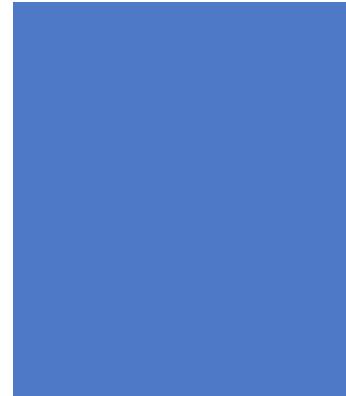


Tableau Dashboard

Bharat Bhushan Verma



Agenda

M1: Dashboard Design Considerations

- Design Process & Principles
- Data Preparation
- Creating Worksheets
- Applying Design Requirements

M2: Designing Dashboard

- Sets & reference Lines
- Dashboard Hierarchy & Objects
- Grouping & Quick Filters
- Dynamic Chart Views
- Final Design & Publishing

Exercise Files

Please download the
exercise and data files
from

<https://github.com/dearbhарат/PNSDashboard>

M1: Dashboard Design

Design Process & Principles

Data Preparation

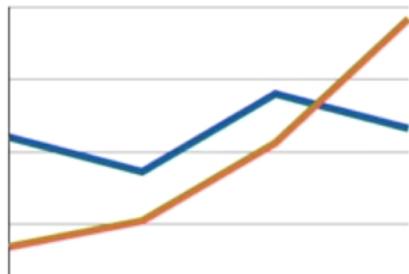
Creating Worksheets

Applying Design Requirements

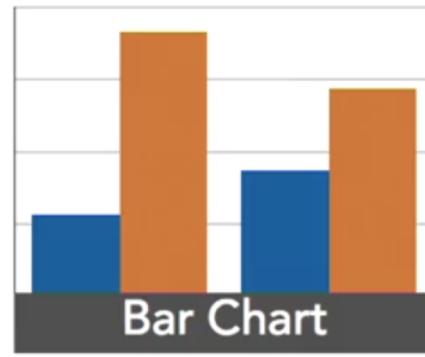
Dashboard Design Principles

- Need relevant metrics
- Make it visual
- Make it interactive
- Make it easy to use
- Keep improving

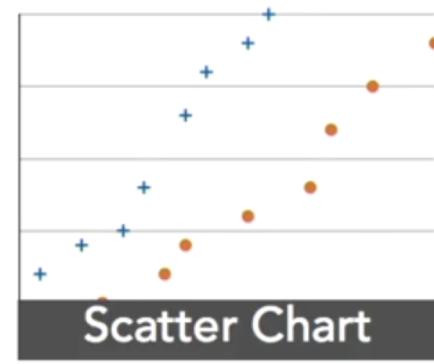
Choosing the right chart



Line Chart



Bar Chart



Scatter Chart

1

Is there a
trend?

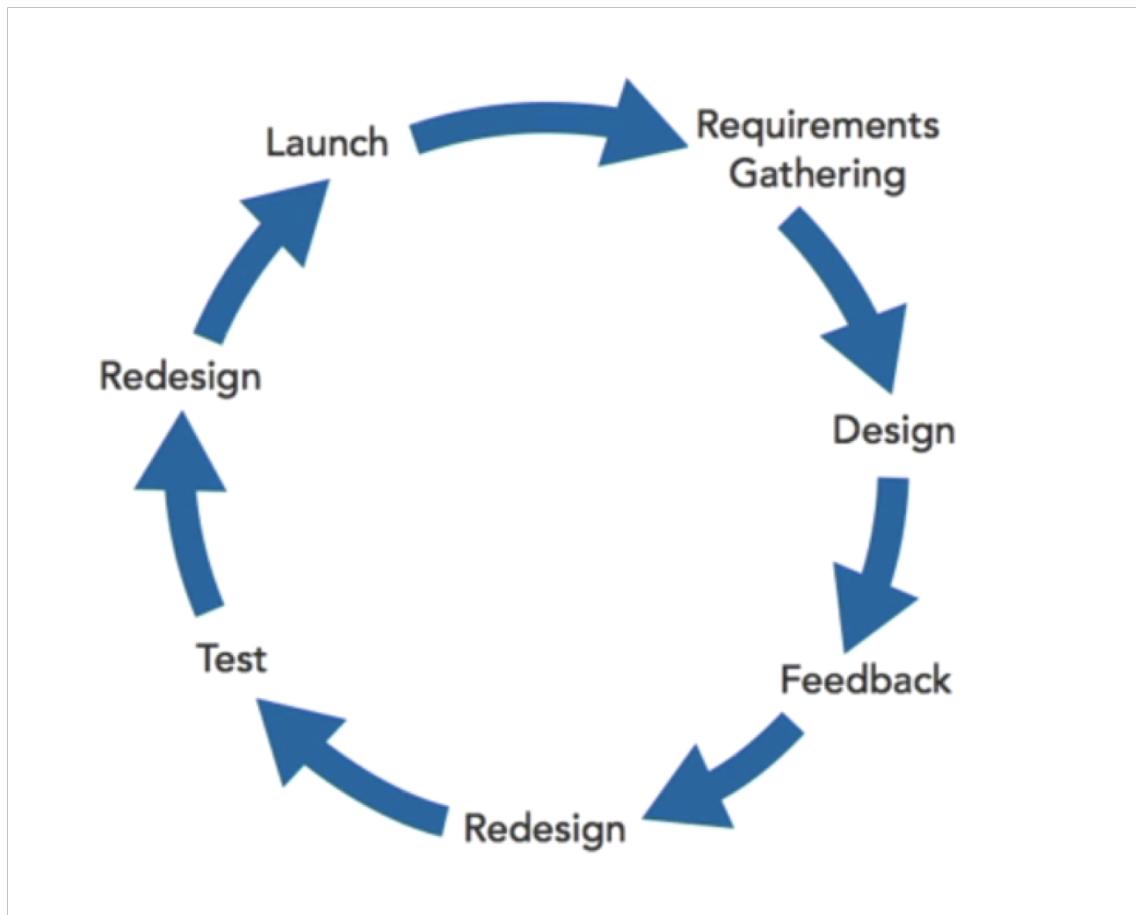
2

How do
values differ?

