Data Visualization - Infographic Report

on

Happiest countries in Europe - Year2017

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1   Data source

World happiness report dataset selected for the infographic was sourced from Kaggle website. The data set contains happiness levels ranked among 155 countries released in year 2017 at an event held in United Nations celebrating international day of happiness on March 20th. The dataset was created using the data from Gallup world poll. The data is generated from survey taken by a sample of nationalities representing all the countries, rating different parameters contributing to their happiness.

The parameter considered are Economy, Health, Generosity, Freedom, Trust on government and social well-being. The dataset contains the formulated scores of all above factors. The Scores are formulated by their impact on overall happiness of their respective country.

2   Infographic - Design process

Plan was to select a dataset which can be used to tell a story creatively that allows freedom to use different colours and visualization techniques. World happiness report dataset was selected among other considerations, such as Tourism in Ireland and Employment.

Considering the different parameters, their volume and variability. The draft wireframe structure of the infographic with charts and parameters divided into sections was designed. The ”**Three principles of good visualization design**” [**Kirk (2016)**] were considered on designing the draft and transforming it into infographic. The priority was of making the infographic trustworthy, accessible and elegant.

Wireframing basically gave an idea of charts to be considered, Icons that can be used to attract and educate the audience of the story been told visually. Colours play a major role in telling a story, Different colours symbolizes different meaning in the view of the audience. Since the infographic is presented on Europe and to European audience. Colour combinations for the parameters and background layer were researched and planned to be used considering the European audience.

Once the Data gathering and wireframe was successfully done. ”**Canva**” was used to create the template of the infographic as per the wireframe draft planned. The Data

gathered was visualized and designed with **'Tableau''** using visualization techniques considering the parameter size and comparison planned out for infographic. Later the visualization produced in tableau were loaded to Canva, the infographic was designed as per the wireframe. Further modifications were done to make the infographic eye-catching and understandable visually to the audience.

3   Infographic Specification

The infographic was designed to tell the audience of factors that contribute to happiness of countries in Europe. The title/headline was written keeping in mind the **"Four Us of headline writing"[Patel&Putnam(2013)]**. Title: "Happiest countries in Europe - Year2017" and sub title: "what makes countries happy?" Is written with an aim to create a curiosity in audience mind as well as keeping it simple and understandable for the audience to know what they are to see in the infographic.

The first section of the infographic starts with "Happiness" section, which display the audience to a map of Europe with yellow shades indicating the happiness score of the countries. The aim was to introduce the audience with the countries at top and bottom levels of the happiness score.

The next sections were divided into the parameters contributing to happiness score. That is Health, Trust, Economy, Family, Generosity and Freedom. The aim of these sections was to display the factors unique contribution to countrys overall happiness score. The story was narrated using Graphics, Charts and texts. The podium and flag graphics were used to give quick understanding to the audience of top 3 countries with highest parameter scores. The smileys graphics was used to represent the emotion of top 3 countries with respect to its overall happiness contribution. The Charts gave a more detailed position of each countrys parameter score and its impact on overall happiness. Which were mentioned as facts in the form of short texts.

All the parameter sections were designed in colours symbolizing the meaning of the parameters in European culture. They were ordered in the basis of matching the background colours selected to have simplicity and be accessible to the audience.

4   Justification of Visualization techniques

4.1   Structure and Background

The structure of the infographic is modelled from the background layer. Since the dataset had different parameters, the infographic was divided into sections by using contrasting colours on back to back sections. Dark green and Light Ivory colours were chosen, the idea was to give the audience an understanding of moving on to a new section without the background colour attracting or over shadowing the charts or fonts used for the audience view. To avoid monotonous design, the charts texts are aligned on opposite sides of back to back sections.

