

Project Summary

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Multiple, Non-exclusive Technology Diffusion in a Social Network

Technology diffusion in social networks is a phenomenon that has been well-studied in multiple disciplines. Much of the literature, however, analyzes technologies which require substantial sunk costs, and hence lead to situations of lock-in due to high switching costs and investments. In most cases, an element of exclusivity is assumed, meaning that if technology A is adopted, then it is not a viable option to adopt technology B. Other technologies, in particular Instant Messaging systems, require close to no investment, and have very low switching costs. In addition, it is possible for the user to adopt multiple messengers at once. Yet, in reality, most people neither adopt all possible messengers, nor stick to a particular one. I am interested in looking at the patterns of technology diffusion of multiple messengers in which the benefit of a particular messenger depends on the number (or fraction) of neighbors in the network that also adopt the same one, as well as an element of personal preference. I also want to investigate what role the network structure, in particular changes in the degree distribution and the presence of clusters, has on the nature of the diffusion as well as the steady state distributions of technology usage. Do local homogenous clusters emerge, connected by people who use multiple messengers? In which cases does one technology dominate the entire network, and to which extent is mixing across the entire network possible? I would also like to look at how changing the heterogeneity of the messengers (representing differences in features, such as video conferencing, audio conversations, and other technical differences) would impact the overall distribution of messengers.