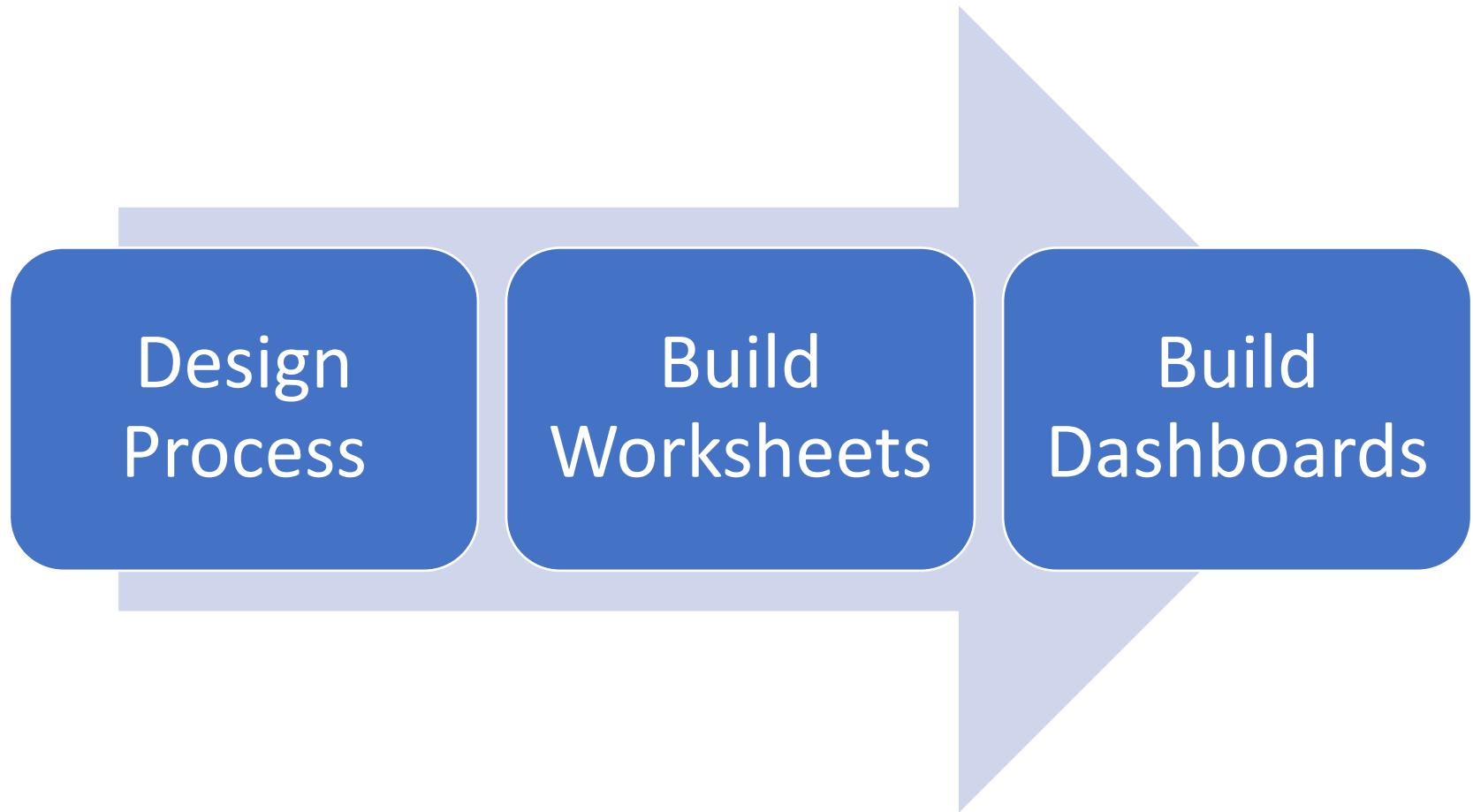
3

Are there
outliers?

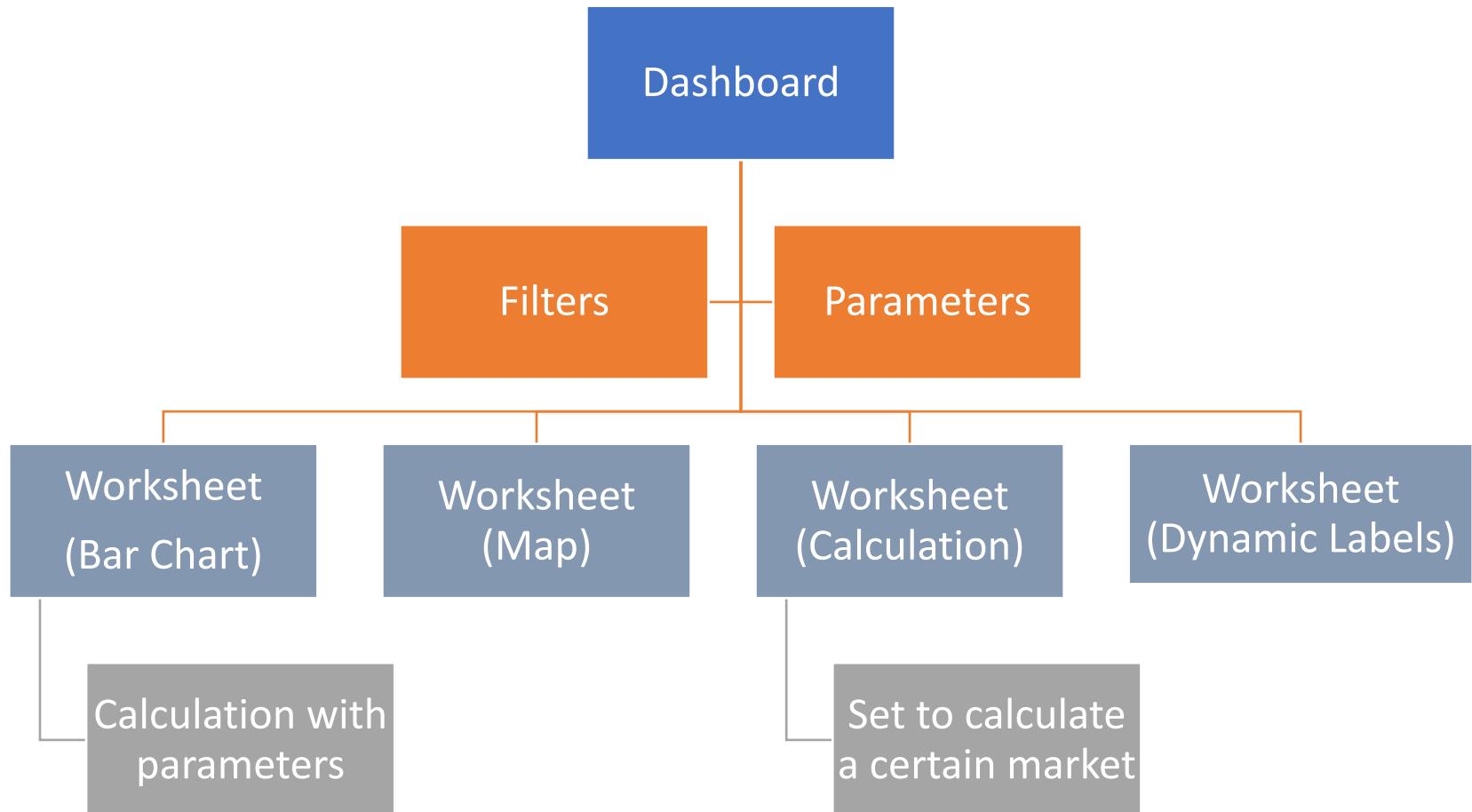
Dashboard Design Process



Start with worksheets



Typical Dashboard Structure



Exploratory Data Analysis – Data Preparation

- <http://databank.worldbank.org/data>
- Explore
Data_Extract_From_World_Development_Indicators_revised.xlsx
- Refer which_chart_to_use.pdf
- Examine relation between
 - Electrical Power Consumption Vs Internet Usage Ratio
 - Mobile Phone Subscriptions Vs Internet Usage Ratio
 - GDP Annual Vs Internet Usage Ratio
 - What will you put on colors?
 - Drop a trend line with interval bands
 - What do you observe
- Study trend of ratio of phone subscriptions and Internet Usage