4.2 Colours

Title and subtitle were coloured same as the back ground colours used. The headings were coloured symbolizing the parameter discussed in the section. Considering the European colour symbolism (Source: https://www.six-degrees.com/pdf/International-Color-Symbolism-Chart.pdf) Yellow represented happiness, Orange represented health, Blue for trust, Dark Green for economy, pink for family, light green for generosity and Blue for freedom. The charts used to represent the parameters in the sections were also visualized using the same colour pattern as font for the respective sections.

4.3 Fonts

The Same font style was used in the infographic. Variation in size was used to differentiate Title, Subtitle, Headings and body texts.

4.4 Charts

World Map chart was used to depict the happiness rank of European countries. Since Geography is one of the parameters, World map was the obvious choice to start the story. Colour "yellow" was used as it symbolizes "Happiness" in European countries. Yellow shading was used to depict the level of happiness with the brighter one showing high scores and duller shade of yellow depicting low happiness scores. Dark grey background was used to improve the shine of yellow around the countries.**Annotations** were used to note the Maximum, Average and minimum scoring countries.
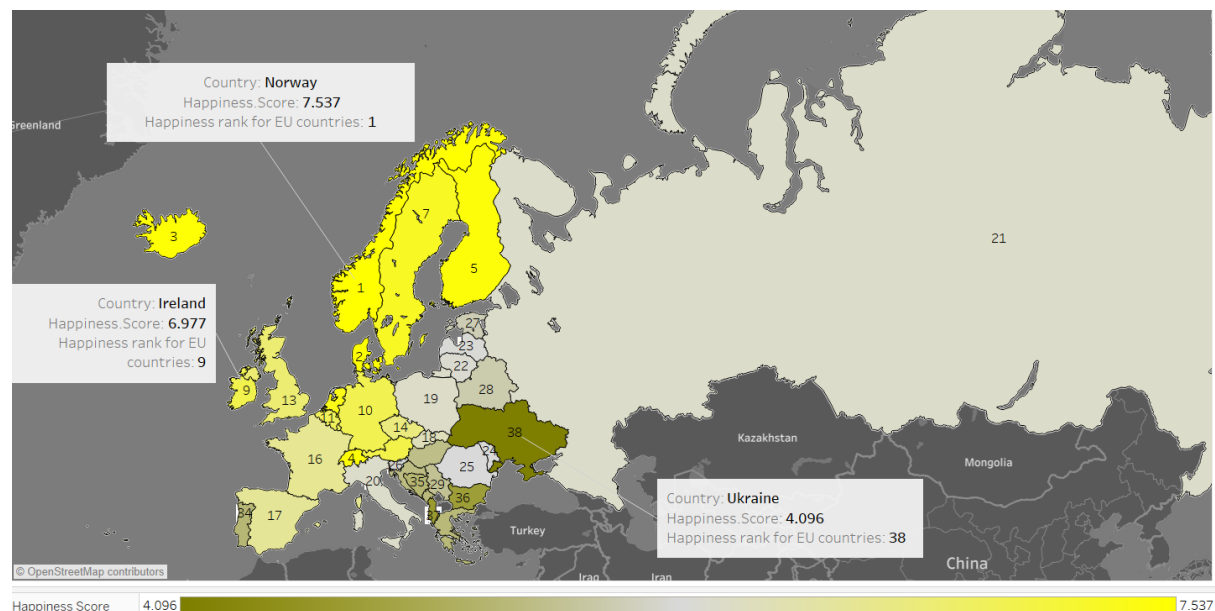

