Data Visualization - Tableau

What is Tableau?

- An interactive data visualization software that allows you to tell a story about your data
- Uses drag-and-drop interface to transform data into visually appealing dashboards
- http://www.tableau.com/
  - Tableau Gallery
  - Tableau Community Forums
  - Tableau Tutorial Videos
  - Tableau Help

Tableau Products

- Several ways to use Tableau
  - Tableau Desktop
  - Tableau Public (FREE)
  - Tableau Server
  - Tableau Online
  - Tableau Reader

Create dashboards with Tableau Desktop and share via:

	Tableau Server	Tableau Online	Tableau Reader	Tableau Public
Best for	Enterprises with complex requirements	Fast startup, no IT needed	Sharing without security or data management	Sharing on the public web
View & interact with reports on	Web & Mobile	Web & Mobile	PC	Web & Mobile
Edit reports & dashboards	✓	✓	--	--
Tableau-managed infrastructure	--	✓	--	✓
No download needed to view reports	✓	✓	--	✓
No download needed to set up server	--	✓	N/A	✓
Security via authentication	✓	✓	--	--
Security via Active Directory	✓	--	--	--
Guest user access	✓	--	--	✓
Real-time data	✓	On some data sources	--	--
Automatic data refresh	✓	✓*	--	--
Minimum users	10	1	--	--

