Interactive Visualization of Activist Network Analytics

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Abstract

Activists may have a significant role in shaping the future: In 2011 activists occupied the West and revolutionized the Middle East. With the advent of cheap worldwide communication, activists have formed networks which have an online presence. Information on these networks is scattered across the Web, may be biased, and lacks historical context. This research project aims to find out if visualizing activist networks and their activities would help overcome these problems and thereby facilitate better understanding of activist networks and their activities by both social scientists and the general public. Thus, the overall goal is to explore the social sciences domain of activist networks and their activity with suitable visualization techniques.

1 Context

Activists can play an instrumental role in influencing what organizations believe to be their corporate social responsibility (Den Hond and De Bakker, 2007; Eesley and Lenox, 2006). As Spar and La Mure (2003) state, The emergence of activist groups and activist pressures has forced firms to make decisions in new ways, factoring in variables that once could be ignored.

A notable example that illustrates this is the Brent Spar, a North Sea oil storage buoy owned by Shell. Shell had no further use for the Brent Spar and intended to dispose of it by sinking it in deep Atlantic waters. Having learned of Shells intentions, Greenpeace launched a worldwide media campaign opposing the sinking of the Brent Spar. Facing public and political opposition as a result of this media campaign, Shell yielded and eventually disposed of the Brent Spar in a manner more conscious of the environment (Grolin, 1998).

As described by Rowley (1997), interactions between activists and organizations like the one described above have often been portrayed as dichotomous relationships. Nevertheless, as De Bakker et al. (2011) state, many times [activists] aim to influence a wider range of firms and involve a variety of actors. When several groups of activists form a network and align their goals, they may

collectively play a large role in influencing organizations (Peloza and Falkenberg, 2009).

With the advent of worldwide communication technologies based on the Internet, specifically the World Wide Web, activists have gained an online presence (Bennett, 2003). We can analyze this online presence in order to reveal activist networks and identify several network properties, such as entities (e.g. people, organizations, relations, times, and places) participating in the network (cf. De Bakker et al. (2011)) and measures (e.g. frequency of actions, impact of actions, popularity of certain tactics) taken by these entities (cf. Den Hond and De Bakker (2010)).

To facilitate understanding of all these different properties of activist networks by social scientists but also by the general public, it would be sensible to have interactive analytics visualizations of activist networks and their activity over time. For example, heat map visualizations could be used to graphically represent hotspots or pockets of activity on a geographical map.

Another example would be the recently introduced Facebook Timeline, which shows a timeline of user activity that automatically highlights important events (e.g. changes in employment or education) and incorporates events from family (e.g. relationships, relatives born). Users viewing a timeline can indicate the desired granularity (e.g. per month, per year). Users can respond to events on the timeline by commenting and indicating if they Like them. Similarly, a timeline could be used to visualize the activity in an activist network and the responses to this activity.

On face value, it may seem like several visualization techniques could readily be applied to activist network analytics. However, when further scrutinizing the conceptual application of these visualization techniques to activist networks, several problems come to mind. These will be discussed in Section 2.

2 Problem Statement

As stated above, understanding of activist networks and their properties may be facilitated by creating interactive analytics visualizations. However, this is not a trivial task, for several reasons which will be discussed in this section.

Scattered Information - First, the information that is necessary to create a complete overview of an activist network and its properties is scattered over several types of sources, such as blogs, newspapers, or e-mail archives (cf. De Bakker et al. (2011)), which makes creating a complete overview difficult. For example, the Greenpeace campaign against the sinking of the Brent Spar has been covered by several entities, such as Greenpeace, Shell, governments, other activist groups, and news agencies.

Biased Information - Second, the information presented on these websites could be presented in a biased way, which makes creating an objective overview difficult. Using the Brent Spar campaign as an example again, Greenpeace grossly overstated the amount of oil remaining in the Brent Spar in order to convince people that sinking the oil platform was a bad idea.

Lack of Historical Context - Third, the information presented usually does not refer back to or provide enough information on previous events and actions (cf. Den Hond and De Bakker (2010)), making it difficult to create an overview in terms of continuity and relevance. An example would be the current coverage of the Brent Spar campaign on the Greenpeace website, which is very limited and does not refer back to more detailed archived coverage that exists.

The problems described in this section are significant challenges, making it difficult to create interactive analytics visualizations that are complete, objective, and contain relevant historical information. This research project aims to find out if these challenges can be overcome by trying to answer the research questions described in Section 3.

3 Research Questions

The research questions described in this section comprise the focus of this research project. The ultimate overall goal is gaining knowledge on how understanding of activist networks and their properties may be facilitated and if the problems that were defined in Section 2 can be overcome by creating adequate interactive analytics visualizations. Although this section provides an overview of how this research project will be carried out, a more detailed description of the methodology can be found in Section 4.

