* 7'200 – 9000 Zeichen (mit Leerzeichen) ⭢ 4 – 5 A4
* Logischer Fluss
* Rechtschreibung
* Fachbegriffe aus Vorlesung verwenden

DVIZ Report

Changes in the eating habits of the Swiss

Data visualisation from Johanna koch and Nadja Kaufmann

FS22

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**Es konnten keine Einträge für ein Abbildungsverzeichnis gefunden werden.**

# Motivation for the Project

When we were looking for suitable topics, we were lucky that we were interested in similar things in private. We deliberately chose a topic that had something to do with the environment and sustainability, as these issues also concern us in our private lives. In addition to consumer behaviour, we were interested in other topics such as environmental events, glacier melt, traffic and air emissions, for which we have already found data sets. In the end, however, we found much more useful data sets on that topic and thus also the great opportunity to draw exciting conclusions. Therefore, we decided on the topic " Changes in the Eating Habits oft he Swiss».

# 2. Project Description

## Preparation of the data sets

After we had thought about the possible storylines, we had to prepare the data sets. The tables from the federal government were very useful, but not correctly prepared for our use. Rewriting the data sets and converting them into csv files took time and caused some headaches. Of course, not everything worked straight away, and we quickly realised that some tables still had to be reformatted or split up further. After the second preparation was finished, we could start creating our graphs.

## Actual Data Analysis – v.a. Johanna

## Design and CSS

Neither of us had much experience in styling websites with CSS. That's why this part took longer than expected. So far, we have never used CSS styling with HTML syntax and we had to read up on it. The Dash documentation was very helpful here and W3school was also a very helpful source for that. Creating the page navigation was not as trivial as we thought, and a lot of research was needed before everything worked correctly. When styling a website, it is easy to get lost in the details and there are always things that we liked to adjust. At some point, however, we had to draw the line and leave it as it is.

## Review of Similar Work

As inspiration for the structure and colour scheme of our website, we looked at a project from Github with a dashboard regarding the topic "Food Footprint". We liked the presentation, certain visualisations, and the colour scheme. From this project we took the motivation to use muted natural colours. We experimented a lot with different natural colours and finally decided to use green and blue in different shades. We liked the sunburst chart on this dashboard so much that we wanted to make one like it. Here, our data lent itself perfectly to it and so we implemented this representation as well. Since we decided on the presentation of a storytelling and not a dashboard, we were basically inspired by the design and the colours but were able to implement our own ideas and wishes ourselves.

# 3. Target Audience

Our data story is basically intended to be exciting and informative for the entire population of Switzerland. However, our main target group will be young (18-35 years old) adults who live a sustainable lifestyle and are interested in the changes in the eating habits of the Swiss in recent years. We would like to answer potential questions such as: "How has meat consumption changed?", "The demand for organic food feels like it is constantly increasing. Are there therefore also more organic farms?", "Which food does an average Swiss citizen consume per year and how much of it?". To answer these and even further questions, one could use our tables. It was also very important to us that our data sets came from a reliable source and were correct. The Swiss Federal Statistical Office came to our mind, and on their website, there is a huge amount of diverse data on different topics. Therefore, we decided to use this data as the basis for our visualisations.

# 4. Explanation of Chart Types and Other Elements

## Chart Types

### Sunburst Diagram

For the presentation of the number of different foods consumed per person / per year, we decided to use the sunburst diagram. We got the inspiration for that from the Github-project. We really liked the clear visual distinction between plant-based and animal-based foods. In addition, these two upper categories are subdivided into various subcategories, which can be viewed more closely through interactivity and the proportions are presented in a visually beautiful and meaningful way.

### Bar Chart

Our first idea was to use a stacked bar chart to show the change in meat consumption. However, we were told that you can't really see the change and therefore we had to rethink the representation. To clearly show the decrease or increase in meat consumption, we finally decided on four bar charts. By dividing the data set into the different categories (Cow, Veal, Chicken, Pig), the increase and decrease can be clearly seen for each animal.

### Line Chart

For the shopping behaviour of men and women about organic products, we have chosen a line chart so that the change can be easily read through the lines. By using different colours and line types, it is easy to see how the importance of organic products has changed. To further improve the clarity, the different lines can be shown and hidden.

### Bubble Chart

The decision to display the volume ratios of the organic farms was an easy one for us. We wanted a graphical representation of the changes in size and the Bubble Chart was perfect for this. Due to the size of the circles, the changes can be seen very well. The different colours represent the different sizes of the organic farms and ensure a clear distinction.