Applying Design Requirements



Key Metrics

Internet Usage, Mobile Phone Usage, GDP



Trend

How has it changed?



Up and Comers

Where would we expect to see growth?



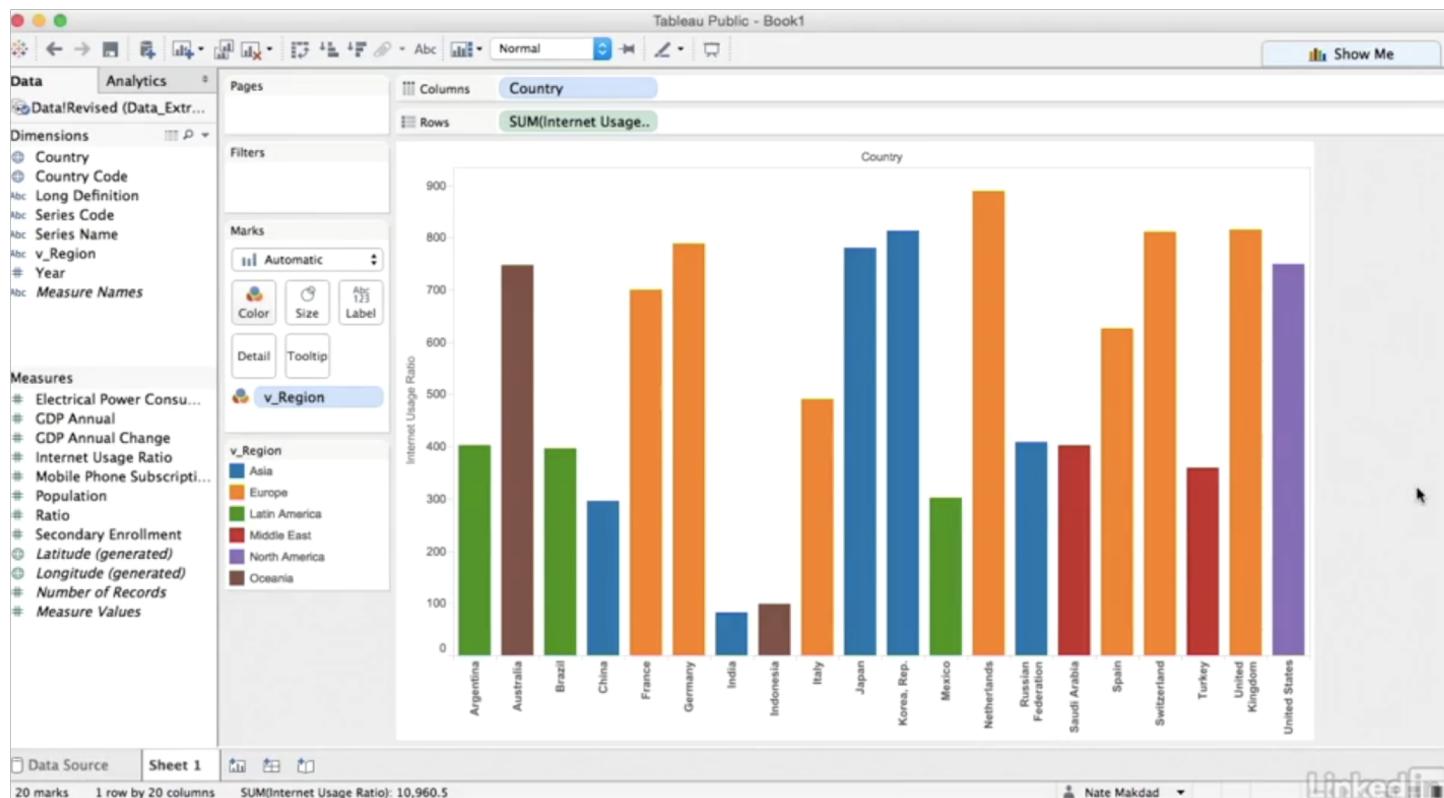
Flexibility

Explore across dimensions

Setting up the Data for Visualization

- Convert Countries into appropriate regions
- Create a Calculated field v_Region
- Examine Internet Usage ratio by Country
 - Create a bar chart
 - Color by v_Region

