

# Chapter 12

## Social Network Analysis in Marketing

**Przemysław Kazienko**

*Wroclaw University of Technology, Poland*

**Piotr Daskocz**

*Wroclaw University of Technology, Poland*

**Tomasz Kajdanowicz**

*Wroclaw University of Technology, Poland*

### ABSTRACT

*Nowadays, in the time of global access to the Internet, a company that cannot exist in the e-world is doomed to failure. Obviously, there are many obstacles in the electronic environments. One of them is to reach new customers based only on the available data. A potential customer is inundated with massive amount of advertising and offers of various products and services. Traditional target marketing methods process demographic data from historical client records to predict current customer preferences and send them appropriate marketing bids. However, there are cases when other approaches may be applied. In the situation when the company possesses information about communication or collaborative activities of people but no human profile data is available, it may utilize Social Network Analysis methods to acquire new customers.*

*The chapter describes a method how to perform a classification task without any demographic features and based only on the social network data. The concept of such collective classification facilitates to identify potential customers by means of services used or products purchased by the current customers, i.e. classes they belong to as well as using social relationships between the known and potential customers. As a result, a personalized offer can be prepared for the new clients. This innovative marketing method can boost targeted marketing campaigns.*

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## **INTRODUCTION**

In the global economy the success and company survival is not possible without maintaining possible closest contact with potential buyers. Company has to be aware of customers needs and theirs desires. The more accurately recognized and properly interpreted customers needs the more competitive advantage the company has. Permanent access to the opinions, choices, evaluations of customers and ability to respond to their changing needs is crucial, but so far the acquisitions of such information channels are becoming ineffective. This was not only due to behavioural changes, customer groups, but the emergence of new communication channels like the Internet, Web 2.0 and especially social networks.

Marketing is the systematic planning, implementation and monitoring of product concepts, distribution, promotion and price in order to exchange products which can meet the needs of the parties taking part in it.

The company does not operate in a vacuum. It is an open system, which must take into account the impact of the environment. It has two strategies in the environment:

- by adapting
- active impact on the environment.

The sides that are taking a part in marketing activity may participate directly or indirectly. The most common side in the exchange are the sellers and buyers, manufacturers, brokers and end-buyer. The end buyers may be consumers, producers, intermediaries, institutions and organizations not for profit. The product is any good, service or idea that may be offered on the market and satisfy the needs and preferences of buyers.

The main task of marketing is to equalize the differences between the providers of goods (manufacturers, retailers), services and ideas, and the recipients of these products (e.g. consumers). Discrepancies may exist for: 1) the quantity - abil-

ity to produce goods by the company did not go hand in hand with the capabilities of its acceptance by consumers, 2) time - between the time of manufacture of the product and its demand on the market, 3) range - to adapt the product to the needs of customers, 4) information - manufacturers generally do not know who, where, when and at what price the products they need. The buyers do not know what products are available in the market who, where and at what price offers products, 5) value - estimate the value of manufacturers mostly by manufacturing costs and prices of competitors. Buyers and evaluate products, taking into account the usefulness, efficiency, ability to pay, and subjective feelings, 6) space - combined with the geographical dispersion of producers and consumers.

So called direct marketing that is connected with adapting marketing strategy becomes very popular because of the increased competition between companies and the cost problem, especially in days of financial crisis. It is an important area of applications for data mining, data warehousing, statistical pattern recognition, artificial intelligence and social network analysis. Although standard data mining methods may be applied for the purpose of direct marketing, many specific algorithms need to be developed and applied for direct marketer to make business decisions effectively.

## **BACKGROUND**

### **Social Networks**

The first formal attempt to define relationships within a group of people was introduced in 1930s by psychologist named Jacob Levi Moreno. He proposed to describe connections between persons as a sociogram – a graph (Brown & Harvey, 2011). After 20 years in 1954, the first definition of the social network was introduced by anthropologist J. A. Barnes to describe social relationships in one

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