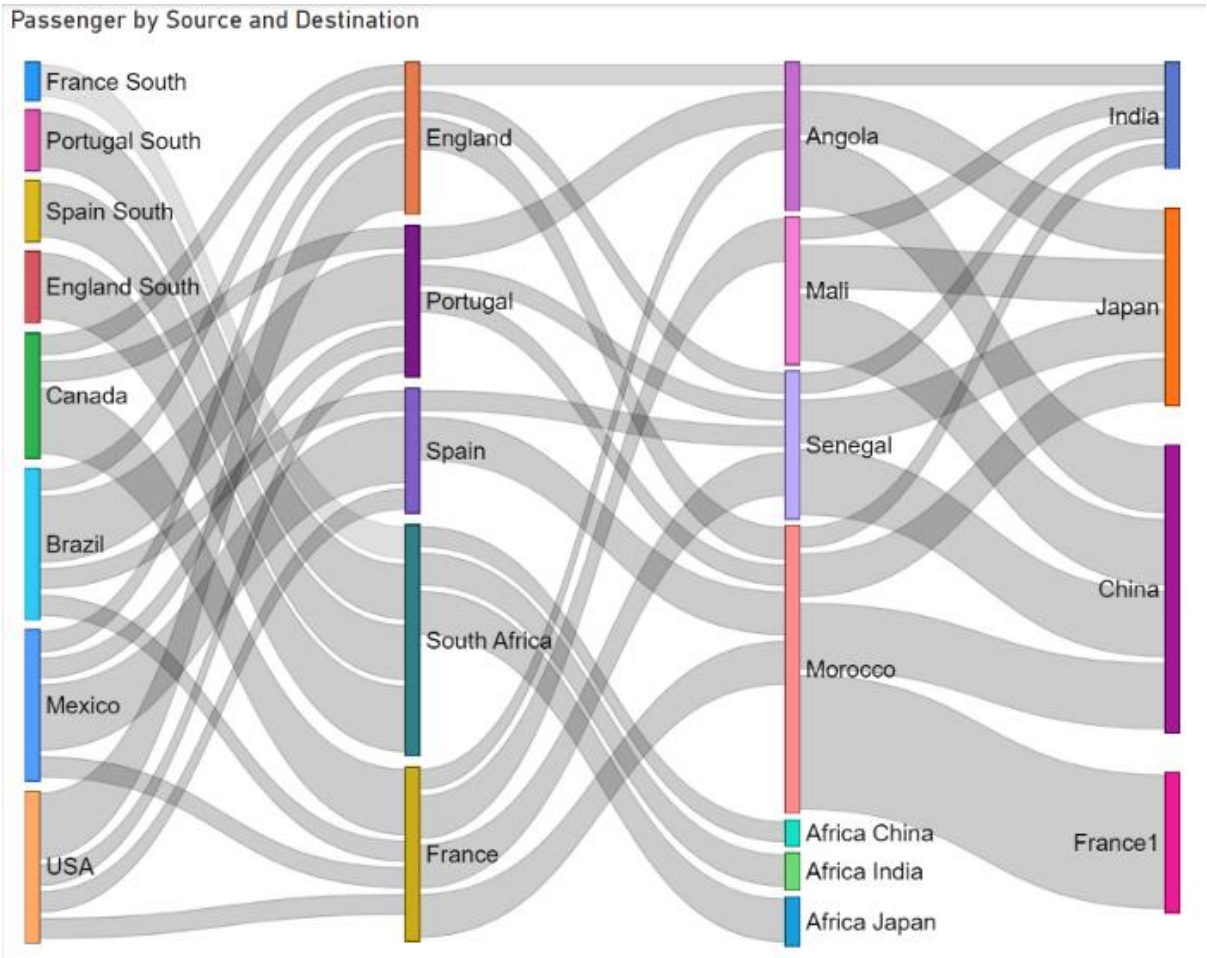
Sankey chart for flow visualization in Power BI



Get to know a Sanket chart

The Sankey chart is a beautiful visualization used to illustrate a flow of data from multiple levels and to multiple destinations. The things being connected are called *nodes* and the connections are called *links*.

The Sankey plot is usually used to show website/application traffic among the pages.

There are several ways to create a Sankey plot such as a Sankey generator website, Python/R programming, and visualization tools. Among these methods, Power BI is the most convenient for tabular data in my opinion since it can create a Sankey plot in a short time without coding. Moreover, a Sankey plot created by Power BI is easy to adjust and interactive with other data in the table.

Step summary

1. Get data
2. Download Sankey visual
3. Create a Sankey chart
4. Adjust the Sankey chart

1. Get data

I used a sample dataset that is the number of passengers traveling from one country to another.

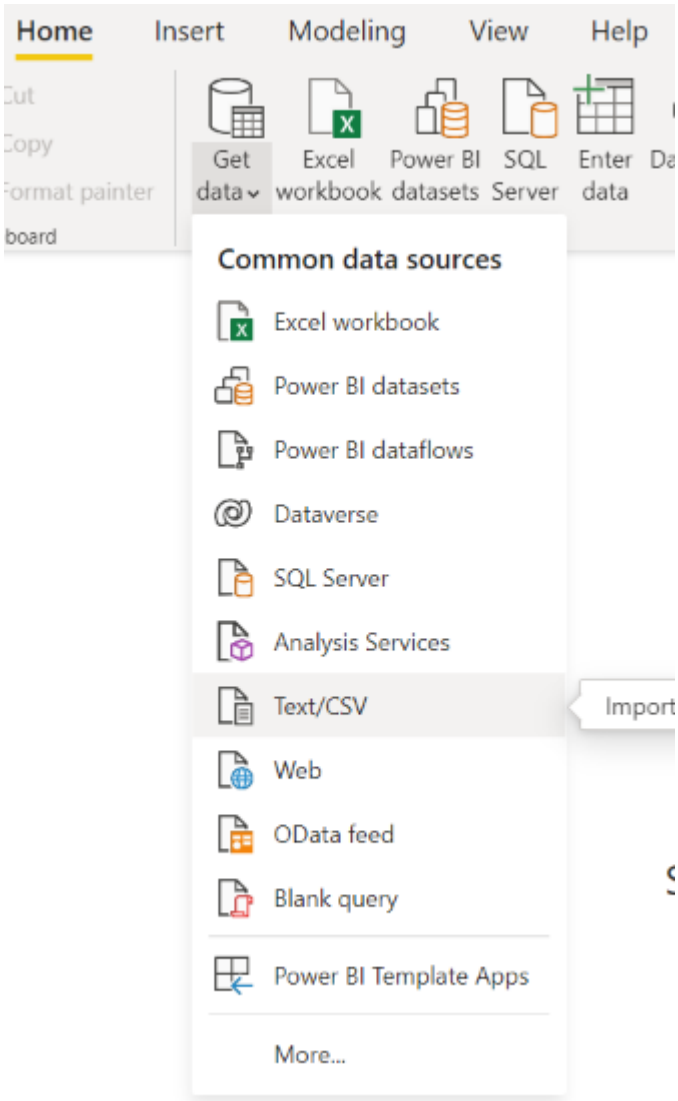
Source	Destination	Passenger
Brazil	Portugal	5
Brazil	France	1
Brazil	Spain	1
Brazil	England	1
Canada	Portugal	1
Canada	France	5
Canada	England	1
Mexico	Portugal	1
Mexico	France	1
Mexico	Spain	5
Mexico	England	1
USA	Portugal	1
USA	France	1
USA	Spain	1
USA	England	5
Portugal	Angola	2
Portugal	Senegal	1
Portugal	Morocco	1
Portugal S	South Africa	4
France	Angola	1
France	Senegal	3
France	Mali	3
France	Morocco	3
France So	South Africa	2
Spain	Senegal	1
Spain	Morocco	3