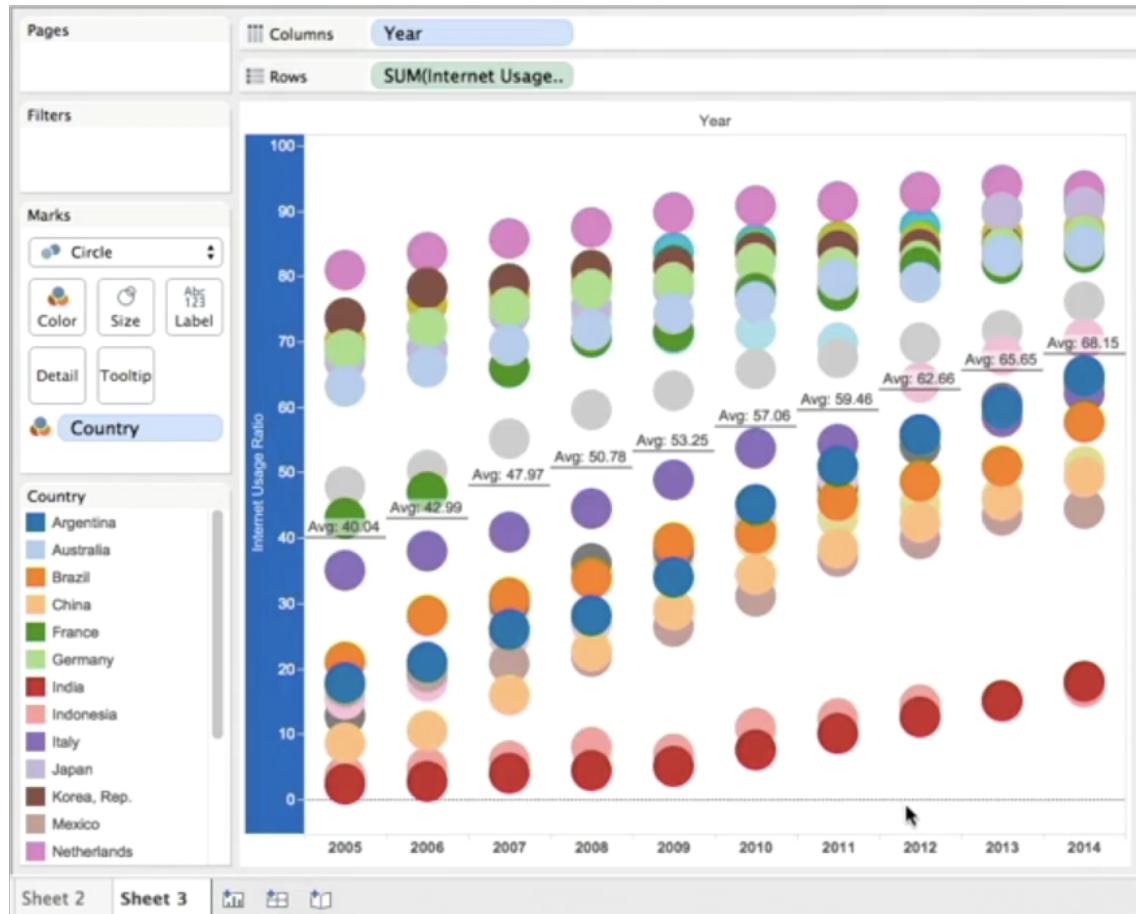
Sheet 1 – First Worksheet



Sheet 2 – Create Sets

- Let Ratio be ≥ 2 in first set name “Ratio Set”
- Filter on “Ratio Set”
- Create set 2 of top 10 countries by population
- Combine both sets using inner join
- Use combined set in filters