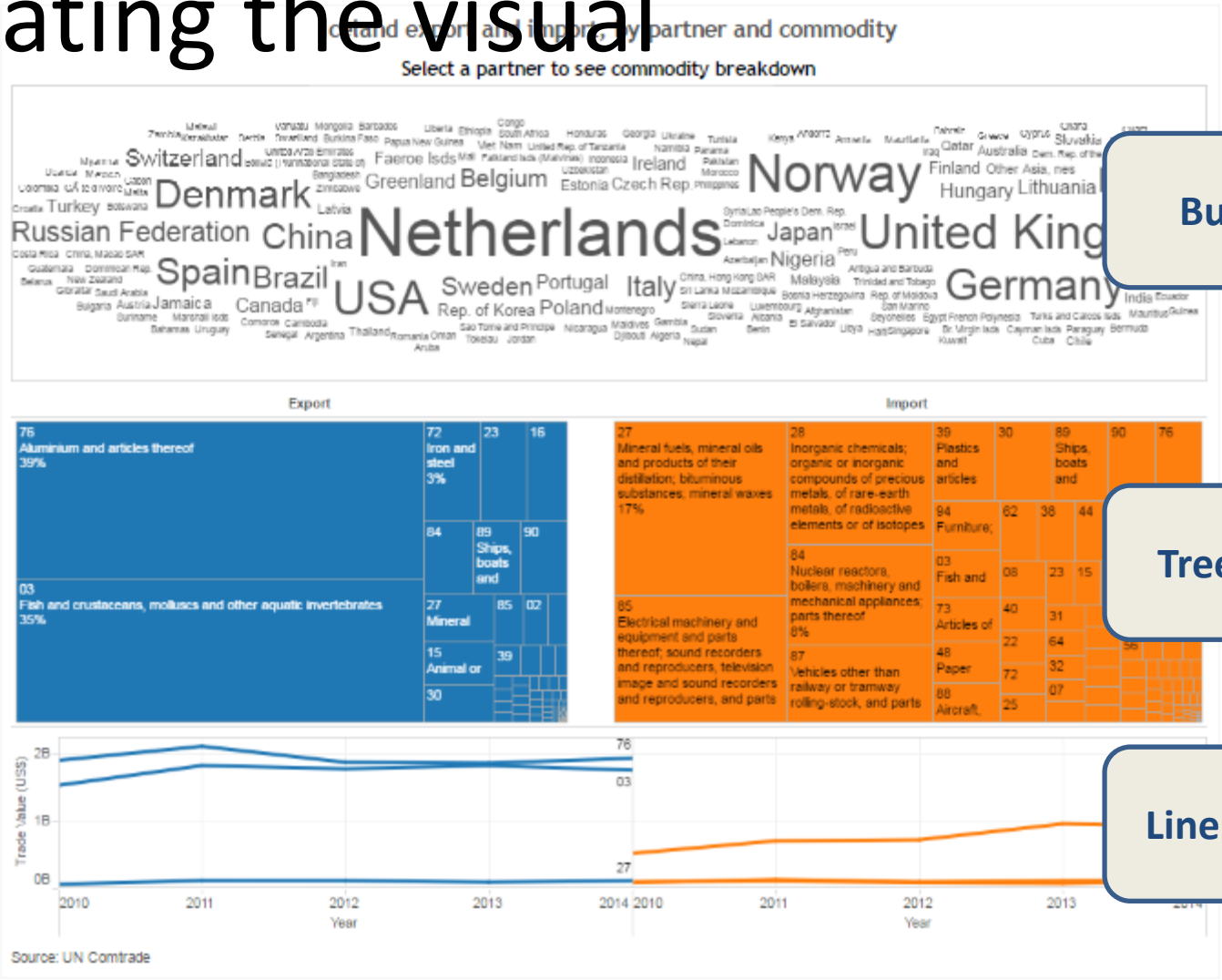
Tableau Public

- FREE, fast and easy way to embed richly interactive data visualizations on your website
- No programming/coding skills required
- Good starting point to learn Tableau
- Upgrades
- Limited to publishing on Tableau website and cannot save on local machine. Once published with Tableau Public, your visualization is available to all
- https://public.tableau.com/s/ -> Gallery has rich examples of visualizations from around the web available for download and for you to work with

Today: **Overview** of Tableau Public

- Prepare data to transform to a visual
- Working with Tableau Public
  - Intro to Tableau Interface
  - Connecting to data – types of data sources
  - Importing Data – Overview of the Data Source Tab