Dataset sample

Open Power BI. Click the Home tab, select Getdata, and select Text/CSV.

Home tab > Get data > Text/CSV

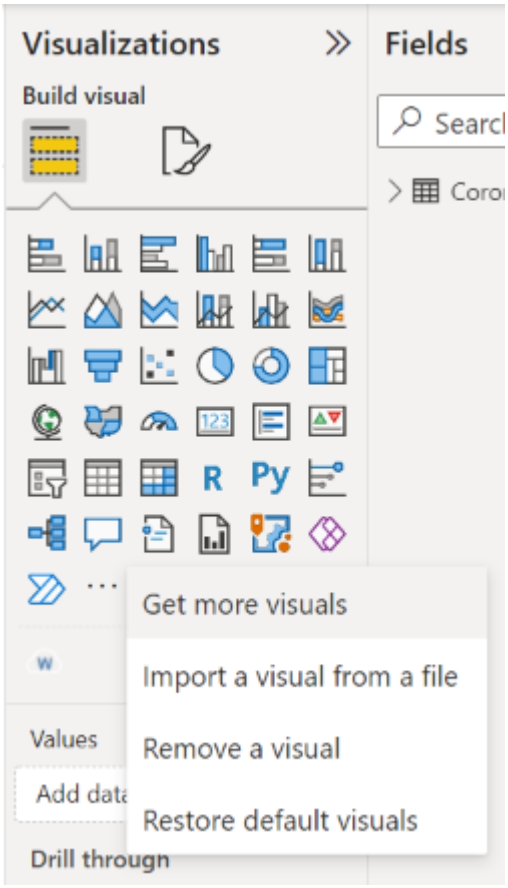
Then, select the downloaded .csv file and Load the data.



2. Download Sankey visual

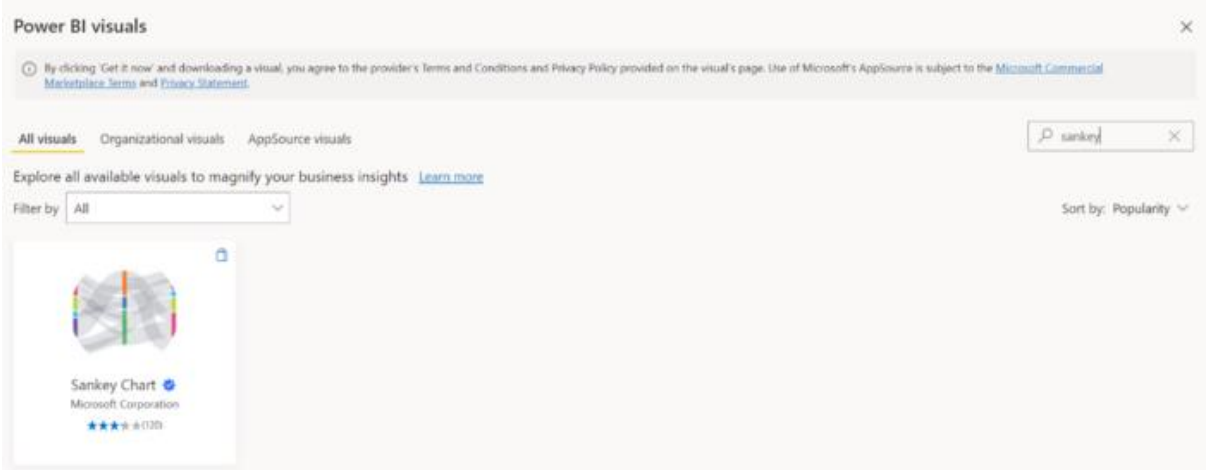
In the Visualizations plain on the right-hand side, click at 3 dots and select “Get more visuals”

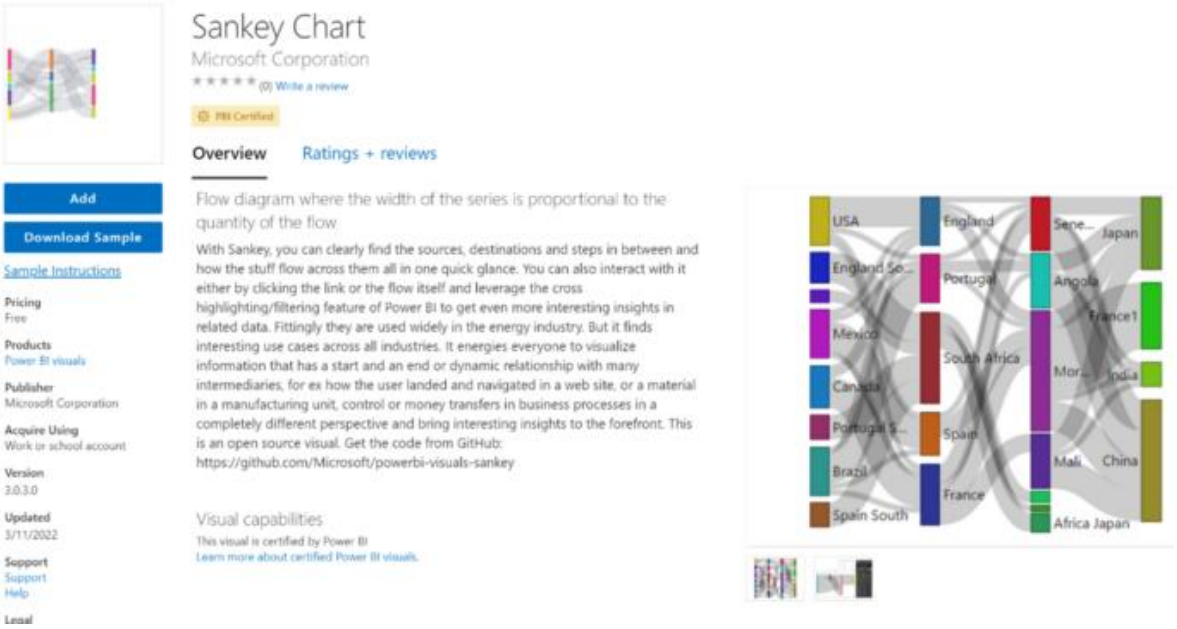
Visualizations plain >3 dots > “Get more visuals”