Sheet 3 - Reference Lines



Design Hierarchy

Foundation

- Base of the Report
- Background

Control

- Parameters and
- Filters

Content

- Tables and
- Graphs

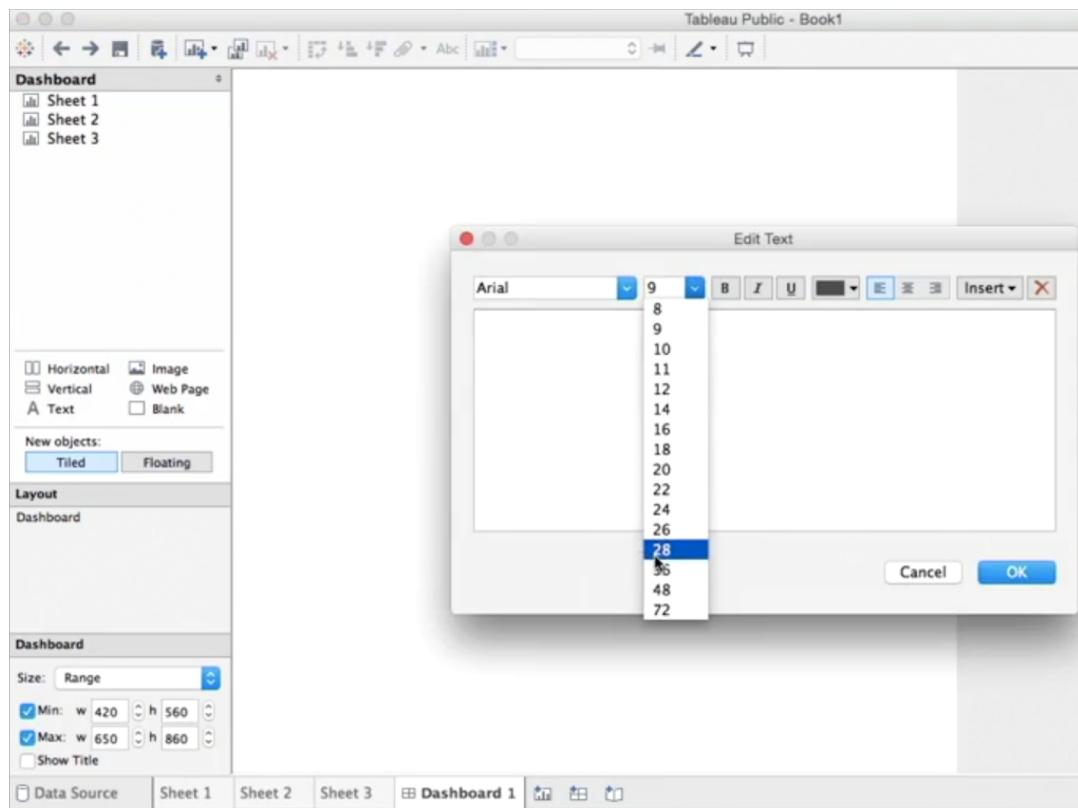
M2: Dashboard Design

Grouping & Quick Filters

Dynamic Chart Views

Final Design & Publishing

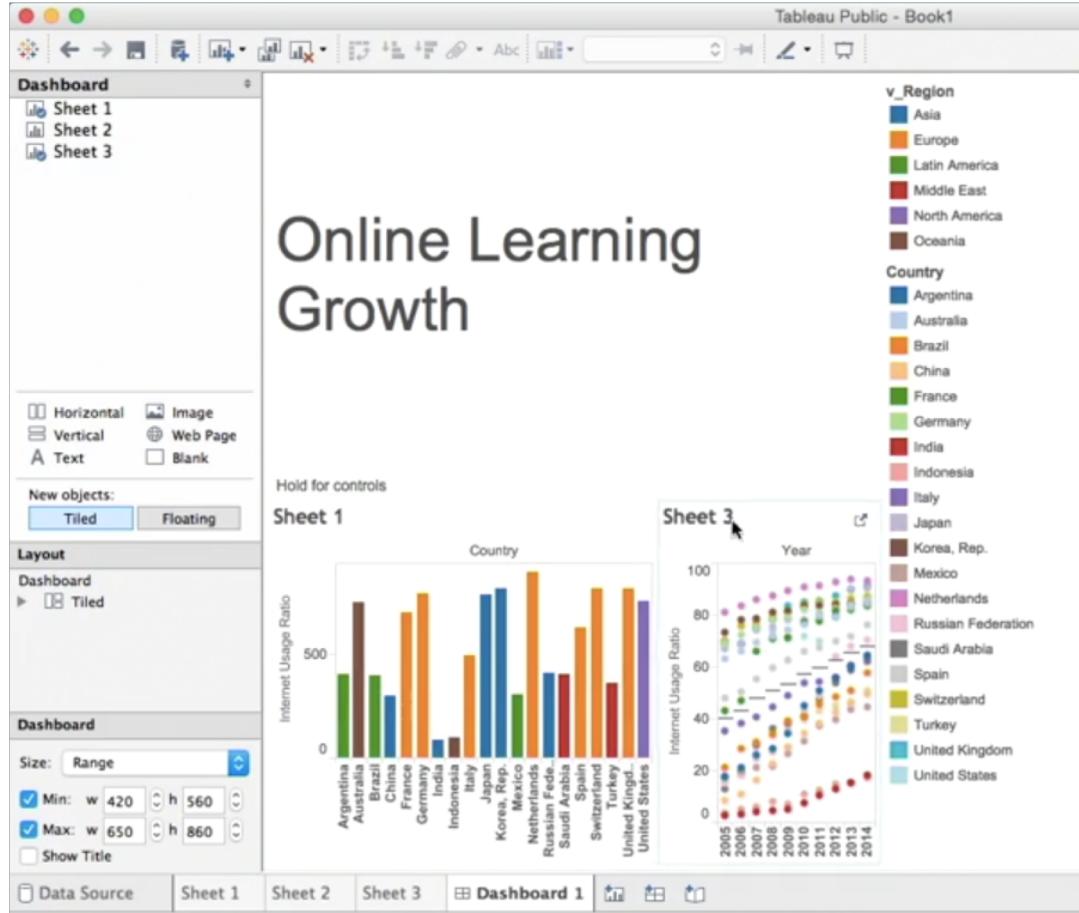
Foundation - Title



Controls

- Drag and drop a vertical container under title.
- Drag a text box and put some placeholder text
- In the lower part of the vertical container drag sheet 1
- Drag a horizontal bin right under the controls.
- Move the sheet 1 into the horizontal bin.
- Now drag and drop Sheet 3 into right half of horizontal bin.

Controls



Enhancing the View

- Drag Vertical bin in left half of horizontal bin by drag a container between Sheet 1 and Sheet 3.
- Drag Sheet 1 to upper half of vertical bin.
- Drag the Sheet 1 legends under the lower half of vertical bin.
- Do the same for the Sheet 3 as well.
- Optionally create border to see how the bins are laid out.

Creating Filters

- Go to Sheet 1
- Drag Country to Filters
- Apply to All Using this Data Source
- Repeat the same steps for Region and Year as well.

Applying filters

- On dashboard.
- Drag a horizontal container above hold for controls.
- Now select sheet 1 and apply filters for region.
- Drag it the newly created horizontal container.
- Repeat the same steps for Country and year as well.
- Format the filters to multiple value dropdown list.
- Rename the filter title v_Region.
- Choose “Only relative values” for all the three filters.
- Add a text box before filters to label filters section.
- Now hold for controls text box can be removed.
- Format filters to enhance the view.

Adding Sheet 2

- Drag Sheet 2 underneath the dashboard.
- Convert the table view to a bar chart.
- Add Region to color.

Format the View

- Drag a text box right under the title and above filters.
- Add some additional sub heading.
- “Online learning continues to grow world wide. Some countries are quicker than others. Where is the next growth opportunities?”
- Drag another text box above charts to put visualization heading.
- “Internet Users – Growth of internet users per 100 people by country and region”.
- Drag another text box for Sheet 3 as well.
- “Up and Comers – Where do we expect to grow?”

Enhance the View

- Remove the country legend.
- Color the sheet 3 by region.
- Drag country to details.
- Move the legend of sheet 1 on top of charts.
- Arrange Items as single row.
- Add a text box in the bottom.
- Quote source of data.

Parameters - Dimensions

- Go to Sheet 1
- Create Parameter Dimension Selector
- Create values for country and region
- Go to dashboard and select parameter dimension selector.
- Create calculated field v_Field Selector for choosing country or region.
- Replace country with Field Selector.
- Change the chart titles in Dashboard.
- Drag dimensions in different row underneath filters row.
- Create a label to indicate Chart View Selector.

