

Network structures are an integral part of the surrounding us world. They are a part of biological systems as the molecular, genetic or neural networks. As a social network, they reflect the relationships and dependencies in the social systems. There are also results of human activity in the form of computer networks, transportation networks and other technical systems. The purpose of network structures is often treated as an infrastructure for the propagation of signals, information or other material and nonmaterial resources or assets.

The spread of marketing content in social media with the use of social networks is a complex subject of research in the area of marketing as well as computer science, physics, mathematics and sociology. They are oriented towards a better understanding of the phenomena, prediction and modeling. Studies in this area relate to the actual network, such as a networks within social networking platforms, telecommunications networks, but also to theoretical social network models. Through research in this area the phenomena occurring on the Internet is better explained and the effectiveness of marketing efforts can be increased.

Understanding the processes associated with the spread of content is important in situations where it comes to transmitting key information, as soon as possible, to the widest possible audience. On the other hand, a better understanding of the processes of spreading information allows slowing down the negative processes, such as epidemics, the flow of information about the promotion of terrorism.

One of the directions related to this research area is to maximize the range of content or information spread processes so that the transmitted message reaches the largest possible audience. Earlier research is mainly associated with identification of network nodes, in example customers, whose activation will contribute the largest range of process, determination of the number of nodes and the factors influencing their selection criteria. Previous solutions do not involve the support of the process after it is initiated.

In this context, the aim of this project is to develop methods of influence on the marketing content and information dissemination process, so that their progress will be controlled, not only in the initial selection of nodes, but also after they had been initiated. The project will verify methods of influence on the processes through the activation of additional network nodes, changes in process parameters, structural changes in the social network and the use of knowledge about the dynamics of the process for the selection of nodes.

The reason for choosing research topics are, among others, the increasing importance of electronic systems and the need for understanding them better. The key is to also use them in the propagation of important information, as well as limiting the spread of information about the effects of the negative society.

Controlled dynamics of the spread of information will enable the selection of appropriate techniques of influence, which will allow the increase or decrease of the range of processes, and will be resulting better usage of electronic media. The results of the project will broaden the state of knowledge related to the propagation of information in complex networks, and its results will be used, not only within computer science, but in other dimensions of interdisciplinary research related to the complex networks.