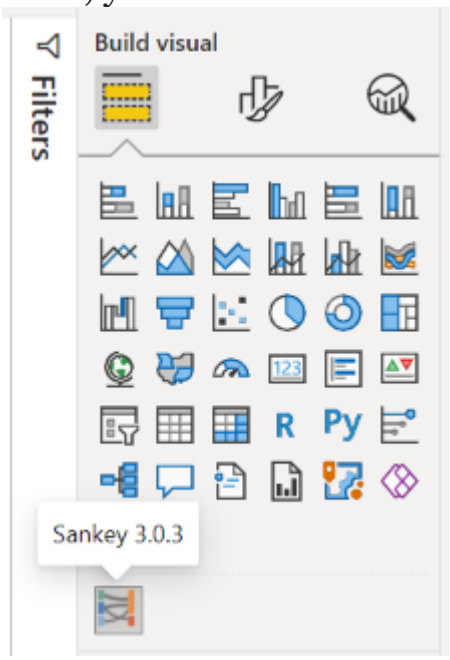
This will open the visual marketplace. Search for Sankey Chart using the search area on the right-hand side. Click on the Sankey Chart product (please make sure that it is the same one as the below image). Then, click Add.

Search Sankey Chart > Click Sankey Chart > Add





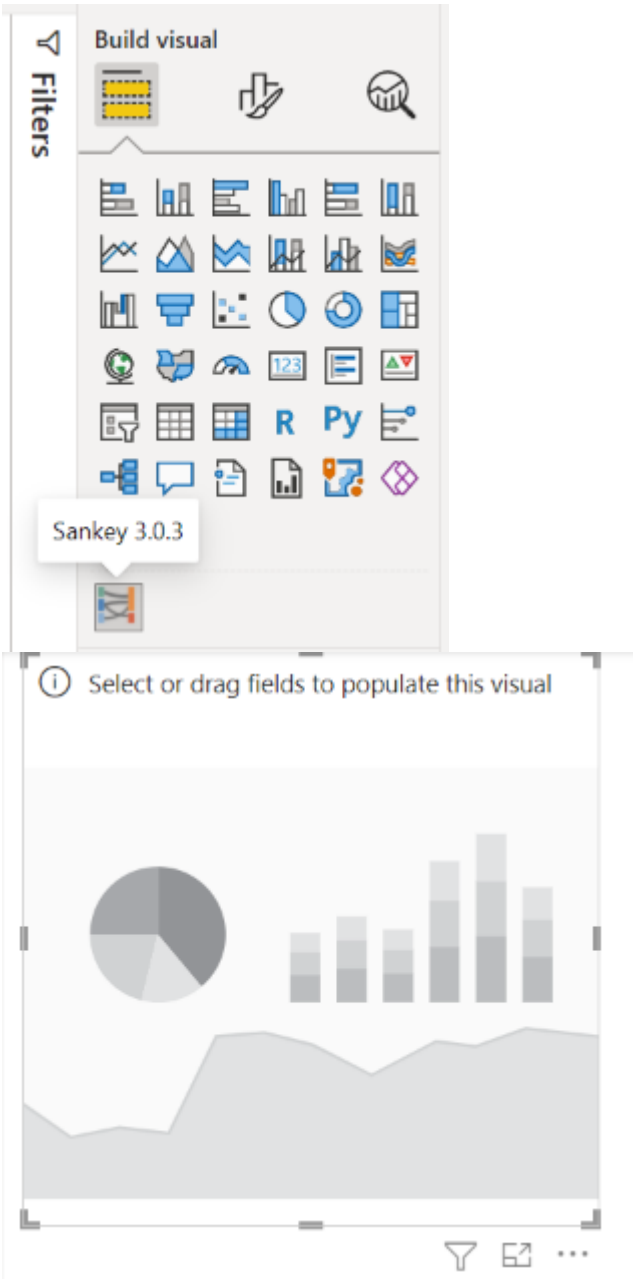
Now, you will see the Sankey icon in the Visualizations plain.



3. Create a Sankey chart

Click on the Sankey icon in the Visualizations plain.

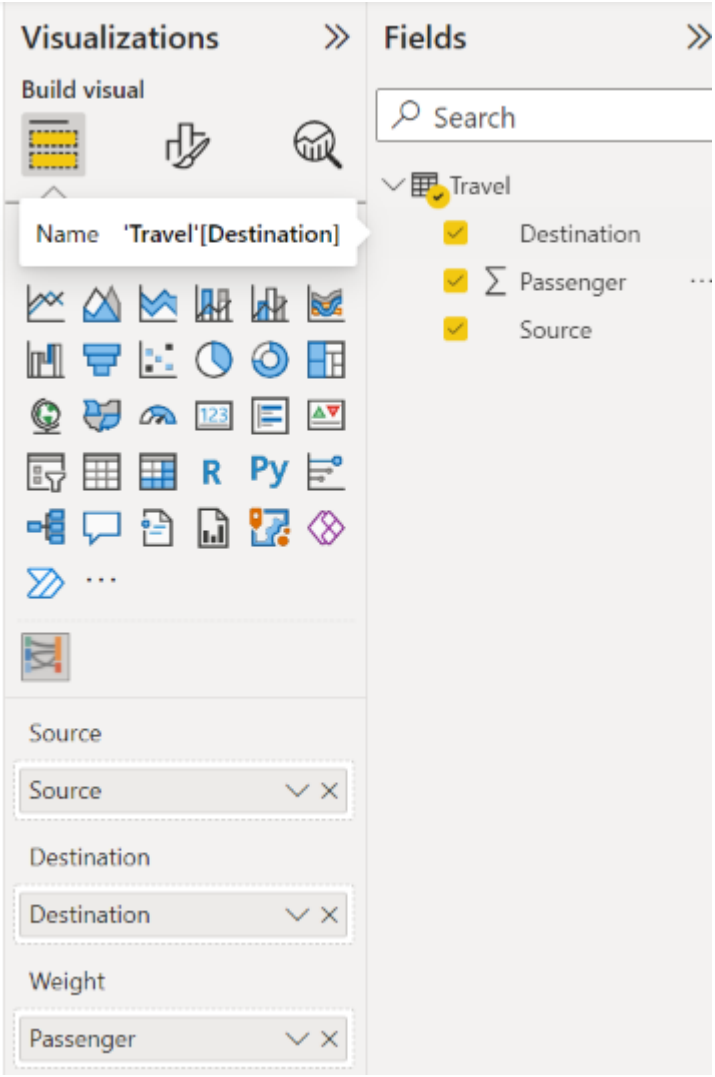
You will see an empty visualization.