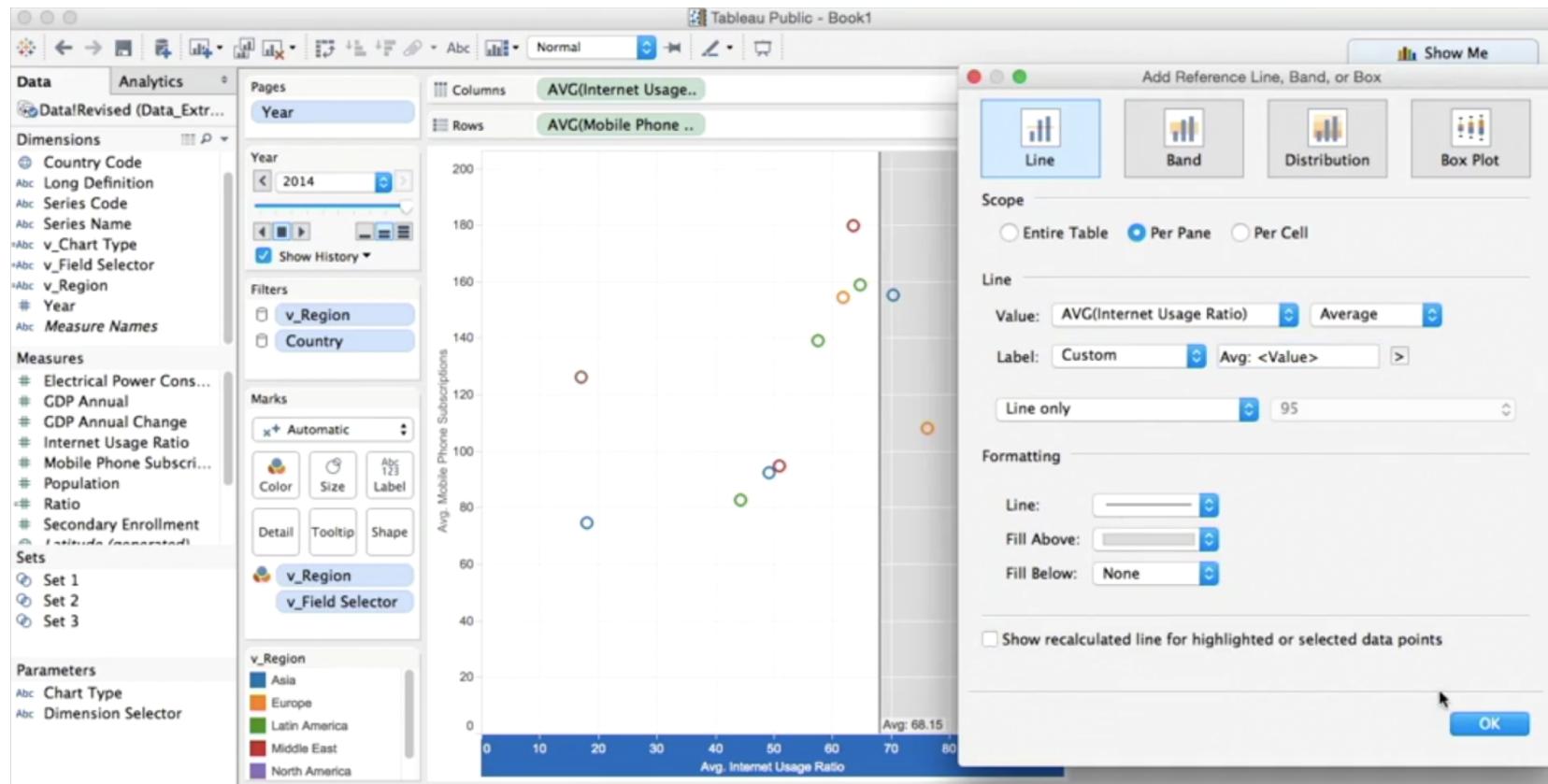
Sheet 4

- Create new worksheet Sheet 4
- Drag Mobile Phone subscriptions to row as average.
- Drag Internet Usage ratio to column as average.
- Detail by field selector
- Color by region

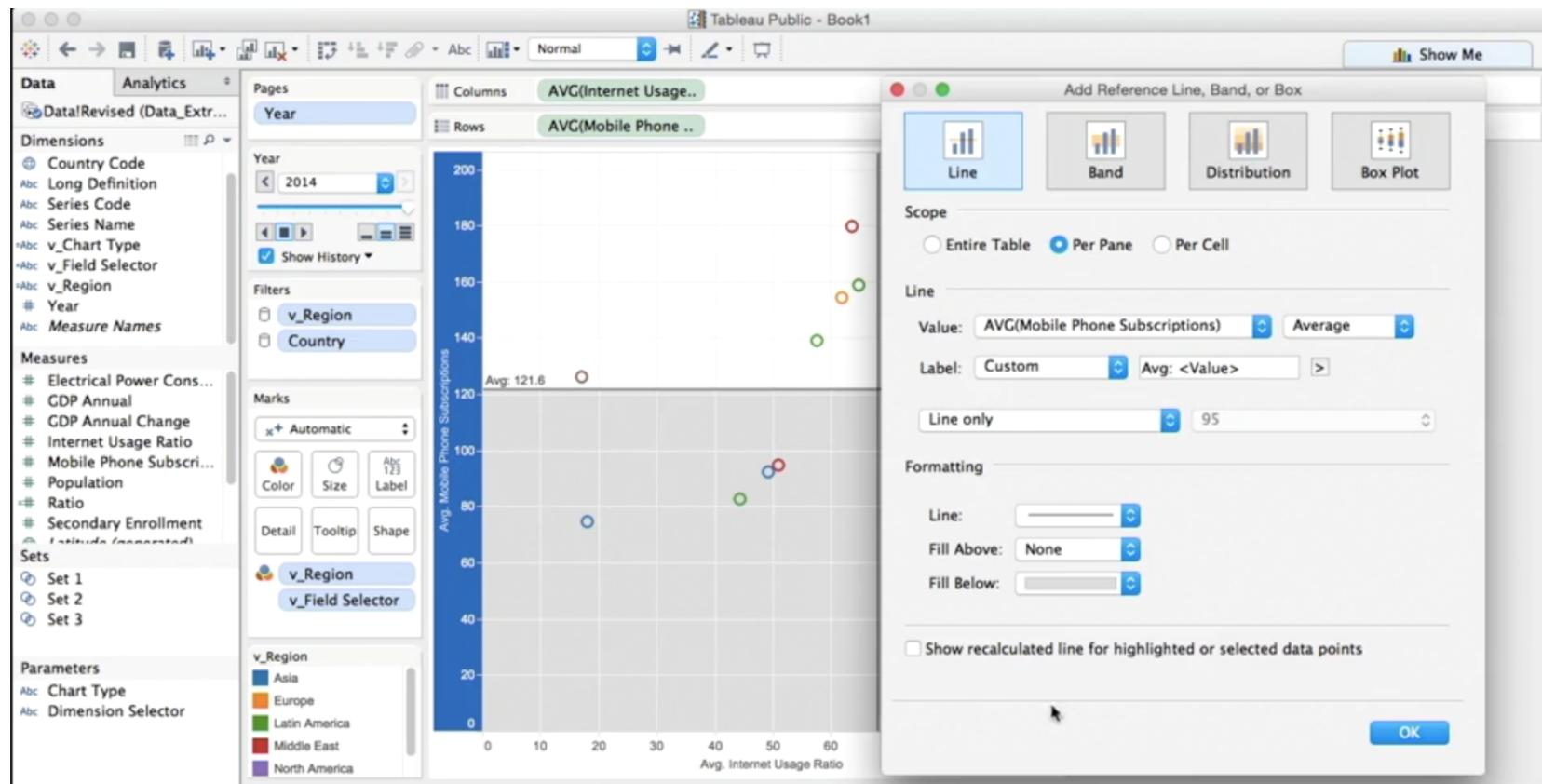
Pages

- Move year filter to Pages.
- Select show history
- Show both marks and trails.
- Right click X axis and add reference line.