Figure 1: Happiness - Europe map

Squared Tree map was used to depict parameter "Health". Tree map allowed to show the health score by the space occupied by each countrys rectangle inside the bounded squared tree map and happiness score varied by Colour shades. It is compact and easily understandable. Orange colour shades were used for chart and font as few countries in Europe relate them to health.
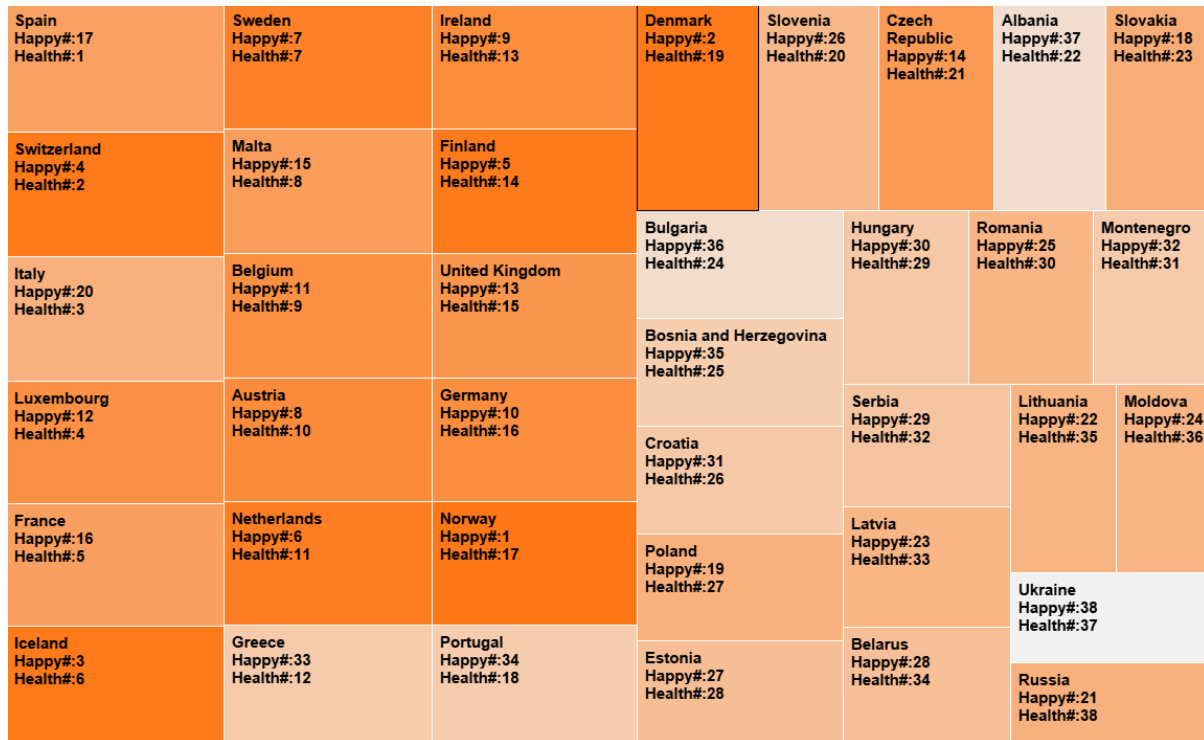

Figure 2: Life expectancy - Squared tree map

Bubble chart was used to represent trust score of European countries. With Bubble size representing trust and Shades ranging from Red to blue representing low to high trust score. Blue colour represents trust in European countries. Hence chart colour was designed with Blue.