## Colours and Design

Since our storytelling is about food and therefore about nature in the broadest sense, it was clear to us from the beginning, that we wanted to stick to natural and muted colours. After trying out several colour schemes (green / yellow, green / red, blue / brown...), we finally decided on the main colours green and blue. According to the colorbewer2, the gradations of the colours should also be distinguishable for colour-blind people, which was also very important to us in our project. Our visualisations do not only differ by the colours, but also from the different design the values can be read easily. In the Line Chart, the different lines can also be faded in and out, which makes it more easy to read for colour-blind people.

## Other Elements

Overall, we wanted to keep our website simple and clean, so that the graphs are in the foreground and attract the viewer's attention. Therefore, we decided on a linear structure according to the individual charts, which are connected by the storytelling. The side navigation on the left serves as an overview for the reader and can be used as a quick navigation to jump directly to our different visualisations.

# 5. Libraries / Packages

- Liste der von Ihnen verwendeten Bibliotheken und Pakete mit einer kurzen Begründung, warum Sie diese und nicht die Alternativen verwendet haben

## Libraries - Johanna

## Packages - Johanna

# 6. Citations / Other Sources

Decision on Data visualisation

<https://datavizcatalogue.com/>

Similar work review

<https://github.com/InesRoque3/GroupV_project2>

Decision on colour pattern

<https://colorbrewer2.org/#type=diverging&scheme=BrBG&n=8>

Dash HTML Components

<https://dash.plotly.com/dash-html-components>

CSS Tutorial W3schools

<https://www.w3schools.com/css/default.asp>

# Work Summary

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Hours | Done by | Task description |
| 09.05.2022 | 8 | Both | Reserach for datasets, topics, mindmapping |
| 15.05.2022 | 3 | Both | Setup Git & Crash course |
| 16.05.2022 | 2 | Both | Decision on Story & Chart-Types |
| 17.05.2022 | 3 | Nadja | Generate CSV from excel-data |
| 18.05.2022 | 1 | Johanna | Figure out how to display data |
| 21.05.2022 | 2 | Johanna | Generate csv, start on project |
| 22.05.2022 | 2 | Johanna | Make a Plot |
| 23.05.2022 | 2 | Nadja | Start with documentation |
| 26.05.2022 | 4 | Johanan | Make a Plot |
| 27.05.2022 | 2 | Nadja | Refresh how to use CSS / get overview |
| 29.05.2022 | 2 | Nadja | Get further with CSS |
| 30.05.2022 | 2 | Nadja | Write on documentation / work on CSS |
| 30.05.2022 |  | Johanna | You did very precious work on that day! :) |
| 31.05.2022 | 1.5 | Nadja | Added a Table of Contents |
| 03.06.2022 | 2 | Nadja | Playing with colours / Writing graph-text |
| 06.06.2022 | 4 | Johanna | Remade some plots |
| 07.06.2022 | 2 | Nadja | Write on documentation / writing graph-text |
| 09.06.2022 | 2 | Nadja | Minor changes on website / more writing and styling |
| 10.06.2022 | 2 | Nadja | Finalise texts / finish documentation |

## Graph description

**Intro**

With this data storytelling we want to figure out what the Swiss people eat and how their diet has changed over the last years. We are particularly interested in whether there is a correlation between the change in our eating habits and the increased awareness of climate change. In our close environment there are more and more vegetarians / vegans, and more and more people buy organic food. Can this development also be observed in the Swiss population, or are our feelings deceiving us? \nWe want to get to the essence of these questions and find possible answers through our visualisations.

**Type of food**

To get a good overview of the eating habits of the Swiss, let's look at the distribution of the different food-types in our daily diet. The graph below shows the annual amount of food consumed per person in kilograms.

⭢ Graph

At first glance, our diet consists largely of plant-based foods. We mostly eat vegetables and fruits (222 kg/year), in addition to a large proportion of carbohydrates such as wheat and potatoes (177 kg/year). The main part of our animal diet consists of dairy products and less than a quarter is our meat consumption. Nevertheless, the consumption of meat (excluding fish) per person amounts to 47 kg per year. This corresponds to the weight of 31 chickens, eaten per person each year – in our opinion way too much, as meat is mainly responsible for rising CO2 emissions.