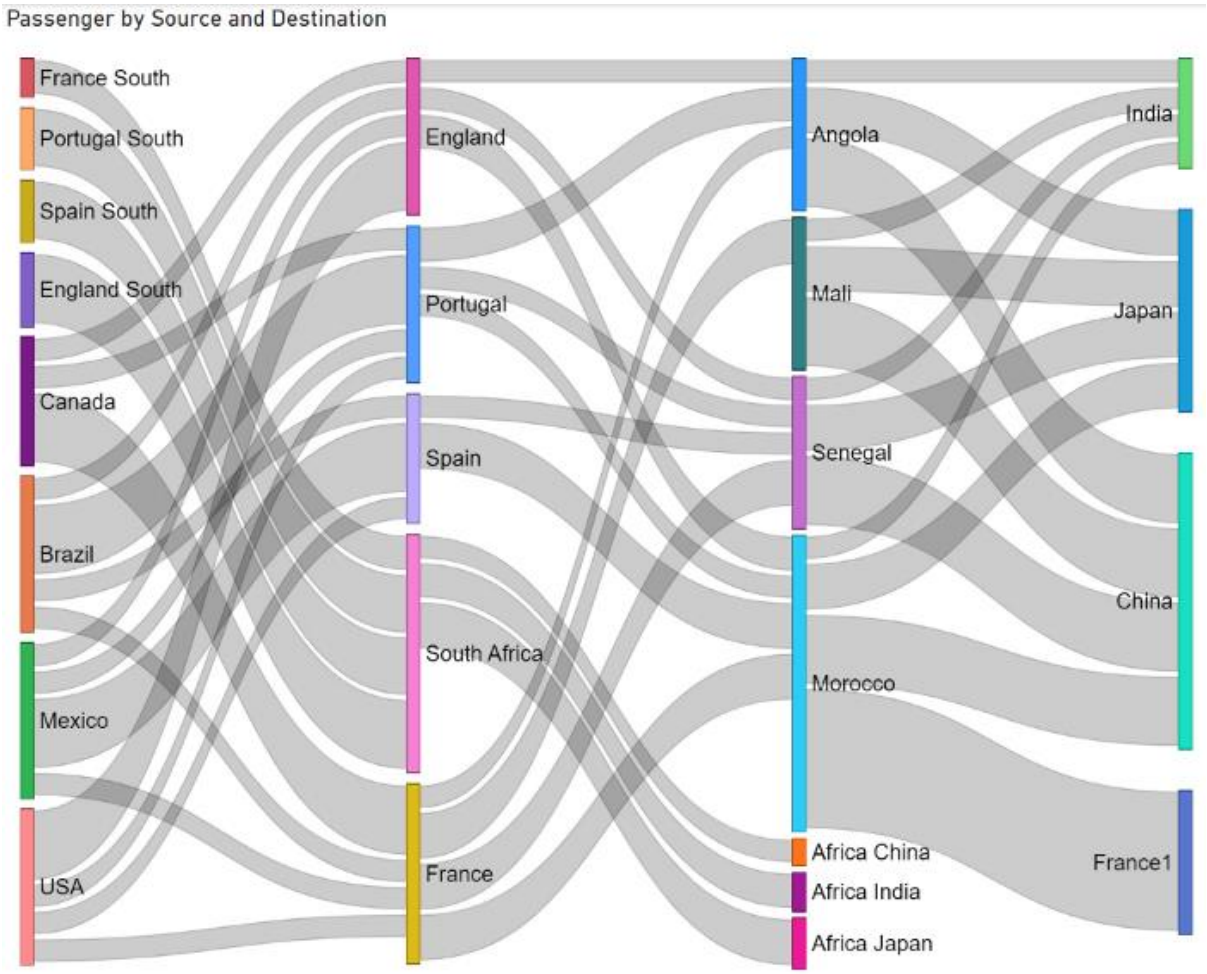
Empty visualization

In the Fields plain on the right-hand side, drag 3 columns in which you want to create a Sankey. These columns must be dragged to Source, Destination, and Weight in the correct category (weight must be a number).

❗ Make sure that you have selected that empty visualization before selecting the column.



A Sankey plot will be created.

