Here could be a title

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Abstract

Coordinated multiple views are a well known area of research and it has been shown that they create better insights. However, coordinated multiple views tend to become increasingly complex. In our use case we introduce a version of coordinated multiple views that allows for different levels of detail and therefore targets both experts and lay people.

1 Introduction

1.1 Motivation

In many cases, insights based on visualization techniques like coordinated multiple views are used by experts for strategic decision-making. Thus, many advanced data visualizations techniques are made exclusively for professionals.

On the other hand, data visualizations widely popular: Data journalism is one of the emerging fields in journalism. Facts and figures are the strongest evidence for opinionated journalistic reports. Not even a football match can do without a number based analysis.

We believe that advanced data visualization techniques can be adopted and used in both an informative and strategic way by professionals as well as lay people.

1.2 Problem statement

We use data visualizations in the context of the expenditure of public broadcasting fees in Germany. Since the year 2013 these fees are compulsory for every home in Germany and as a consequence, broadcasting receives €8,000,000,000 annually. Yet it is subject to little or no public feedback, ranking, or even debate on what constitutes value or quality. There is neither transparency on how the fees are spent nor a public feedback on how the fees should be spent.

We see a great potential, a win-win situation to be precise, because both payers of the broadcasting fees and broadcasters themselves can benefit from each other. As of 2013 there is no legal opt-out anymore and people have a strong interest to say how their fees should be spent. Broadcasters on the other hand

can evaluate their program based on the interests delivered by the users. This reciprocal relationship would create a public feedback for payers and a better program for broadcasters.

This problem is perfectly suitable to be tackled with data visualizations.

Explain why data visualization are good for communication

1.2.1 Use case specific problems

There is striking discrepancy of intentions between available metrics and the programme mandate of public broadcasting. TV ratings are produced by a group of 5000 representative homes equipped with a special TV box, while Radio ratings are carried out by phone surveys over the course of a year. Although created differently they share the same intention, i.e. to sell advertisements.

We suspect that public broadcasting suffers from an overfitting problem: Since broadcasters have usage data only, they focus too much on people who still listen to the radio and watch TV. Young people especially show a decreasing interest in conventional mass media which has been shown in surveys. Public broadcasting fails in that respect that everybody has to pay and thus has a right to get access to information.

1.3 Aim of the work

Our goal is to create meaningful data. This includes to encourage as many people as possible to publish their interests. It also involves to provide access to information about the preferred broadcasts. We suggest that users actively publish data and passively examine the summary of data of all users. Broadcasters on the other side receive the data and evaluate the program and actively change the program according to the interest of the audience.

explain feedback loop

The mentioned data visualization need to be interactive to show the user the desired level of detail.

1.3.1 Use case specific goals

We propose the hypothesis that people behave differently when they decide consciously and when they decide with their remote control. The hypothesis goes even further, explicit interests may fit to the programme mandate of public broadcasting in contrast to TV and radio ratings which are based on usage data.

As the data is usage independent we want to gain knowledge about the entire population including those who don't use broadcasting at all. In this manner we want to tackle the mentioned overfitting problem.

1.4   Methodological approach

Our methodology is to collect real data from existing users. To achieve that we develop a web application where payers of German public broadcasting fees can publish how their broadcasting fees should be spent. This tool is called Rundfunk MITBESTIMMEN. The workflow goes like this:

1. Users search for broadcasts

2. Users select broadcasts they want to support

3. Users distribute a virtual budget among the selected broadcasts

explain tool in depth

Considering data visualizations we are facing two challenges in this scenario:

1. Visualisations must be easy to understand and intuitive to interact with

2. Visualizations must be detailed enough to evaluate the program

Make the website user friendly, e.g. guide users as quick as possible to broadcasts they want to support.

2   State of the art

What are combined multiple views?

Current drawbacks

Jan Kriesel states that "there is only one broadband connection to the brain: The eyes".