Both the tree map and Bubble chart are designed as they are have pre-attentive attributes of Size, Colour hue and intensity which is well suited to display our data.
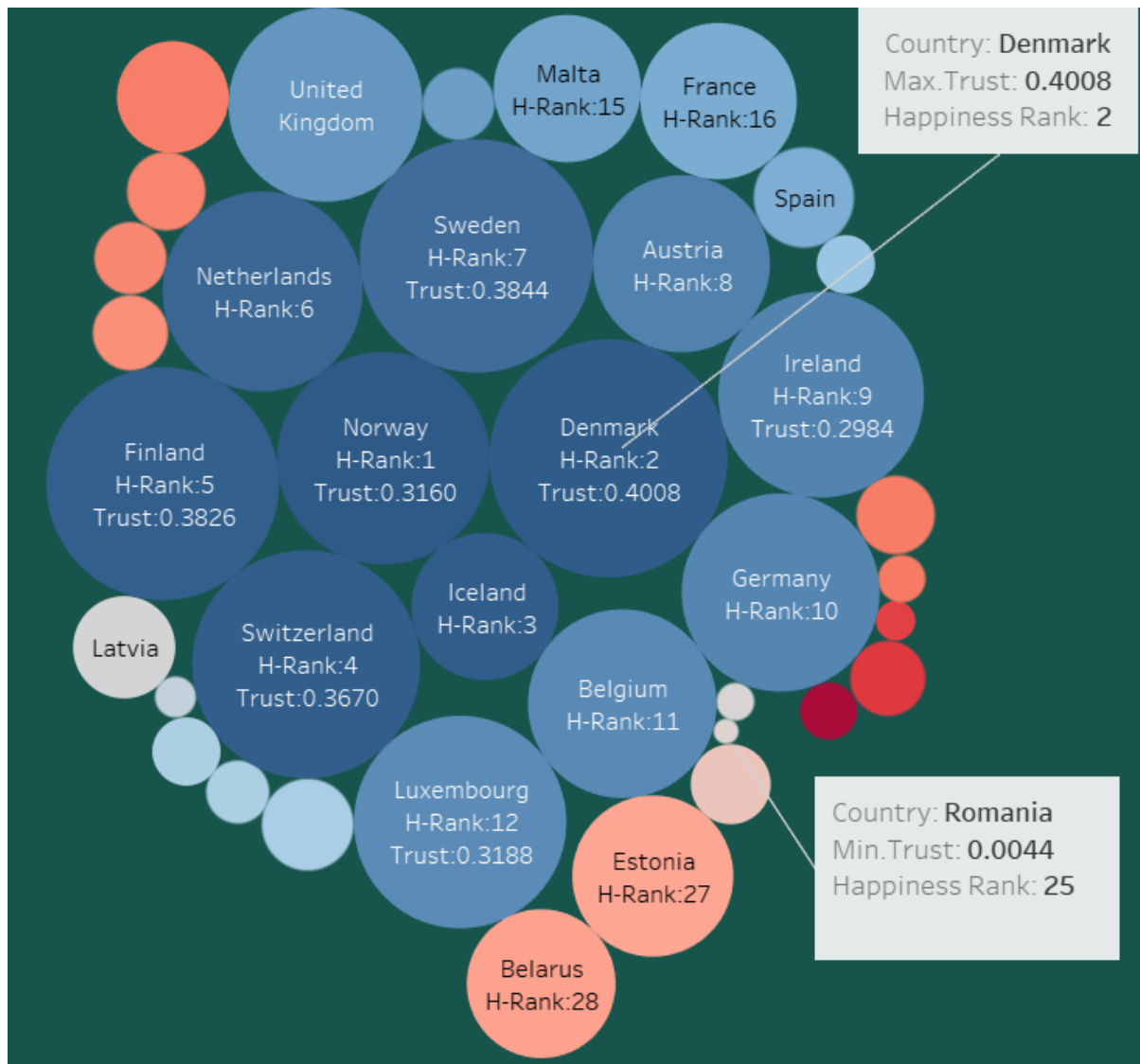