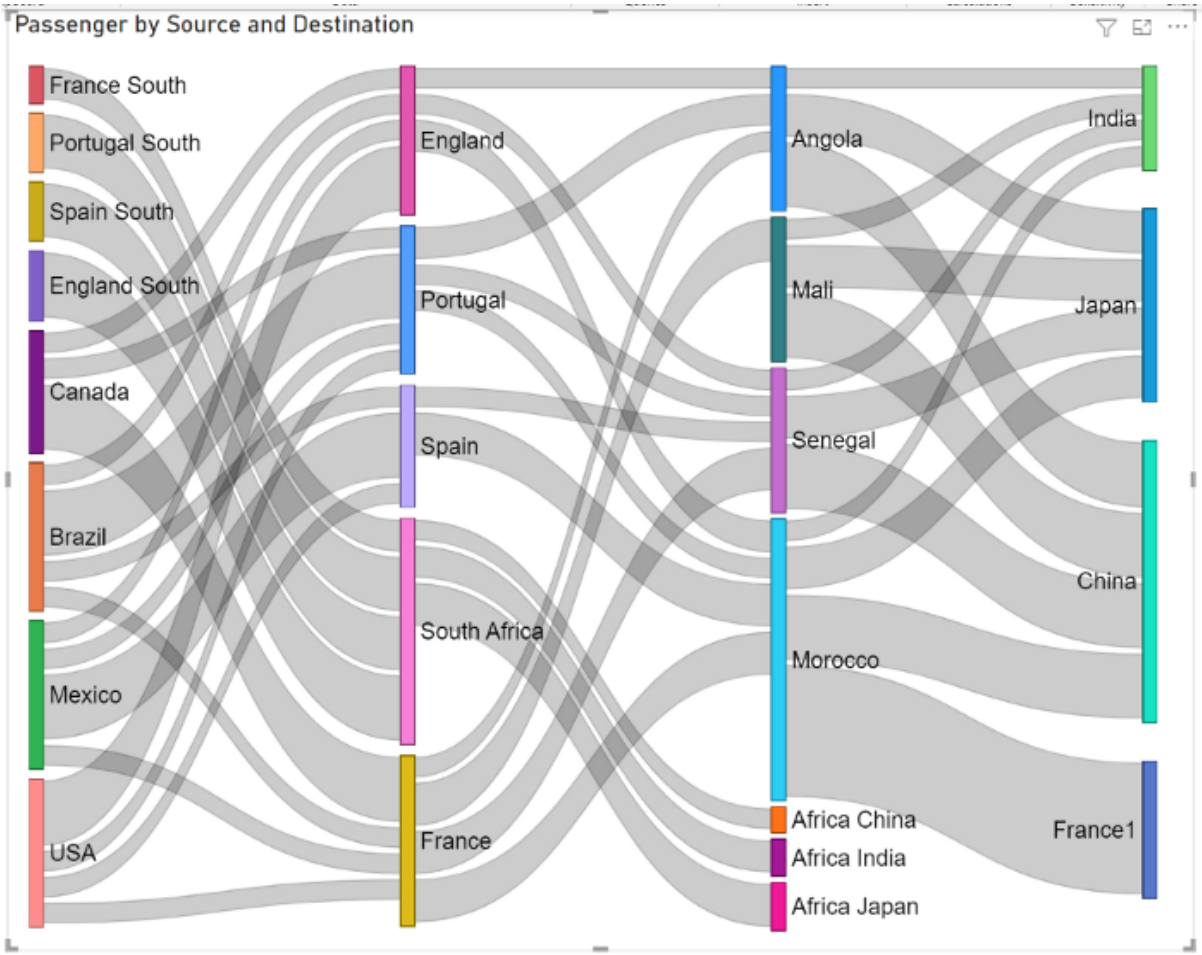


The number of passenger is represented by the weight of the link between nodes and the total number traveling to each country is shown by the node size.

Click Sankey icon > Select columns

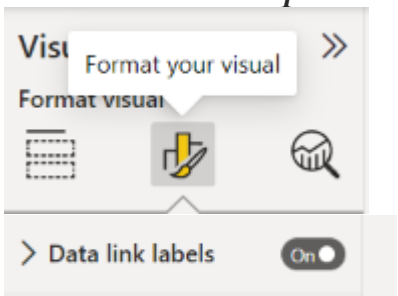
4. Adjust the Sankey chart

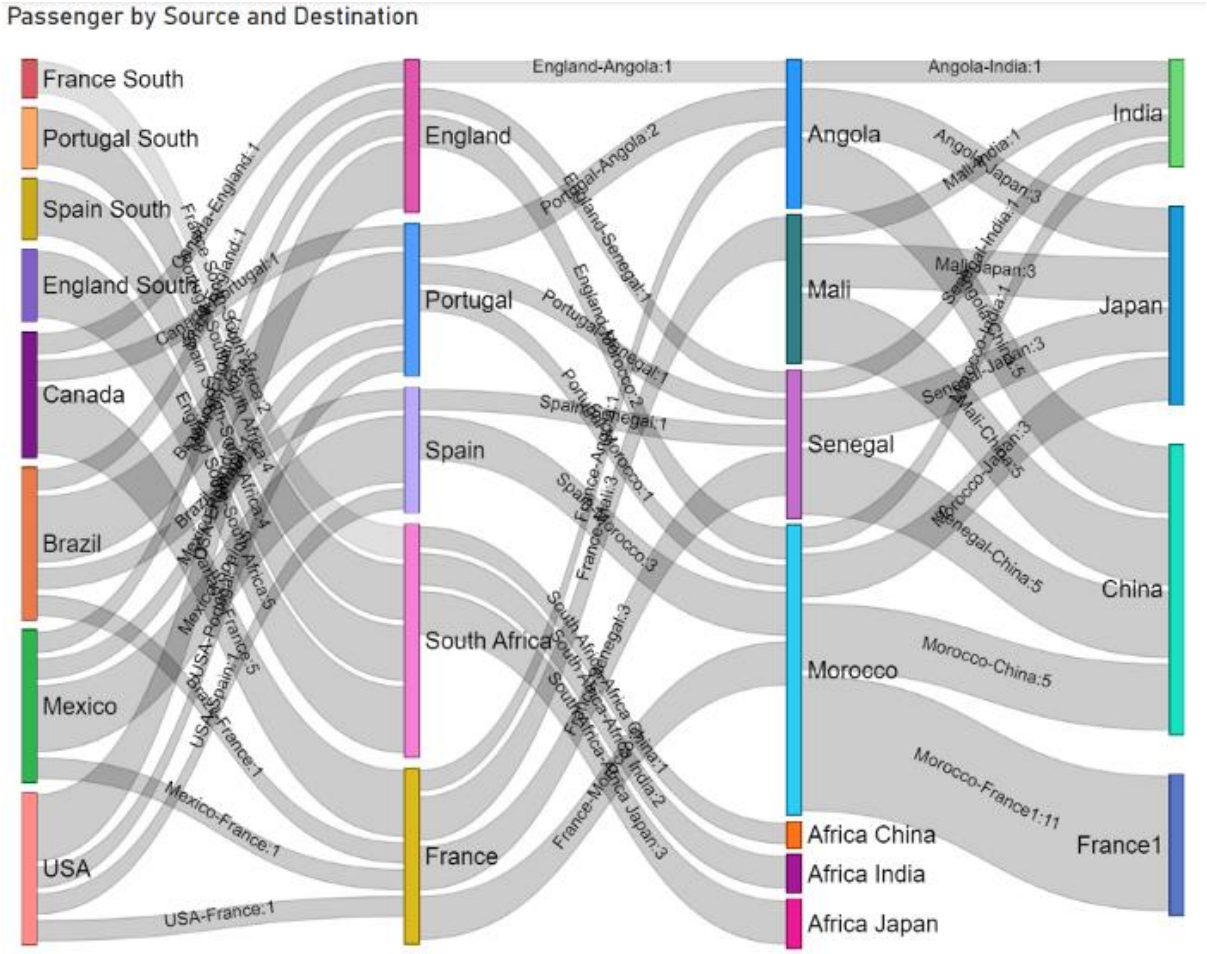
- Expand the chart by dragging the angle or side.