- Creating the Visual
  - Overview of a Worksheet
  - Creating 3 sheets: Bubble, Tree Map and Line Graph
- Piecing it all into a Visual: Dashboard
- Save/Publish
- Examples of visualizations using UN Comtrade Data

Creating the visual



Bubble

Tree Map

Line Graph

https://public.tableau.com/profile/uncomtrade#!/vizhome/Icelandexportandimportbypartnerandproduct_0/Iceland

Sheets and Dashboard

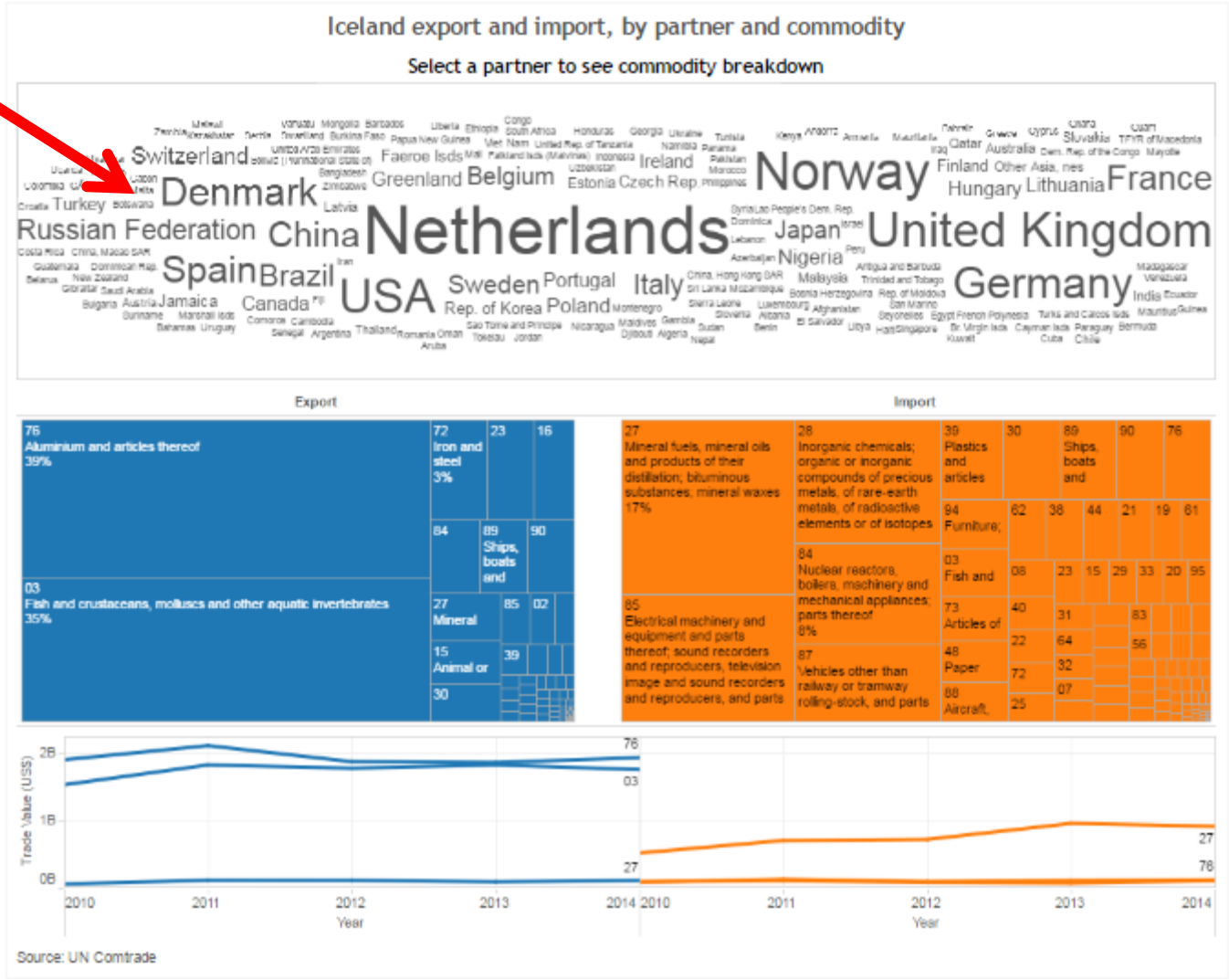
1. Bubble
   - Partner (Text)
   - Measure: Trade Value (Size)
   - Filter: Latest Year
2. Tree Map
   - Commodity description (Text)
   - Measure: Commodity value share (Size)
   - Trade Flow
   - Filter: Latest year
3. Line Graph
   - Measure: Trade Value (Size)
   - Filter: Top 3 Commodities Commodity Code (Text)
   - Filter: Available Years

