Title: Network Analysis
Name of professor: Prof. Silvia Rita Sedita

Objective
The course will provide an overview of basic analytical tools available in order to investigate the network structure of a phenomenon. Inter-organizational and interpersonal relationships can be mapped through social network analysis tools and network and individual properties might be explored. Discussion on fundamentals and more recent works in the field of management will be complemented by exercises with UCINET, the most used software package for network analysis. Students need to download and install the last version of the software on their laptop. The program can be downloaded and used for free for 90 days (https://sites.google.com/site/ucinetsoftware/home). Remember to bring the laptop during classes in order to perform the exercises!

Topics and exercises

1. Social Network Analysis: what, how, why?

Central questions in this session:
- What is social network analysis? Why do we need social network analysis?
- How does a social network approach differ from "classic/standard" research?
- What is the difference between egocentric and complete networks?
- How can we (best) visualize networks? What programs are available?
- How cohesive is my network? What is network density?
- Who is most central in my network? What is degree centrality?
- When is a network centralized, and why is it important? How can we measure it?

Exercises with UCINET:
- How to build/import a dataset
- Visualisation of social networks
- Calculate the density of a network
- Degree centrality
- Freeman's centralization

2. Centrality measures: an overview

Central questions in this session:
- What types of centrality measures are there? What is the difference between degree, closeness and betweenness centrality?
- When do we use which central measure (closeness, betweenness, …)? How are they different?

Exercises with UCINET:
- Different centrality measures: closeness, betweenness, etc.

3. Two-mode networks
Central questions in this session:
- What is a two-mode (affiliation/bipartite) network? How is it different from a one-mode network?
- What properties of a two-mode network are interesting?
- How can we identify central persons in a two mode network?

- *Exercises with UCINET:*
- Different ways of dealing with two-mode networks (i.e. transforming them) in order to use available procedures in UCINET.

Course Evaluation

The final evaluation will be based on an exercise with UCINET.

References

Required Texts & Software

Hanneman, R. A. and Riddle M. 2005. Introduction to social network methods. Riverside, CA: University of California, Riverside (published in digital form at http://faculty.ucr.edu/~hanneman/)

Borgatti, S.P., Everett, M.G., Freeman, L. 2002. *UCINET 6 for Windows.* Harvard: Analytic Technologies. A 30-day free trial version is available at www.analytictech.com.

Readings

Padgett, J. F., & Ansell, C. K. (1993). Robust Action and the Rise of the Medici, 1400-1434. *American journal of sociology*, 1259-1319.

Krebs, V. E. (2002). Mapping networks of terrorist cells. *Connections*, *24*(3), 43-52.

Lazzeretti, L., Sedita, S. R., & Caloffi, A. (2014). Founders and disseminators of cluster research. *Journal of Economic Geography*, 14(1), 21-43.

Sedita, S. R., Caloffi, A., & Lazzeretti, L. (2018). The invisible college of cluster research: a bibliometric core–periphery analysis of the literature. *Industry and Innovation*, 1-23.

Klement, B., & Strambach, S. (2019). Innovation in Creative Industries: Does (Related) Variety Matter for the Creativity of Urban Music Scenes?. *Economic Geography*, 1-33.

Heemskerk, E. M. (2011). The social field of the European corporate elite: a network analysis of interlocking directorates among Europe's largest corporate boards. *Global networks*, *11*(4), 440-460.

Additional Material

Wasserman, S., Faust, K. 1994. *Social Network Analysis: Methods and Applications.* Cambridge University Press.

Kilduff, M., Tsai, W. 2003. *Social Networks and Organizations*. Sage.

Scott, J. 2000. *Social Network Analysis*. Newbury Park CA, Sage.

Borgatti, S.P., Everett, M.G., Johnson, J.C. 2013. *Analyzing Social Networks*. London, Sage.

Sedita, S. R., & Apa, R. (2015). The impact of inter-organizational relationships on contractors' success in winning public procurement projects: The case of the construction industry in the Veneto region. *International Journal of Project Management*, *33*(7), 1548-1562.

Bettiol, M., & Sedita, S. R. (2011). The role of community of practice in developing creative industry projects. *International Journal of Project Management*, *29*(4), 468-479.