

# Visualizing temporal information

## Survey project

*From Johanna Fulda*

As part of my Master's thesis I will try to get an overview of the current state of research that concerns the visualization of temporal information. I want to look at the visual representation of a sequence of events that all belong to a superior topic. Timelines can for example show topics that are currently in the news, the biography of a person or the history of a company, the development of a certain technology or a review of events that led to or influenced a historic event.

There are three different aspects that shall be illuminated in the survey paper project:

1. How are timelines **perceived**, what benefits do they offer and can users get additional insight into a topic through them?
2. What **visual encoding** is there to show chronological order of events, what are the challenges of the designer, and what problems do we encounter.
3. Which **tools** are there to create timelines and what are the obstacles that users have to overcome to use them?

Especially in journalistic and educational surrounding we can sometimes discover timelines that give us an overview of events that happened to a certain time belonging to a certain topic. We assume that in many cases a visual overview is an enrichment for the reader. But how do users actually consume timelines, do they bring them additional insight and actually help the understanding of a topic or are they just a nice visual companion for a long written text or a document collection?

There are a lot of different ways to show chronology of events over time. Timelines can either be static or interactive; they can contain a lot of additional information to every single event or just show the distribution of appearances. They can show a huge period of time, like thousands of years or just one day with a lot of events happening every hour. If the data for example contains both - very widespread dates and then very many at one specific date - it rises a challenge for the designer.

But assuming there are quite some benefits in the visualization of temporal events, timelines aren't too prevalent on news sites or sites like Wikipedia. Many authors seem to prefer writing long lists of events, where they on the one hand split a long story into single events with a concrete date as subheading, but on the other hand don't take the extra step to actually visualize that information. There are a lot of tools available, but maybe they are too complicated or demand too much time? I will look into available tools and try to figure out the obstacles a user has to face when using them.

## **Milestones:**

2014/11/12:

Find literature on **perception and understanding** of temporal data

2014/11/19:

Find and read literature for the **challenges and problems in building event timelines** and how they can be solved – what are the most used vis techniques?

2014/11/26:

Check out **timeline building tools** that are available, how usable they are (how much data preprocessing is necessary, how understandable is the interface, how long des it take to build one example timeline - and how does the result looks like?)

2014/12/10 & 2014/12/14

Prepare **presentation** and do the **writing**.