Working with Tableau Public

1. Open Tableau Public 10.2 (short cut on desktop)
2. Connect to a text file.
   - Navigate to **\desktop\Tableau Demo\data\Maldives 2013-2015(SITC3-3D).** Click Open.
3. Overview of Data Source tab
   - Connections, Files
4. Review imported data
   - Change **Commodity Code** data type of from number to string
   - Change **Partner** data type to String -> Geographic role -> Country/Region
5. Worksheets

Dimension vs Measure

- Tableau automatically classifies your data
  - Categorical data -> Dimensions - > Headers
  - Quantitative data -> Measures -> Axes
- Aggregations are always measures.



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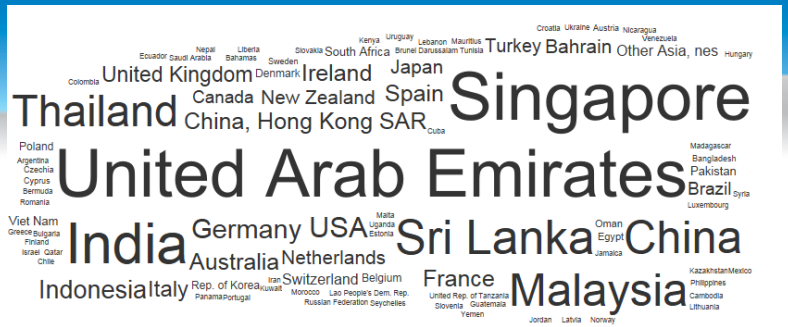
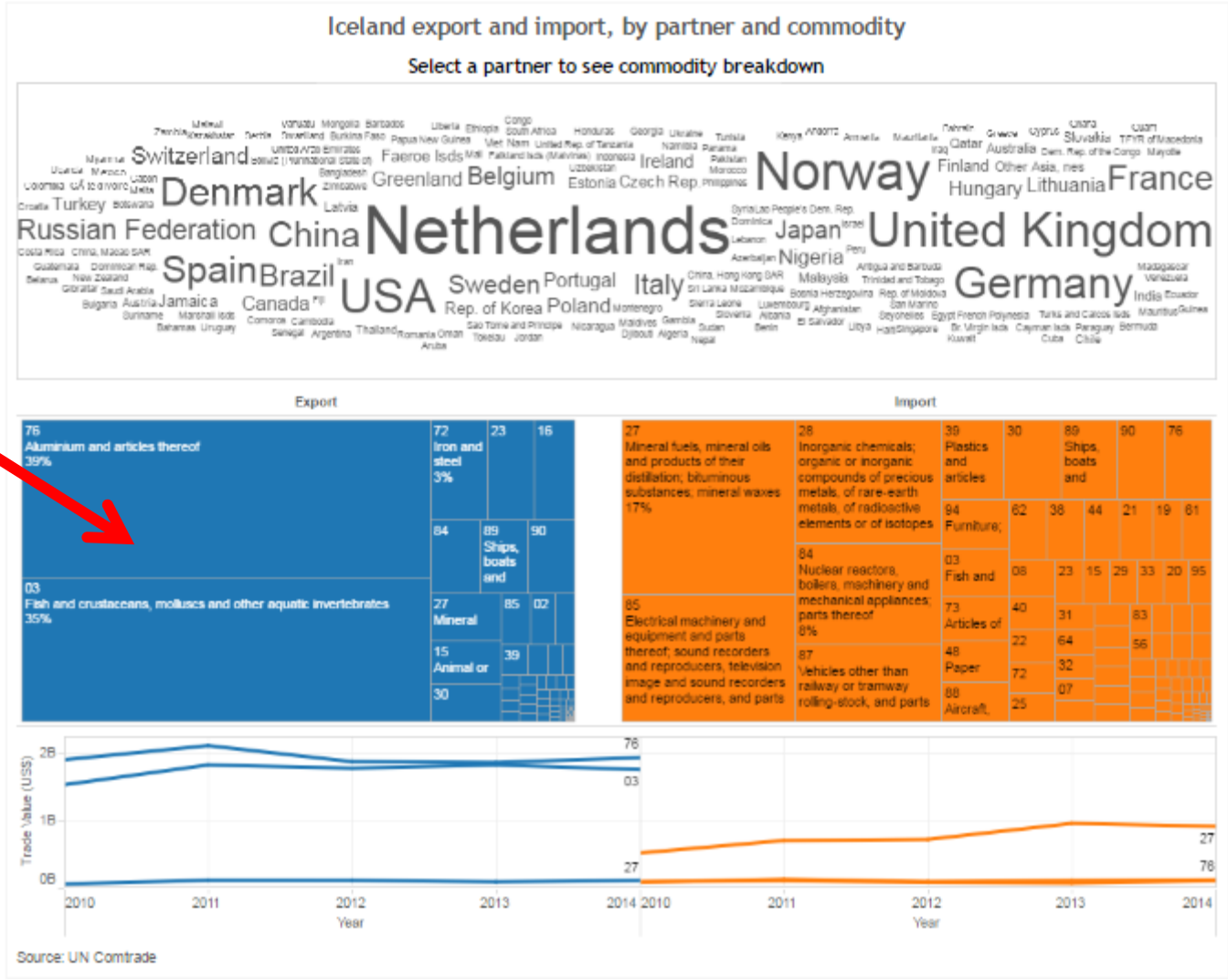
Bubble



Partner (Text), Measure: Trade Value (Size), Filter: Latest Year

Overview of the worksheet (Toolbar, Dimensions, Measures, "Show Me" feature, Marks, Filters)

1. Drag **Partner** from Dimension to Columns
2. Drag **Trade Value (US$)** from Measure to Rows
3. Under Show Me, choose **Bubble** visual
4. Drag **Partners** to Filters. Select All.
5. Drag **Year** from Dimensions To Filter. Filter latest year (2015)
6. Under the Marks section, change from Circle to **Text**.
7. Under the Marks section, click on Tooltip. Change entries to **"Select <Partner> to view commodity breakdown."**
8. Rename sheet to **"Bubble"** and hide this title from the page