- Turn on the Data link label

Visualizations plain > Data link labels On

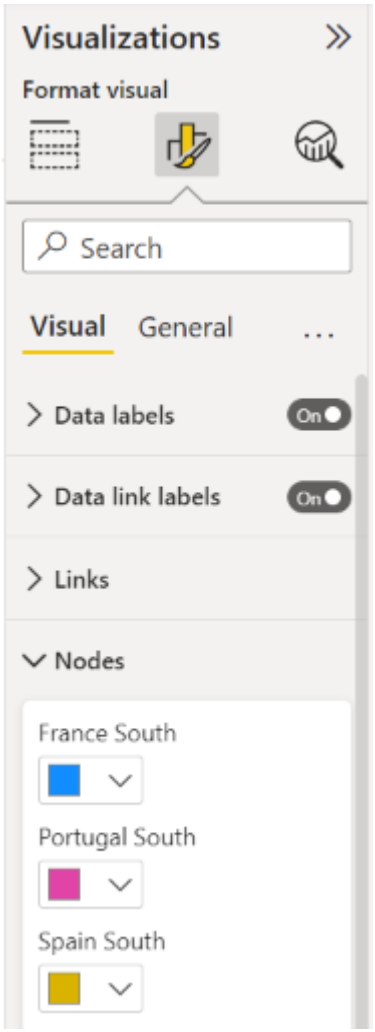




You can do this by selecting a Sankey chart. Then, in the Visualizations plain, click on Format your Visual icon. Turn the Data link labels On. You will see the text on the links that show their connected nodes.

- Node & Link color change

Visualizations plain > Links/Nodes>Select color



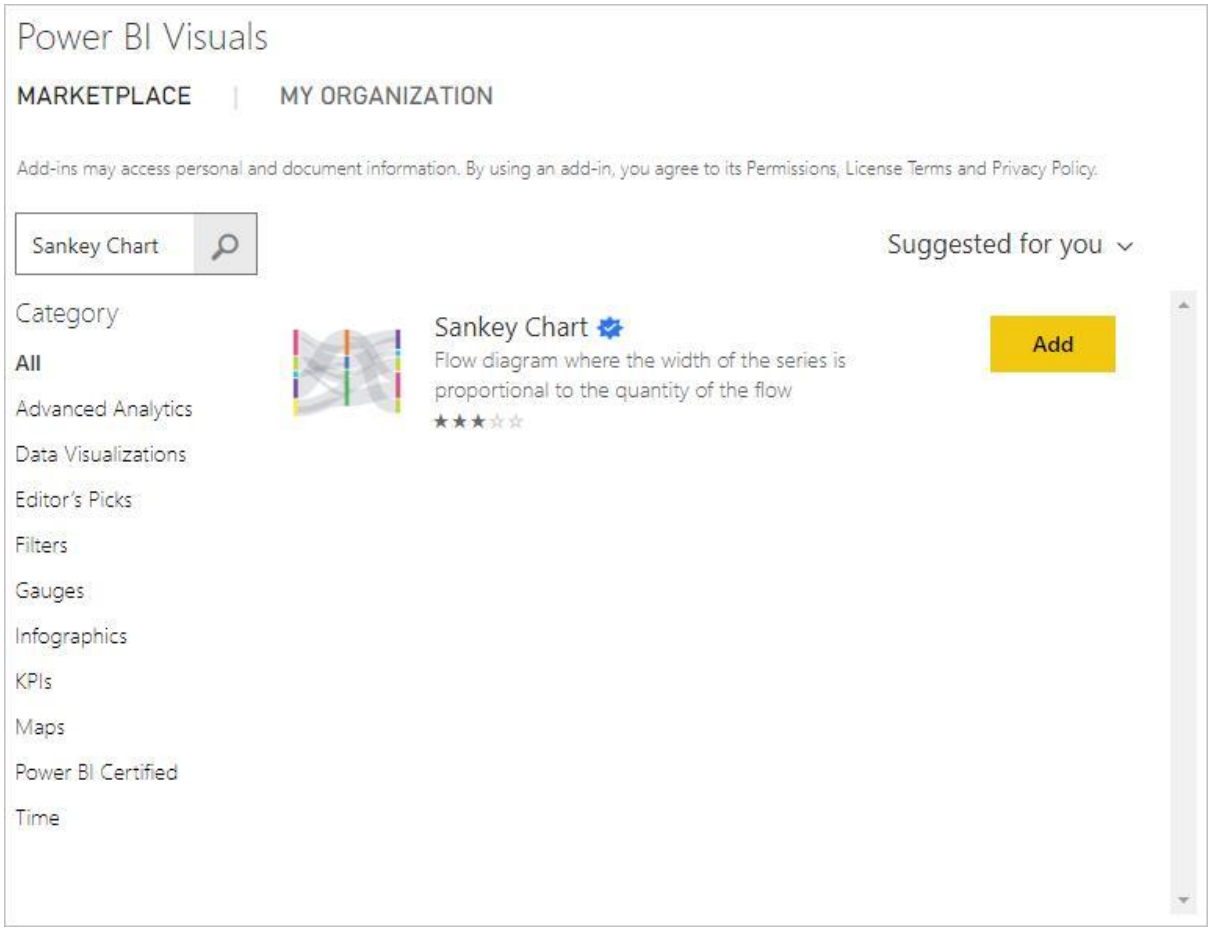
You can adjust the color of each node and link manually in the Visualization plain.

As you can see that creating a Sankey plot from Power BI is so simple yet beautiful.

Recently, I was exposed to a factory's data, where I could see the movement of inventory from its initial state in raw materials, through different manufacturing units, to the final products. Therefore, I thought it'd be cool if I could create a chart showing that dynamic production flow. Then, I found out about the Sankey Chart…

The Sankey Chart is an informative visualisation of interconnected, progressive data, with multiple levels of source and destination entities. The chart allows users to quickly and clearly identify the sources, targets and any steps in between and how things flow across each other. Users are also able to interact with the flow visual to ascertain even more insightful data.