Figure 3: Trust - Bubble chart

Economy was represented by plotting **scatter chart** between GDP per capita score versus happiness score. Scatter chat was used to display the distribution and depict the correlation between the variables used. Flags of the countries were used as icons representing the values in the chart. Green colour was used to label the chart as it symbolizes wealth in European countries.
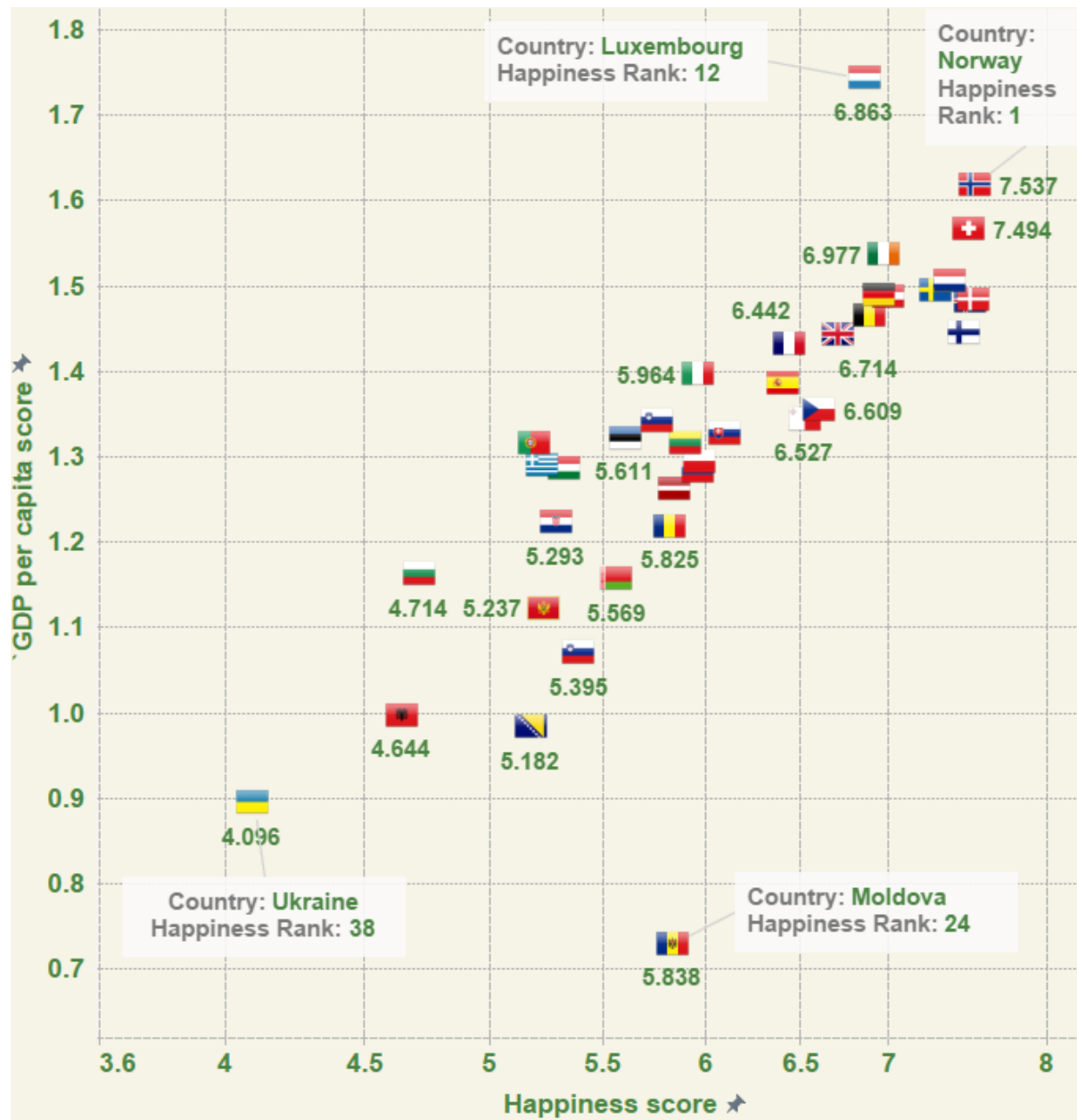

Figure 4: Economy - Scatter plot chart

It was challenging to represent 3 more parameters in the limited space available in infographic. Hence Family, generosity and freedom scores were compared with happiness rank using **highlight tables**. Colours were used to show range of scores of each parameter. Colours Pink, Blue, Green and Orange shades were used to represent Family, Freedom, Generosity and happiness rank respectively. These colours closely relate the parameters as per the European colour symbolism.

