

# Create a Tableau Story

Project write up by Erdem Koç

**Summary**— this document is a short description in order to communicate the Tableau story project as the part of Udacity Data Analyst nano-degree program.

Project uses sample data of mobile network performance (Speed Test) results around the world and aims to convey the most important characteristics of the major key performance indicators like download speed, upload speed and latency.

A list of key findings provided in slides are given in part I.B

## I. Introduction

In this project I chose [Ookla Speestest® sample data](#). The data includes 1000 samples of random mobile network speed test results done all around the world for a short time and provided by the company as a sample.

As a telecommunications engineer, I am deeply interested in this data, because it gives an idea about performances of different mobile network technologies in different countries.

As specified by the instructions in project rubric, I created 2 Tableau stories, first of which I created without any feedbacks from my colleagues, and the second after the feedbacks I got.

### A. Tableau Story Links

First Story is at:

[https://public.tableau.com/profile/erdem.ko.#!/vizhome/ookla\\_3/Story1?publish=yes](https://public.tableau.com/profile/erdem.ko.#!/vizhome/ookla_3/Story1?publish=yes)

Modified Story after feedbacks is at:

[https://public.tableau.com/profile/erdem.ko.#!/vizhome/ookla\\_final/Story1?publish=yes](https://public.tableau.com/profile/erdem.ko.#!/vizhome/ookla_final/Story1?publish=yes)

### B. Key Findings

The list below are the key findings in the story each and every one of which is given also in related slides.

- 4G Networks outperform previous technologies by a serious margin
- Most of the samples in the dataset come from 4G mobile networks
- 4G DL/UL speeds are spread over a wide spectrum
- Higher maximum download speeds are possible wrt upload speeds
- Download and upload speeds are directly proportional
- According to the sample dataset, Estonia is the country with highest download and upload speeds and minimum latency
- Approximately %25 of the customers measure download speeds less than 5 Mbps and upload speeds less than 2 Mbps
- Approximately %95 of the customers measure latency less than 100ms

## II. Design

The design I intend to utilize aims to communicate the characteristics of high level “key performance indicators” (from here on will be referred as KPIs) of 4G mobile networks in the world from several aspects.

At the end of the story, my aim is to give a person with no mobile network background has a rough idea about the main KPIs of a mobile network from several points of view and understand the basic relationships.

I preferred to use red color to differentiate 4G in charts with white background, and tried to give optimal amount per dashboard while not disturbing the integrity of closely related information.

Specific reasoning of design choices for each and every slide (dashboard) of “initial story” is given below:

#### ***A. Mobile KPIs per Mobile Technology***

First it is important to understand the KPIs of all different mobile technologies available together with the sample amounts. This dashboard uses bar charts of Average Download Speed, Average Upload Speed, Latency and Sample amounts.

It can be clearly seen that 4G networks outperform previous generation of mobile technologies and most of samples in the dataset come from 4G.

#### ***B. Histograms of 4G main KPIs***

After the 1<sup>st</sup> slide I decided to focus on 4G technology for 2 main reasons:

- It is the most common mobile network technology, hence has more sample in our limited data.
- Following analysis and charts could be misleading and/or hard to comprehend had we mixed all technologies under one chart

Keeping the bullets above in mind, this dashboard aims to show the audience that KPIs of a 4G network has spread widely in terms of upload/download speed and latency.

This is due to the characteristics of 4G (to be more specific LTE) networks which makes it possible various different frequency bands to be utilized under on radio access technology and further detail is beyond the purpose of his write up.

#### ***C. Dependency of Main KPIs***

After discovering the wide spread of 4G KPIs, my next aim is to show the audience the relationship between those.

This is why I chose scatter diagrams which show download & upload are directly proportional.

#### ***D. 4G Main KPIs in Countries***

As the name suggests this is very simple sorting of the 4G KPI performances at different countries. Note that

this aggregates all the mobile operators in the country, but in order to be able to keep the information that I want to communicate in this project under feasible limits I preferred not to go in deeper detail.

#### ***E. 4G Main KPI Maps***

Again as the name suggests, these are geographical representations of part D.

### **III. Feedbacks**

I showed the initial story to several colleagues at the office, who are also experienced telecommunication engineers and have a great deal of information about this topic.

Most common feedback was to add main points that I want to communicate also in written form shortly. So I added most important messages as “key takeaway” sections.

Below are the rest of the feedbacks I got per dashboard:

#### ***A. Mobile KPIs per Mobile Technology***

Other than key takeaways section, this part seemed clear.

#### ***B. Histograms of 4G Main KPIs***

Note that both download and upload speeds have right skewed characteristics. This is not a typical throughput histogram. The reason is the fact that quite a few people who do a speed test, actually do it because they are not happy with their connection speed.

It is also possible to filter these values, but the limits are subject to discussion and much beyond the scope of this project.

Therefore I decided to highlight this fact and keep the visuals as they are.

#### ***C. Dependency of Main KPIs***

Please refer to part B. Similar reasoning and feedback apply to this part.

#### ***D. 4G Main KPIs in Countries***

Here the feedback was to combine maps with bar charts. This way we can keep integrity of information in each dashboard and each one has one major KPI to communicate.

### **IV. References**

<https://www.ookla.com/speedtest-intelligence>  
<https://community.tableau.com/thread/238944>