

Abstract in English

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This thesis concentrates on the diffusion of innovations in small networks. It studies the process and success rates of diffusions started with different initial conditions. Computer simulations are used to obtain data. Fourteen real-life networks are used and six scenarios are studied. The seeds, i.e. nodes that start a diffusion, are chosen as the most central nodes (measured by degree, betweenness, closeness, and eigenvector centrality), the most marginal nodes, or random nodes. Simulations of these scenarios are conducted with seeds representing different percentages of the total nodes. Results are compared with network metrics. Centralization and density are chosen to describe networks. Individual case analyses are also presented. No significant correlation is found between the diffusion success and network characteristics. Diffusion success seems to be determined by the position of seeds and the network structure. The findings highlight the specificities of a "core-periphery" structure, in which central nodes have a strategic advantage in the sense of starting a diffusion of an innovation. The findings contribute to the understanding of which network characteristics contribute to the success of a diffusion.

Klíčová slova

diffusion of innovations, social network analysis, diffusion simulation.