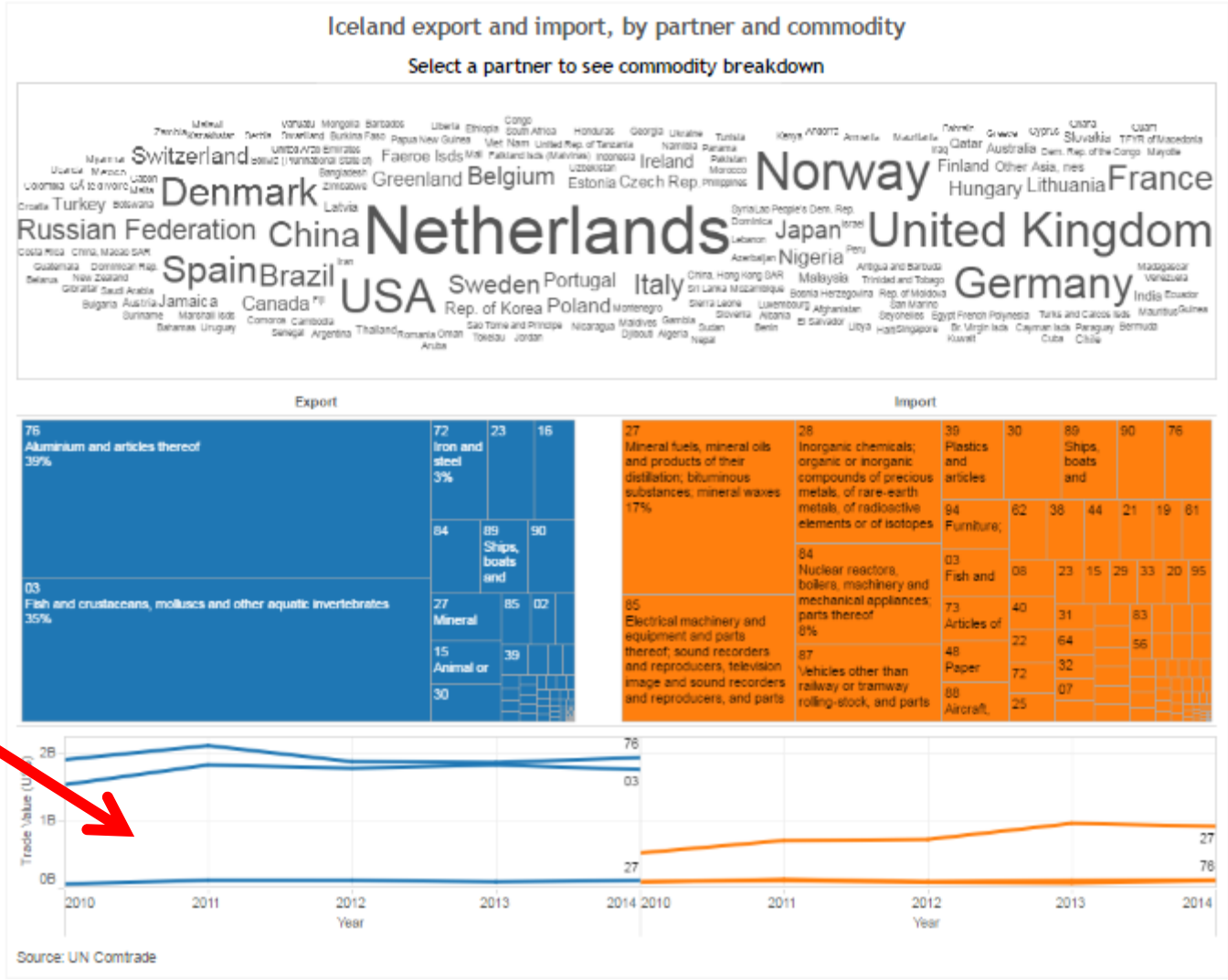


https://public.tableau.com/profile/uncomtrade#!/vizhome/Icelandexportandimportbypartnerandproduct_0/Iceland

Tree Map

Commodity description (Text), Measure: Commodity value share (Size), Trade Flow, Filter: Latest year

1. Drag **Trade Flow** from Dimension to Columns
2. Drag **Commodity** from Dimension to Rows.
3. Drag **Trade Value (US$)** from Measure to Rows beside **Commodity**
4. Under Show Me, choose **Tree Map** visual.
5. Drag **Trade Flow** from Dimension to back to Columns
6. Drag **Trade Flow** from Dimension to Color on the Marks card
7. Drag **Year** from Dimensions To Filter. Filter latest year (2015)
8. Drag **Trade Value (US$)** from Measure to Marks card.
   - Right click and choose **Edit Table Calculation**.
   - Set Calculation Type as **"Percent of Total"** and Compute Using as **"Table down".** Drag the measure on to the Label Marks card.
9. Rename sheet as **"Tree Map"** and hide this title from the page



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Line Graph

Measure: Trade Value (Size), Filter: Top 3 Commodities Commodity Code (Text), Filter: Available Years

1. Drag **Trade Flow** and **Year** from Dimensions to Columns
2. Drag **Trade Value (US$)** from Measures to Row
3. Drag **Commodity Code** to Filters. Select **All** from list then in the Top tab, choose **Top 5 by sum of Trade Value (US$)**
4. In Marks card, drag **Trade Flow** to color, **Commodity Code** to Text and Detail
5. Tooltip contents
6. Rename sheet to "**Line**" and hide this title from the page

