Peer and company influence on consumer responses and brand perceptions in company social network sites

Applicants
Eligible proposals must have two (and only two) applicants from different disciplines within the Network Institute.

Supervisor Name	Department/Group	Faculty
Prof. dr. Peter Kerkhof	Communication Science	FSW
Dr. ir. Aart van Halteren	Computer Science	FEW

Project description
Provide a brief description of the project (max. 300 words)
This project focuses on an analysis of a large MySQL database that contains the content of interactions on company or brand Facebook pages, collected through the Facebook API. The database is made available by Social Embassy, a leading Dutch social media agency, and contains the profiles of 2 million consumers and their interactions with to 35k brand posts of over 50 brands: 7 million likes and 2.5 million comments.

Recent studies (e.g., Dijkmans, Kerkhof, Buyukcan-Tetik & Beukeboom, 2015; Beukeboom, Kerkhof & de Vries, 2015) show that exposure to and engagement with (e.g., liking, sharing, commenting) company content positively affects brand perceptions. In a collaboration with Social Embassy, the project aims to answer questions with regard to peer and company influence on consumer responses in company social networks, and more generally, to understand the mechanisms of influence in branded social network sites. The Social Embassy database is unique in that it allows access to the content and interactions of multiple brands, allowing for analyses that not only take user differences into account, but also differences in company content and communication strategies.

Spreading company content other than advertisements in social network sites is mainly achieved through interactions with consumers. A single company-consumer interaction may start in various ways: by a brand post of a brand the consumers likes, by an interaction of a Facebook friend with the brand that appears on the users' timeline, or by a visit of a consumer to the company Facebook page in order to obtain brand information or seek customer service. Thus, both company content and communication and the characteristics of users and their networks play a role in how company content spreads. In this project, user-, communication-, content-, and network characteristics will be identified that affect the process of spreading company content and the sentiment of consumer responses to that content.

Project Organization
Each proposal requests two Academy Assistants from different disciplines. Describe their roles and describe the skills and expertise required from them. (max. 300 words)

The communication science Academy Assistant will focus on the characteristics of brand content (e.g., information vs. entertainment) and communication (i.e., responses to user comments, invitational rhetoric) that, based on prior research, are likely to affect user responses and brand perceptions as they arise from the content and valence of user comments. Also, characteristics of users (e.g., network size) and user comments (e.g., length, density of argumentation, valence) will be distinguished that affect the usefulness and possible impact of user comments. Hypotheses will be derived from a review of the relevant literature.

The computer science student will focus on efficiently manipulating the large MySQL database. Using existing tools such as SNAP from Stanford University the structural properties of the social influence graph will be determined. Expertise with Python (or Java) and Gephi for manipulating and visualizing graphs will be required. Efficient algorithms that can quickly verify hypothesis against the data will need to be defined.

Collaboration
Describe how your research improves collaboration and cross-pollination between the disciplines involved (max. 300 words)

The assignment requires a communication science student and a computer science student to team-up. Expertise from communication science is needed to derive hypotheses with regard to the role of sender- (company), receiver (user) and content characteristics that affect the process of social influence in company social networks. Expertise from the computer science student ensures that fast and efficient algorithms will be developed for analyzing, visualizing and transforming the large data set.

The students will work together in an iterative manner, initially to understand the data and to represent it in a computationally sensible way, then during the hypothesis definition and verification phase to check which hypothesis can be confirmed and finally during the consolidation phase to ensure a coherent presentation of the results.

Deliverables
Enumerate intended project results: papers, research proposals or otherwise. (max 200 words)

A first deliverable will be a scientific paper, aimed at the Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (http://sbp-conference.org/). This multidisciplinary conference aims to bring together power of computational methods to study social behavior within a social context with abstract representation of behavior and culture. The main focus of this paper will be social contagion effects among users of company social network sites.

A second deliverable will be a paper aiming at a high impact communication journal such as Journal of Computer Mediated Communication. This paper focuses on the effect of the content and communication strategies of brands on quantity and valence of user responses such as likes, shares and comments.

A third deliverable consists of at least two presentations to the owner of the data (Social Embassy). The first presentation contains an overview of the initial findings in the data set and is used to solicit input from stakeholders. The second presentation contains an overview of the findings and aims to get consensus on what to publish.

Planning
Provide a breakdown of the project into phases with tentative timing (max 150 words)

October 2015 - December 2015 – Familarize with the data set. This results in a summary report with descriptive statistics of the social data (e.g. number of brands involved, number of brand posts per brand, and a graph representation of people, brands and brand posts)
January 2016 - March 2016 – Hypothesis definition and verification. This results in a few hypothesis that will be tested against the data in simulations and virtual experiments.
April 2016   - July 2016 – Consolidation of results. The verified hypothesis and analytics methods used will be presented to Social Embassy and will be written up in scientific papers.

Please respect the word count limits: proposals that exceed the stated limits will not be eligible.