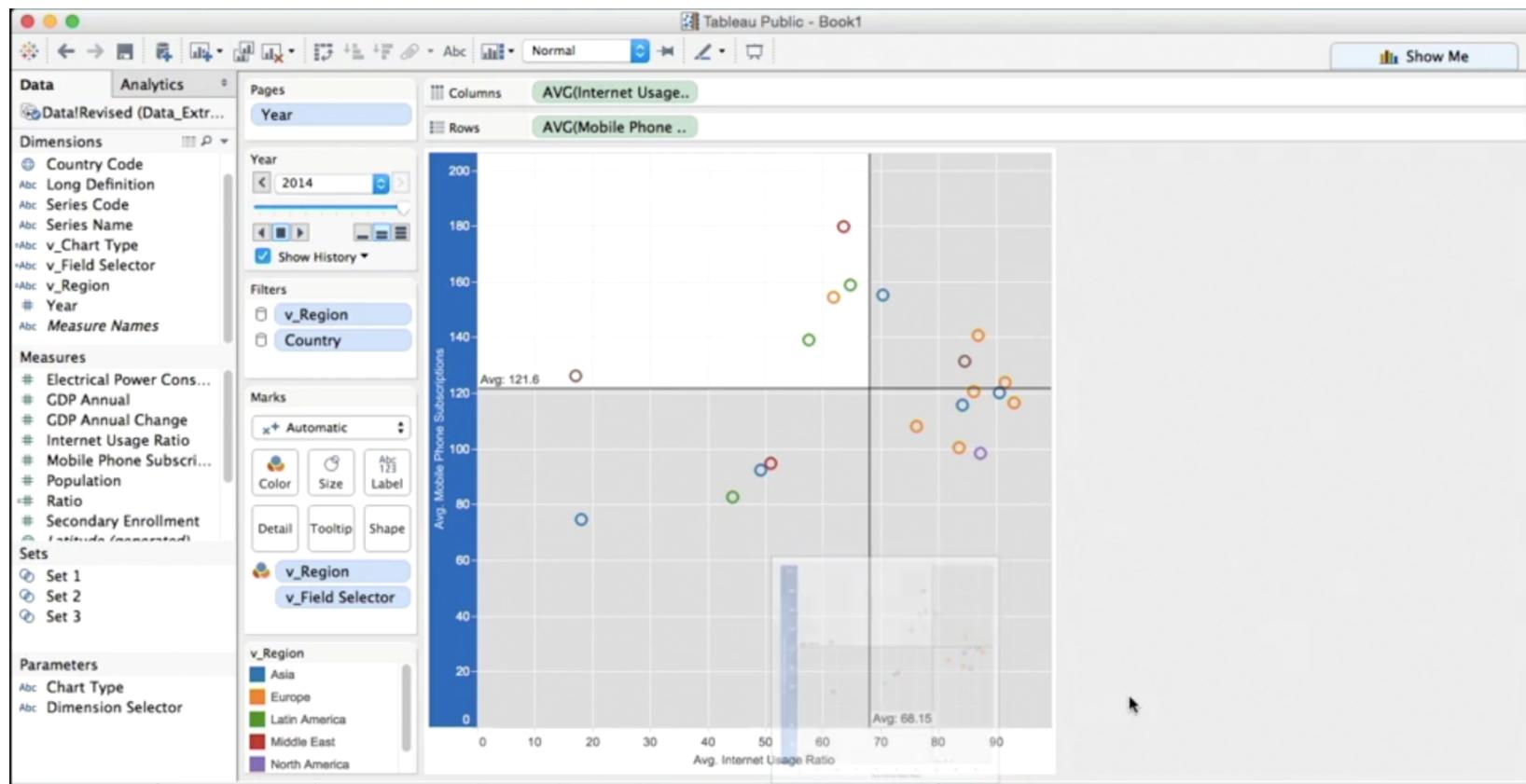
Pages – reference line for internet usage



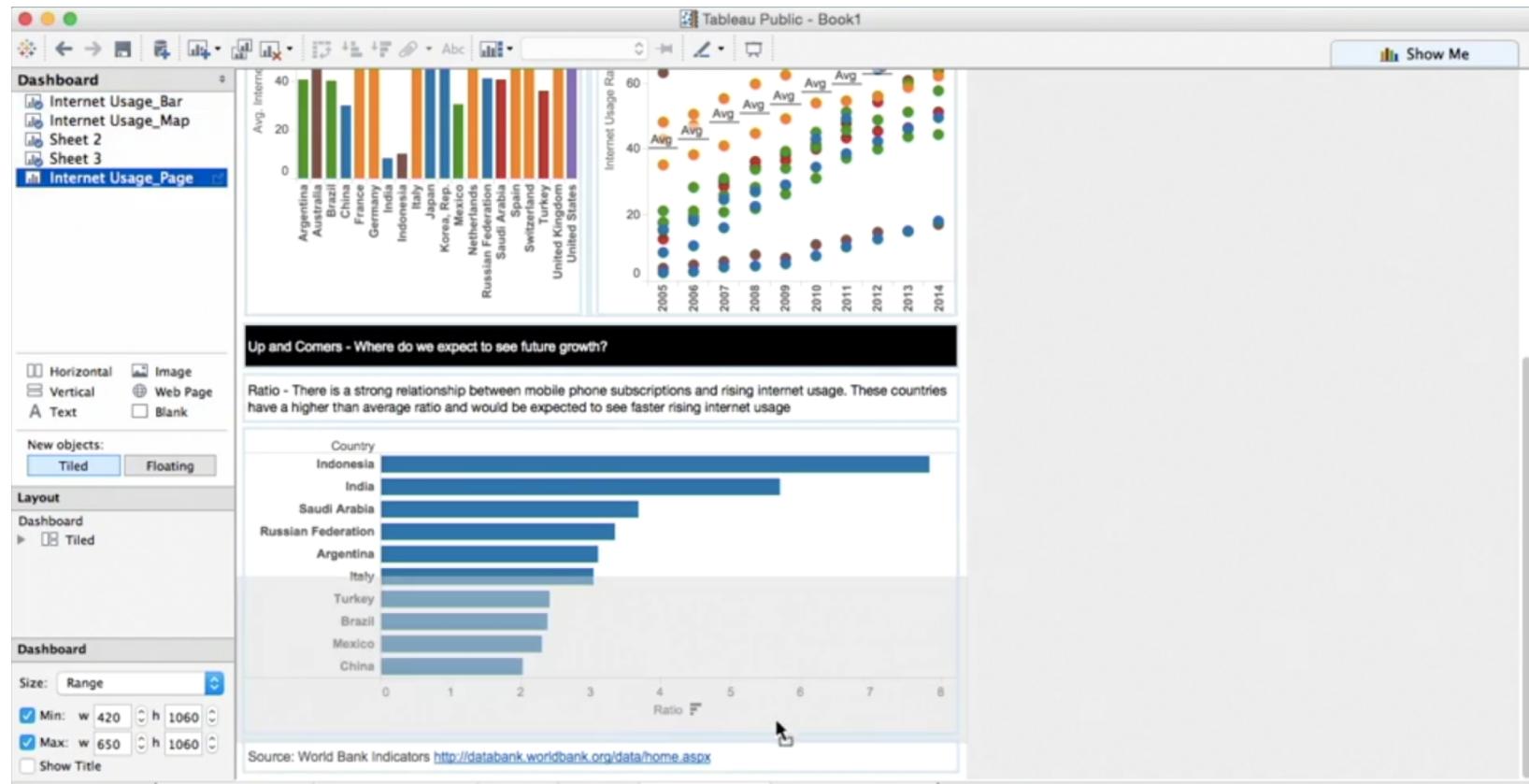
Pages – reference line for mobile phone subscription