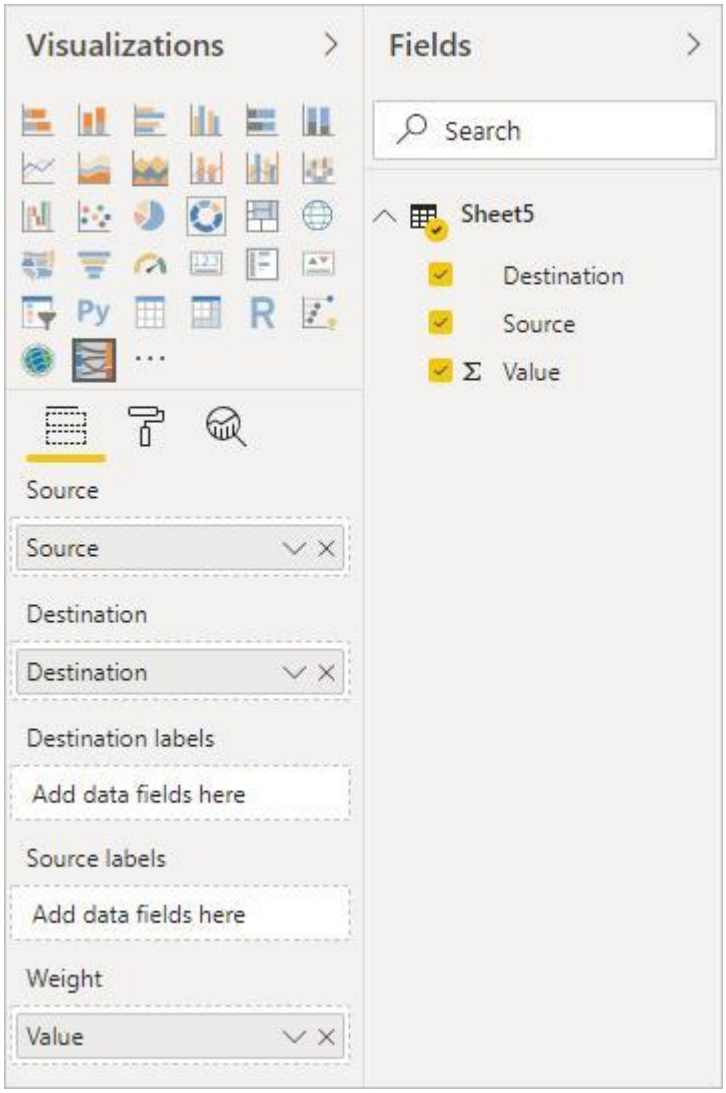
To create one, I first need to import the Sankey Chart to my Power BI Desktop. As usual, I go to 'From Marketplace' and search for the 'Sankey Chart':



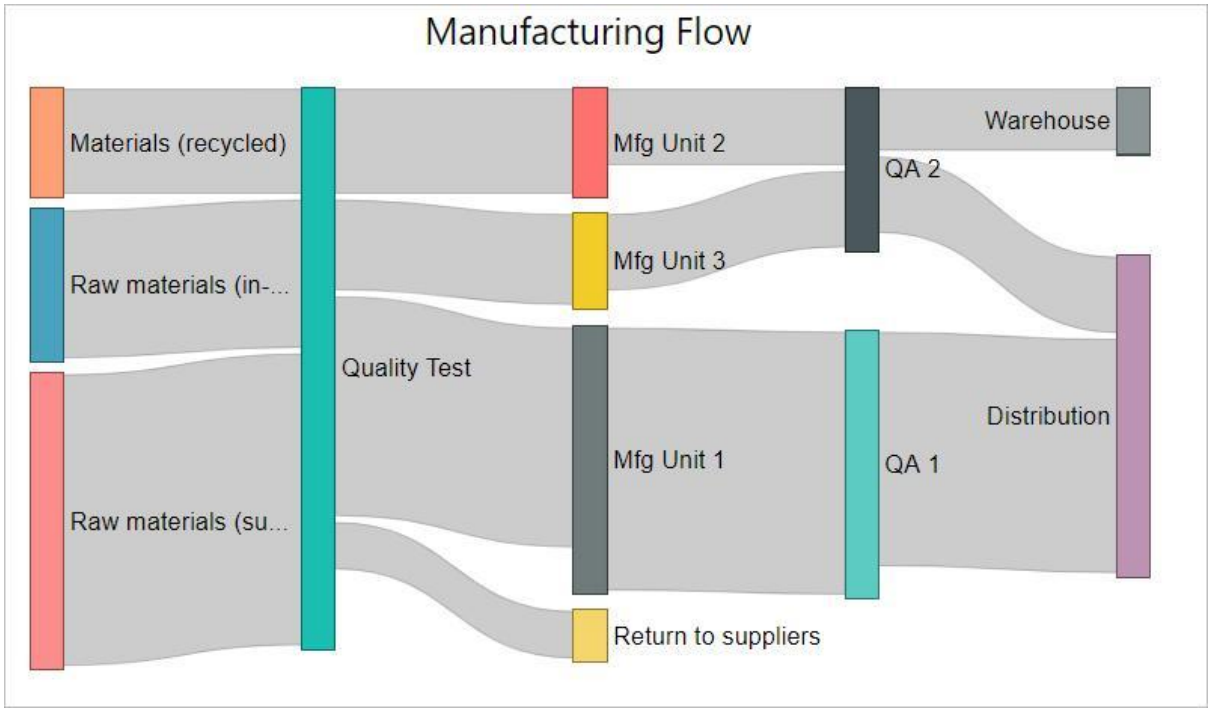
Next, I load my data into Power BI. In my dataset, like the one below, I have simplified data of value movements among factory entities, with incoming nodes displayed in the 'Source' column and outgoing nodes displayed in the 'Destination' column.