Country	Family#	Freedom#	Generosity#	Happiness#
Norway	5.00	1.00	7.00	1.00
Denmark	3.00	3.00	8.00	2.00
Iceland	1.00	2.00	3.00	3.00
Switzerland	7.00	4.00	12.00	4.00
Finland	4.00	5.00	16.00	5.00
Netherlands	25.00	9.00	4.00	6.00
Sweden	11.00	6.00	6.00	7.00
Austria	17.00	12.00	11.00	8.00
Ireland	2.00	10.00	5.00	9.00
Germany	14.00	13.00	9.00	10.00
Belgium	16.00	14.00	18.00	11.00
Luxembourg	18.00	7.00	13.00	12.00
United Kingdom	9.00	16.00	2.00	13.00
Czech Republic	24.00	18.00	34.00	14.00
Malta	10.00	8.00	1.00	15.00
France	28.00	20.00	30.00	16.00
Spain	6.00	22.00	23.00	17.00
Slovakia	8.00	26.00	28.00	18.00
Poland	20.00	15.00	25.00	19.00
Italy	22.00	29.00	24.00	20.00

Figure 5: Comparison using highlight table

Russia	15.00	24.00	36.00	21.00
Lithuania	13.00	32.00	37.00	22.00
Latvia	26.00	25.00	27.00	23.00
Moldova	32.00	31.00	20.00	24.00
Romania	35.00	21.00	29.00	25.00
Slovenia	19.00	11.00	17.00	26.00
Estonia	12.00	19.00	32.00	27.00
Belarus	21.00	27.00	26.00	28.00
Serbia	31.00	33.00	19.00	29.00
Hungary	30.00	36.00	35.00	30.00
Croatia	37.00	30.00	15.00	31.00
Montenegro	34.00	35.00	22.00	32.00
Greece	33.00	38.00	38.00	33.00
Portugal	29.00	17.00	33.00	34.00
Bosnia and Herze..	36.00	34.00	10.00	35.00
Bulgaria	23.00	28.00	31.00	36.00
Albania	38.00	23.00	21.00	37.00
Ukraine	27.00	37.00	14.00	38.00

Figure 6: Comparison using highlight table

4.5 Graphics/Icons

1. Podium with national flags: Each section of the infographic has a podium which represents countries with top 3 scores in that section. This will present the audience with high scoring countries on first look for each parameter the section is representing.

2. Smileys: Each section has short fact about the top 3 parameters and overall happiness ranking. The smileys represent the emotion of the country on specific parameters contribution to overall happiness. It also serves the bulletin purpose for the facts.

3. Other Graphics/Icons used are to replicate the parameter represented in the section visually.

5 Technologies

Tableau: Tableau was used to visualize data. It is data visualization tool made to support business intelligence from tableau software company. It provides options of choosing different charts as per the dimensions and measures present in the data. I had used Filtering, Sorting and annotation functions of Tableau to visualize data in a legible and understandable manner.

Canva: Canva is a graphic Web tool used for designing. The website was used for creating the infographic. It was chosen as it had many free customizable templates, Graphics and is user friendly with easy drag and drop options.

6 Reflection

The infographic creation experience was knowledgeable. During the process of transforming the wireframe into final digital output, I learnt a lot of design techniques, rules and applying them appropriately to design the infographic understandable to the audience. The final infographic was achieved with satisfaction.

The **challenges** were to accommodate the charts and data into the limited space of each section in the infographic. I had to think about letting the audience catch the meaning of each section and its outcome in a glance. This was achieved by using the icons/graphics. For more detailed view, charts and texts were used. It was also hard to choose the right colours and align them with back ground and font to symbolize the meaning of the parameters and their value.

References

Kirk, A. (2016), *in* 'Data visualization - A Handbook for Data Driven Design'.