Internet Usage_Page



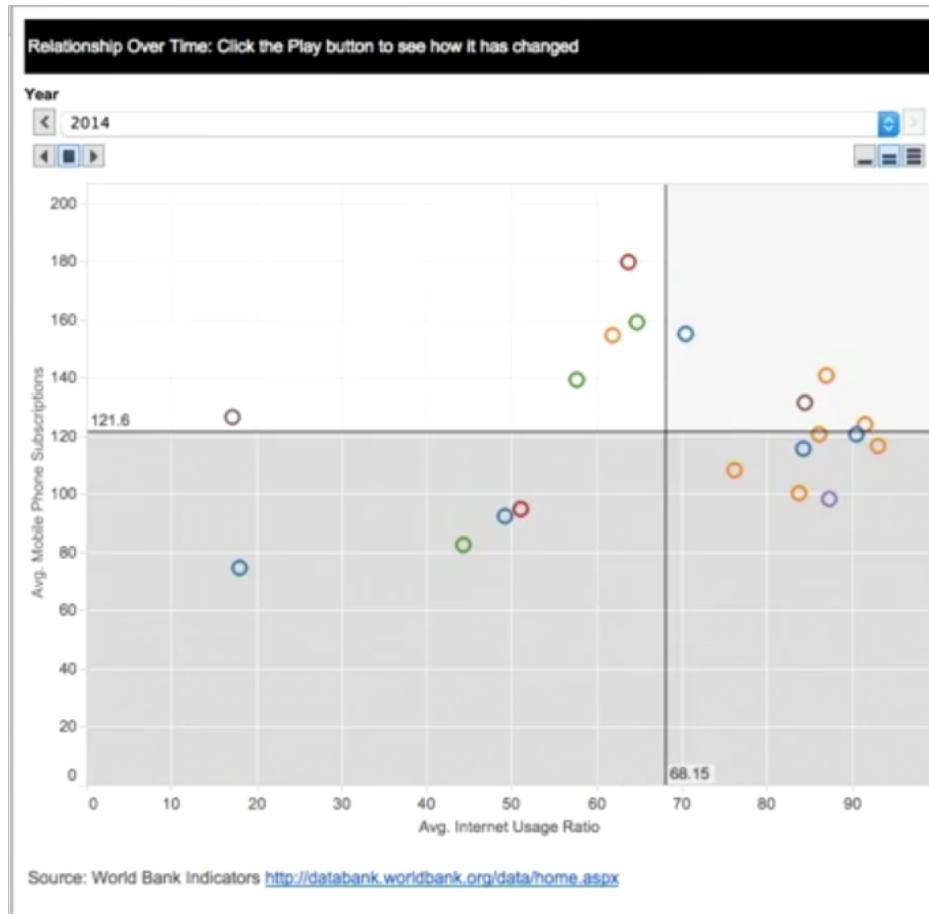
Add Page section to dashboard



Page formatting

- Drag the pages controller to appropriate place.
- Resize and arrange the dashboard sections appropriately.
- Hide all sheet title and any unnecessary distractions on the dashboard.
- Add a text box above page controller
- “Click the play button to see changes over time.”

Page formatting



Dashboard Actions

Tableau Public - Book1

Online Learning Growth

Online learning continues to grow and in some countries it is growing faster than others. Where might online learning continue to grow in the years ahead?

Filters Country (All) Region (All) Year (All)

Chart View Selector Actions [Dashboard 1]

Internet Users - Growth of Internet

Region

| Region | Count |
|--------|-------|
| Asia | 2 |
| Europe | 2 |

Avg. Internet Usage Ratio

| Country | Avg. Internet Usage Ratio |
|-----------|---------------------------|
| Argentina | ~45 |
| Australia | ~45 |
| Brazil | ~40 |
| China | ~30 |
| France | ~55 |
| Germany | ~60 |
| India | ~10 |
| Indonesia | ~10 |
| Italy | ~45 |
| Japan | ~50 |

Up and Comers - Where do we expect to see future growth?

| Year | Country | Value |
|------|-----------|-------|
| 2005 | Argentina | ~10 |
| 2006 | Argentina | ~15 |
| 2007 | Argentina | ~20 |
| 2008 | Argentina | ~25 |
| 2009 | Argentina | ~30 |
| 2010 | Argentina | ~35 |
| 2011 | Argentina | ~40 |
| 2012 | Argentina | ~45 |
| 2013 | Argentina | ~50 |
| 2014 | Argentina | ~55 |

Connect sheets to external web resources using URL actions, or to other sheets in the same workbook using Filter actions and Highlight actions.

| Name | Run On | Source | Fields |
|------|--------|--------|--------|
| | | | |

Add Action > Filter... Highlight... URL... Show actions for all sheets in this workbook Cancel OK

Dashboard

Tiled Floating

New objects:

Horizontal Vertical Text

Image Web Page Blank

Layout

Dashboard Tiled

Size: Range

Min: w 420 h 1360 Max: w 650 h 1360 Show Title

Data Source Internet Usage_Bar Internet Usage_Map Sheet 2 Sheet 3 Dashboard 1 Sheet 5

Dashboard Highlight Action

Tableau Public - Book1

Dashboard

- Internet Usage_Bar
- Internet Usage_Map
- Sheet 2
- Sheet 3
- Sheet 5

Filters

Chart View Selector

Internet Users - Growth of Internet

Region

| Region | Count |
|--------|-------|
| Asia | 5 |
| Europe | 5 |

Avg. Internet Usage Ratio

| Country | Avg. Internet Usage Ratio |
|-----------|---------------------------|
| Argentina | ~45 |
| Australia | ~65 |
| Brazil | ~45 |
| China | ~35 |
| France | ~55 |
| Germany | ~60 |
| India | ~10 |
| Indonesia | ~10 |
| Italy | ~50 |
| Japan | ~65 |
| Korea | ~10 |
| M | ~10 |
| Nether | ~10 |
| Russia | ~10 |
| Saudi A | ~10 |

Up and Comers - Where do we expect to see

Add Highlight Action

Name: **Highlight1**

Source Sheets:

- Dashboard 1
- Internet Usage_Bar
- Internet Usage_Map
- Sheet 2
- Sheet 3
- Sheet 5

Run action on:

- Hover
- Select
- Menu

Target Sheets:

- Dashboard 1
- Internet Usage_Bar
- Internet Usage_Map
- Sheet 2
- Sheet 3
- Sheet 5

Target Highlighting:

- Selected Fields
- Dates and Times
- All Fields

- Country
- Year
- v_Field Selector
- v_Region

OK Cancel

Data Source Internet Usage_Bar Internet Usage_Map Sheet 2 Sheet 3 Dashboard 1 Sheet 5

Final retouch

- Optional Map View of Sheet 1
- Edit the average labels in Sheet 3
- Format the tooltip views.
- Edit reference lines labels as well.
- What-are-odds-going-pro
- Hemang Bhavsar CV
- Reverse engineer the visualizations

Publish Dashboard

- Hide all the sheets
- Rename dashboard label
- Publish of Tableau Public
- Edit Title and Description
- Test your published dashboard
- Seek feedback
- Amend and Iterate.
- Animations do not work on cloud.

Q&A Feedback
