Proposal Title

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

Supervisor Name	Department/Group	Faculty
1. Dr. Christine Moser	Organization Sciences/Strategy & Networks	FSW
2. Dr. Henrik Leopold	Computer Sciences/Information Management & Software Engineering	FEW

Project description
Provide a brief description of the project (300/300 words)

The Internet has fundamentally changed how work gets done in the 21st century. For example, people increasingly spend time on the Internet where they share and develop knowledge in online communities. Yet, little is known about how high-quality knowledge comes about in these communities. This is surprising, because stakeholders such as organizations, policy makers, or activist groups can profit from high-quality knowledge shared and produced in online communities.

In this study, our goal is to test how social network structures influence the quality of knowledge developed in online communities. Our project will contribute to the literature on online communities and knowledge management, because we will conceptually develop and empirically test which social network structures are conducive for sharing and producing high-quality knowledge. As opposed to prior studies in this area, we will leverage automated techniques for our analysis. In particular, we will develop Natural Language Processing based techniques to recognize the substantial core and value of social media contributions. Besides the scientific contribution, our project will also deliver valuable insights for practitioners, which can aid in better managing online communities that are geared toward sharing and producing knowledge.

We will use large data sets of three online communities to provide a 'big data picture'. Our analysis will be based on a theory-based conceptualization of social network structures and knowledge quality. As a result of the automated analysis using the algorithms developed in the context of this project, we can automatically recognize high-quality knowledge based on a number of variables that are partly based on theory and partly developed using human coders. What is more, we can automatically extract the social network structures in the data. Based on these results, we will then test which social

network structures are conducive for sharing and producing high-quality knowledge across the three data sets.

Project Organization
Each proposal requests two Academy Assistants from different disciplines. Describe their roles and describe the skills and expertise required from them. (272/300 words)

Academy Assistant Organization Sciences (Assistant 1): This student assistant will develop the conceptual framework that will feed the empirical analysis. In particular, the assistant will conduct a literature review in the field of social networks and knowledge sharing/knowledge collaboration, with specific attention to online networks. This literature review will result in a well-grounded conceptual model, that will clearly delineate the theoretical mechanisms underlying the influence of social network structures on knowledge quality. In addition, the student assistant will work on a part of the data analysis where human coding is required.

The student assistant should have basic knowledge in organization sciences (particularly social network theory), be familiar with the basic skills to conduct a literature review, and be well versed in writing in English. Basic knowledge of computer science is not required, but might be helpful for this project. Affinity with social media and/or online communities is greatly appreciated.

Academy Assistant Computer Sciences (Assistant 2): This student assistant will develop the algorithms that are required to query and sort the three data sets that will be used in this project. The algorithms will be tested and, if necessary, improved until satisfactory. Input for the algorithms will come from the literature review conducted by the other student assistant. In addition, the student assistant will collaborate on setting up and incorporating the results from the human coding.

The student assistant should have have basic programming skills, basic knowledge about statistics and be well versed in writing in English. Basic knowledge of organization science/social theory is not required, but might be helpful for this project. Affinity with social media and/or online communities is greatly appreciated.

Collaboration
Describe how your research improves collaboration and cross-pollination between the disciplines involved (156/300 words)

This goal of this project is to test how social network structures influence the quality of knowledge developed in online communities. Until recently, social network studies have predominantly used small data sets to test theory, partly because it was quite impossible to collect and/or analyse large network datasets. However, technological developments in the field of computer science, in combination with ever-increasing participation of people in online communities, lead to new possibilities. Following our desire to use large network datasets to test existing theory, and also provide technology-driven analyses with meaning, we feel that this project optimally combines the two disciplines, organization sciences and computer sciences. Both have lots to offer to the other, and a combined research effort will provide us with exciting and important new insights. Laying the groundwork with this project, we believe that in the future we will be able to deliver even more research that will provide important contributions to both fields.

Deliverables
Enumerate intended project results: papers, research proposals or otherwise. (80/200 words)

This project will result in a number of deliverables.

(1) Paper "Literature review of social networks and knowledge sharing"; targeted journal: Journal of Management Studies (sequel to Foss et al., 2010).

(2) Paper "Leveraging text mining for analyzing the quality of online community contributions"; targeted conference International Conference on Information Systems.

(3) Paper "How social network structures influence knowledge quality in online communities"; targeted journal Organization Studies.

(4) Research proposal; targeted funding scheme NWO Onderzoekstalent, to fund one PhD position

Planning
Provide a breakdown of the project into phases with tentative timing (118/150 words)

The available funding will enable us to hire two student assistants for ten months at one day (8 hours) per week. This leads us to the following project plan:

September-November 2016	Assistant 1 (96 hours): conducting the literature review as specified in deliverable (1) Assistant 2 (96 hours): developing and testing the algorithm and working on deliverable (2)
December 2016 – March 2017	Assistant 1 and 2 (2x128 hours): joint work on developing the variables needed for testing the conceptual model; human coding and incorporating results into algorithm; starting work on deliverable (3)
April-June 2017	Assistant 1 and 2 (2x96 hours): finalizing deliverables (1) and (2), if necessary and/or helpful using other assistant's advice and knowledge; finalizing deliverable (3)

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