Creating the dashboard

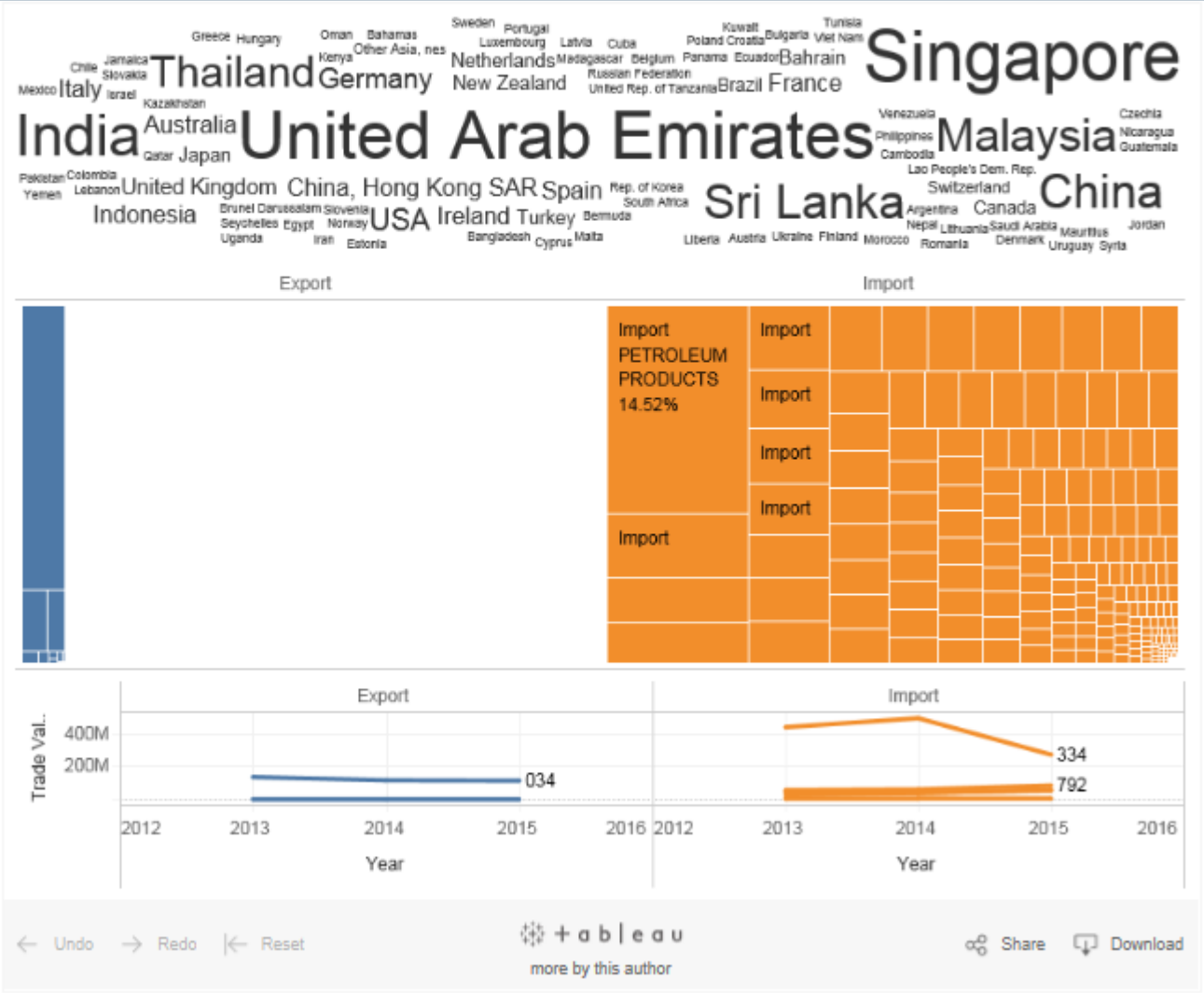
- Dashboard – collection of several worksheets in a single place

1. Click on dashboard to create one for this exercise.
2. Rename to "`Maldives`"
3. Arrange sheets in preferred layout
4. Apply single filter to all sheets
   - Dashboard -> Actions

Saving and sharing your visual

- Create your free profile on Tableau Public (https://public.tableau.com/s/)
- Go to File -> Save to Tableau Public As ->enter login credentials and “Enter”

Save Complete. Edit Details Tweak the title, give it a brief description, and/or add a link to where you'll be embedding it. You can even customize the viz toolbar.



Data Visualizations using UN Comtrade Data

- https://public.tableau.com/profile/uncomtrade#!/

- https://comtrade.un.org/labs/

THANK YOU