Destination	Source	Value
Quality Test	Raw materials (in-house)	100
Quality Test	Raw materials (suppliers)	200
Quality Test	Materials (recycled)	70
Return to suppliers	Quality Test	30
Mfg Unit 1	Quality Test	150
Mfg Unit 2	Quality Test	70
Mfg Unit 3	Quality Test	60
QA 1	Mfg Unit 1	90
QA 1	Mfg Unit 1	90
QA 2	Mfg Unit 2	50
QA 2	Mfg Unit 3	50
Distribution	QA 1	160
Distribution	QA 2	50
Warehouse	QA 2	40

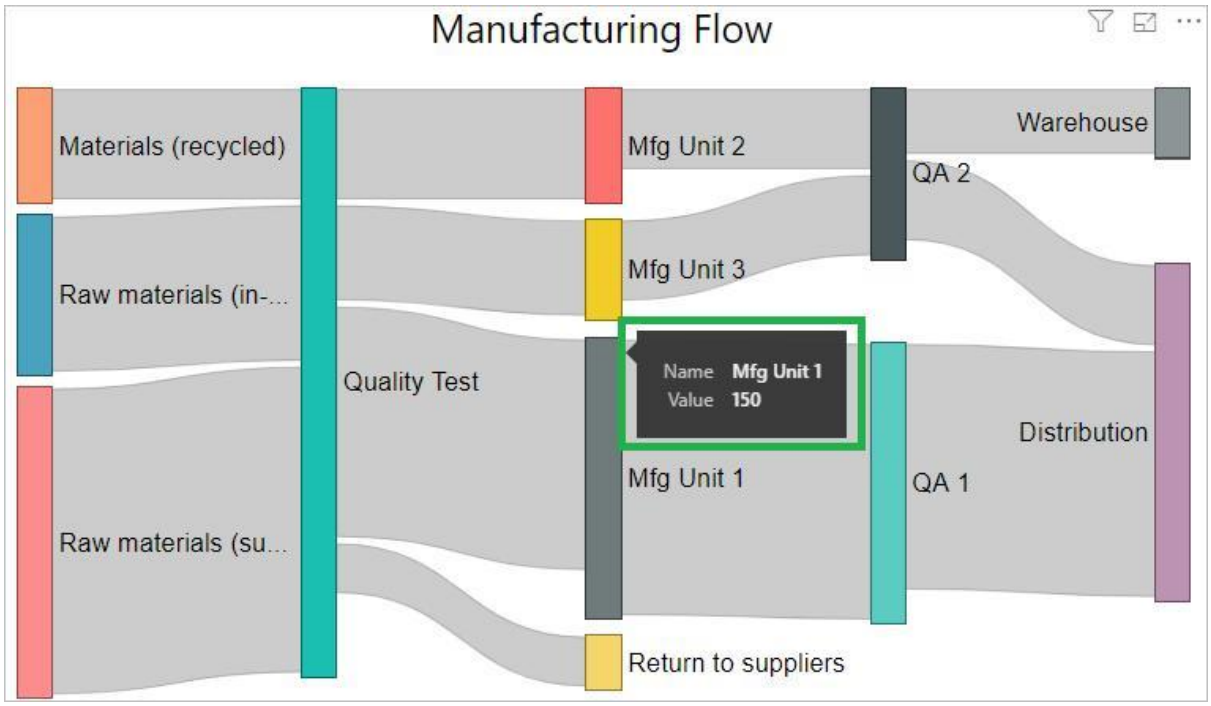
Now, in Report view, I choose Sankey Chart and start to drag fields from tables into their relevant places. As my data is quite clean, the Source and Destination fields are also their entity labels: I do not need to drag any fields into 'Destination labels' and 'Source labels'.



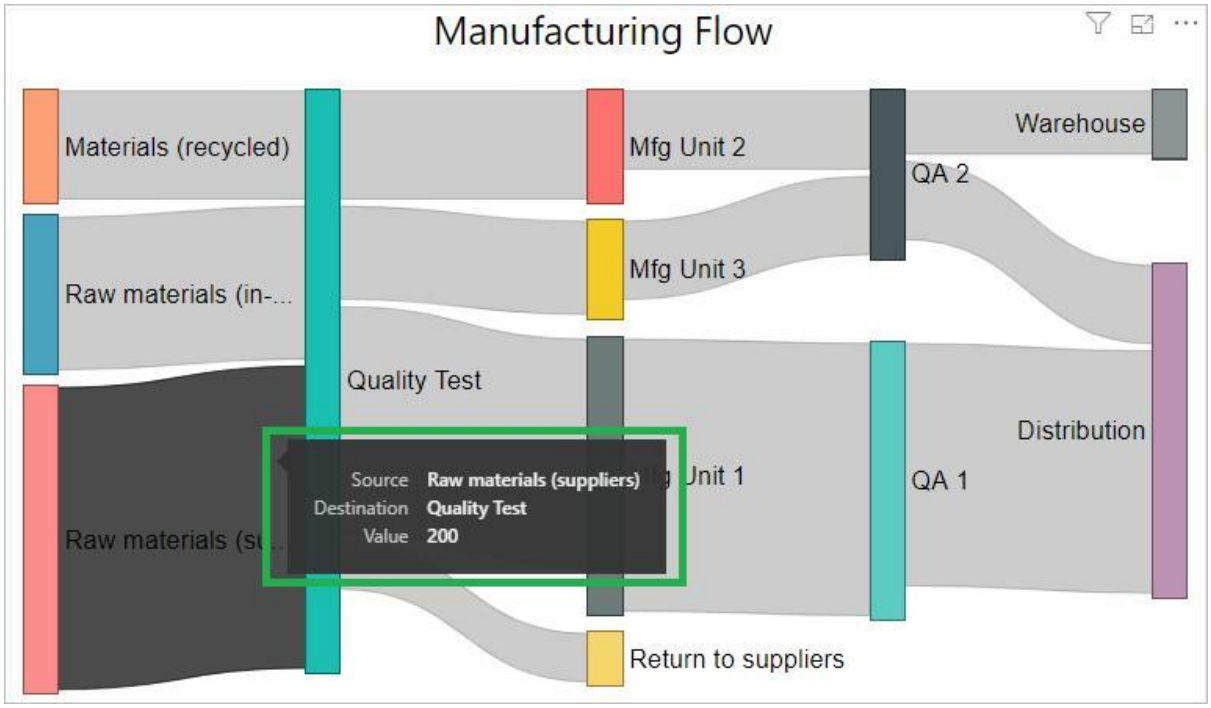
Here is my initial Sankey Chart. Now it can be clearly seen from the chart the flow of productions through various manufacturing units. The height of each node and the width of each ribbon reflects the value and split of the same from one unit to another.



It's simple, isn't it? The Sankey Chart also allows users to interact with the visual. Whenever I hover the mouse over any bar (which replicates the unit) there will be a small 'badge' displaying its details:



When I point to any ribbon replicating the value, I can see the incoming and outgoing paths related to it:



Have fun going with the flows!