RQ1: What properties of activist networks should be visualized? - In order to determine what visualization techniques may be applicable, it is necessary to first identify which properties of activists networks we intend to visualize.

RQ2: What visualization techniques can be applied to the properties of activist networks? - Having identified which properties we intend to visualize, the focus shifts to investigating wat kinds of visualization techniques can be used to visualize these properties.

RQ3: Do the selected visualization techniques facilitate understanding of activist networks? - It is here that we will analyze whether the visualizations facilitate understanding of activist network properties and if the visualizations can contribute to negating the problems that were defined in Section 2.

4 Methodology

The focus and ultimate overall goal of the research project was described in Section 4 by means of research questions. This section will describe the phases that aim to achieve said goal by answering the research questions.

Phase 1: Identify Network Properties - The first phase is identifying the properties of activist networks to be visualized. These are the entities (e.g. people, organizations, relations, times, and places) participating in the network

and the measures (e.g. frequency of actions, impact of actions, popularity of certain tactics) taken by these entities.

This phase will be executed by means of compiling a list of properties by studying relevant literature on activist networks and their properties (cf. Den Hond and De Bakker (2010)), with a focus on activist networks on the web (cf. De Bakker et al. (2011)). This initial list of properties will be validated by interviewing activist network experts on the completeness and correctness of the list.

Phase 2: Identify Visualization Techniques - Having established what properties of activist networks should be visualized, the focus shifts to identifying how these properties can be visualized. In essence, this phase is concerned with identifying what kinds of visualizations are applicable to the properties of activist networks (e.g. maps are applicable to geographic properties, pie charts to numerical properties, etc.).

The first step in the execution of this phase will be compiling a list of applicable visualization techniques by studying relevant visualization techniques. The next step will be to establish the usefulness of these visualizations by trying to apply them to the list of network properties that were defined in Phase 1.

Phase 3: Construct & Evaluate Mock-ups - The visualization techniques that are deemed applicable will be used to construct mock-up visualizations of activist network properties. These mock-up visualization techniques will be evaluated by users by means of questionnaires aiming to find out if the mock-up visualizations meet their requirements and envisioned scenarios of use, but also if they are able to help overcome the problems that were defined in Section 2. After interpreting the results of this first round of evaluation, there will be a second round with an updated set of visualization mock-ups, based on the results of the first round of evaluation.

For the purposes of this research, the users will be social scientists that are interested in studying activist networks and their properties, as these persons are most likely to be able to identify if the visualizations will help them study and understand activist networks and their properties.

Overall, the process will culminate in having gained knowledge on how understanding of activist networks and their properties may be facilitated and if the problems that were defined in Section 2 can be overcome. The process is illustrated graphically in Figure 1 below.

5 Planning

The planning for this project is based upon the availability schedule in 2012 shown in Table 1. It does not take into account holidays.

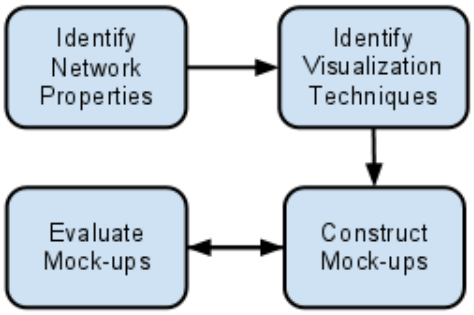

Figure 1: Illustration of overall research process.

Period	Date	Availability	Other Activities
4	February 6th - March 1st	20 hrs/week	20 hrs/week course, 8 hrs/week work
5	March 2nd - May 3rd	20 hrs/week	20 hrs/week course, 8 hrs/week work
6	May 4th - July 6th	40 hrs/week	8 hrs/week work

Table 1: Availability Schedule

The overall planning for the project is described below. Each set of weeks encompasses a distinct part of the project methodology that was described earlier. The planning distinguishes between a research phase (Table 2) and a writing phase (Table 3), but it is likely that these two phases will overlap, i.e. some preliminary writing will already be done during the research phase.

Week	Activity
6-7	Literature review to compile a list of activist network properties to be visualized.
8	Evaluation of list of activist network properties with experts.
9-10	Literature review to compile a list of visualization techniques that can be applied to activist network properties.
11-14	Construct mock-up visualizations.
15-16	First round of evaluation of mock-ups with users.
17-18	Interpret results of first round evaluation, update mock-ups for next round of evaluation.
19-20	Second round of evaluation of mock-ups with users.
21-22	Interpret results of second-round evaluation.

Table 2: Research Phase Planning

Week	Activity
23-25	Focus on writing article detailing the results of the research.
26	Extra week for any unanticipated delays.

Table 3: Writing Phase Planning

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