**Meat consumption**

As we have seen from the previous presentation, the Swiss still eat a lot of meat. But what exactly is the composition of this meat consumption? From which animals do we eat how much? And has there been a change in consumption among the individual animal species? Let’s have a look at it…

⭢ Graph

There have been different developments over the years for the different animal species. The consumption of veal and pig has decreased considerably. Especially in the case of veal, consumption has shrunk from 3.3 kg per person / per year to 2 kg. A totally different behaviour can be observed with cow and chicken. Here, consumption has steadily increased and is currently at its highest level since 2000. An explanation for this different development is not trivial and cannot be answered based on the data analysis. Nevertheless, the overall decrease in meat consumption is more significant than the increase in the consumption of cow and chicken. This could indeed be related to people's attitudes towards climate change and the importance of animal welfare, which is not given by factory farming. However, it cannot be clearly clarified based on our visualisation.

**Shopping organic**

Da es eine sichtbare Änderung des Fleischkonsums gibt, haben wir uns gefragt, ob die Schweizer ebenfalls mehr Wert auf Bio-Qualität bei den Lebensmitteln legen bzw. sb dies für sie wichtiger geworden ist. Uns hat hier vor allem der Unterschied bei den Geschlechtern interessiert. Kaufen mehr Frauen oder mehr Männer Bio-Produkte? Und wie hat sich dieses Bewusstsein in den letzten Jahren verändert?

⭢ Graph

Auf den ersten Blick fällt direkt auf, dass es bei den Männern eine grosse Zunahme gab und über 50% der Männer immer oder fast immer auf Bio-Produkte zurückgreifen. Bei den Frauen, die immer Bio kaufen, ging der Wert jedoch leicht zurück. Diese Veränderung können wir uns nicht direkt erklären und hängt von vielen unterschiedlichen Faktoren ab. Diese Zunahme beim Einkauf von Bio-Produkten bei den Männern ist proportional ebenfalls direkt sichtbar durch den sinkenden Anteil won seltenen Bio-Einkäufen. Hier hat der Anteil entsprechend abgenommen. Bei den Personen, welche ab und zu Bio kaufen, ist der Anteil bei beiden Geschlechtern gestiegen und im Jahr 2019 beinahe auf dem selben Stand.

**Land Usage of Organic Farms**

Da die schweizer Bevölkerung gemäss der Resultate der obigen Umfrage vermehrt Bio-Produkte einkauft, müsste doch auch eine Veränderung in der Anzahl / Grösse der Bio-Höfe bemerkbar sein. Entspricht dies den Tatsachen?

⭢ Graph

Es ist klar sichtbar, dass sich bei den Biohöfen in den letzten 20 Jahren etwas verändert hat. Die grösste Veränderung ist bei den Höfen mit einer Grösse über 50 Hektaren sichtbar. Die Anzahl dieser Höfe hat sich fast verzehnfacht, was ein enormer Zuwach sit. Auch die bis zu 50 ha grossen Höfe erreichten eine grosse Zunahme von 3’487 zu 5’571 Anzahl höfen. Bei den kleinen Höfen gab es die kleinste Änderung von etwas mehr als 100 Höfen mehr.

**Summary**

Das Ess- und Konsumverhalten der Schweizer hat sich in den letzten 20 Jahren starker verändert als angenommen.Bei gewissen Fleischarten wie den Schweinen oder Kälbern hat der Konsum deutlich abgenommen, bei den Kühen und Hühnern jedoch überraschenderweise zugenommen. Trotz dieser Zunahme ist die Ernährung des druchschnitts Schweizers zum grössten Teil pflanzenbasiert und wenn tierische Produkte konsumiert werden, dann vor allem Milchprodukte. Die grösste Veränderung gab es wohl beim Verhalten bezüglich Bio-Produkte und hier stimmen unsere Visualisierungen mit dem allgemeinen Bio-Boom überein. In den letzten Jahren hat dieser Sektor stark zugenommen, da die Nachfrage nach Bio stark gestiegen ist. Diese Veränderung ist auch bei der Anzahl der Biohöfe gut sichtbar und es zeichnet sich ein steigender Trend ab. \nSchlussendlich werden wir Schweizer unsere Ernährung weiter umstellen müssen und vor allem beim Fleischkonsum müsste künftig ein rückläufiger Trend beobachtet werden, damit die Klimaerwärmung vielleicht gestoppt oder zumindest verlangsamt werden kann. Mit diesem hohen Fleisch und Tierprodukte-Konsum ist eine Erreichung der Klimaziele nicht möglich – auch trotz der steigenden Nachfrage nach Bio.