

The Contribution of Social Networks to Marketing Strategies

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Abstract. It has existed since ancient times, and sociology has conducted in-depth research on it. Sociology believes that society is not composed of individuals but of networks, which contain nodes and their relationships. It can also be understood that our social relationships are intertwined, forming a complex social network. In recent decades, social network analysis has been widely concerned and applied in academic research and practical applications. By analyzing and measuring network graph, it reveals key nodes in social networks, information transmission channels and community structures in networks. Since social networks have a significant impact on the operation and efficiency of the market, this tool is gradually being applied to market research. This paper will focus on three types of contributions of the network to marketing from the perspective of sellers. This paper will show different network diagrams, and describe and analyze these diagrams to reach the corresponding conclusion, that is, the contribution of the network to marketing.

Keywords: Social network; market strategy; market structure; market basket.

1. Introduction

The market changes in response to a number of factors, including social factors, competitive factors, and regulatory factors. First, marketing strategies should be prepared for potential changes in social structures and attitudes. Social networking is one of the best ways to understand and meet your customer's needs and preferences, and no matter how good your products and services are, if people don't resonate with your target market, they're less likely to buy your products or services [1]. Second, there is a need to understand how competitors are responding to customer needs and industry changes. When selling similar products and services to competitors, it is always important to adjust your marketing plan to gain a competitive advantage [1]. Finally, laws and regulations can influence marketing strategies at the national or local level. Regulatory factors vary from region to region, but they are all designed to protect consumers and businesses [1].

Sellers usually develop different marketing strategies in different markets that are changed by factors. Therefore, in this process, the most important thing is to identify the social factors, competitive factors, and management factors of the market through social networks, and then find the appropriate marketing strategy or the characteristics of marketing strategy.

In addition, with the rapidly changing competitive environment brought about by technological developments, product market boundaries themselves are also changing, and competitive threats and opportunities are emerging outside narrowly defined product-market boundaries. For example, the growth of smartphones has disrupted the market for digital camera products. Given the possibility of new and unforeseen relationships between brands, managers need to use social networks to gain a deeper understanding of fluid product market boundaries to help them identify potential competitors and complementary products, identify cross-promotion strategies, and develop company-level strategies.

In conclusion, this paper studies the contribution to marketing by analyzing the key nodes of the network graph, the channels of information dissemination, and the community structure in the network. The purpose is to demonstrate that in the competitive environment of the market with rapid technological development and in the market with obvious differentiation, the network map can be a fast and effective positioning marketing strategy.

2. Effects of Social Networks on Marketing

2.1. Background of Marketing

People naturally started to brand objects thousands of years ago, as evidenced by the ancient Egyptians' 2700 BC branding of livestock [2]. For many years, as businesspeople visited the busy "market towns," they grew aware of the need to distinguish out from competitors selling comparable goods, making marketing even more critical.

It didn't take long for merchants to discover the importance of comprehending and mastering results optimization as more and more brands started using mass communication to advertise their goods and services. So as early as 1902, the University of Pennsylvania offered its first marketing course called "Product Marketing" [2].

Shortly after the launch of broadcasting media, there were dozens of brand advertisements competing for consumers' attention in the marketing field. Therefore, marketers must develop strategies that go beyond traditional methods and send advertisements to as many people as possible, using a marketing mix.

The term "marketing mix," first introduced in 1952 and popularized by Neil Borden in 1964, was intended to describe the essential components of understanding what a product or service offers consumers and how marketers may most effectively match those components to market goods and services [2]. The four Ps of the marketing mix are based on the perspective of the enterprise, while the four Cs of the marketing strategy are based on the marketing methods from the perspective of the customer [2].

2.2. Background of Social Networks

Network science, which refers to the study of connection and all kinds of networks, is an effective method for increasing collaborative impact. Network scientists map and analyze networks ranging from a single pair of nodes to complex networks with millions of members, detecting patterns between a network's features and its consequences. One of the most often used research methods on the subject of networks is network mapping. A network map can be used to visualize any kind of network, from a network of friends to the network of the entire population. It starts by figuring out how each individual in the network is connected to the others [3]. Then, mapping out these linkages will show who is connected to whom. Based on these findings, people may develop network science theories that serve to explain why networks behave the way they do and how to make better use of them [3].

2.3. Relationship between Networks and Marketing

Network analysis has a great contribution to marketing, and this article will analyze from the perspective of the seller from three significant points. However, there are not only three kinds of connections between the network and the market, and their relationship is close and huge.

First, social network analytics can help companies identify and capitalize on market opportunities. By analyzing social network interactions and information dissemination, businesses can better understand consumer needs and preferences [4]. For example, by tracking the discussion and evaluation of products on social media, enterprises can obtain timely consumer feedback on products and make targeted improvements and adjustments [5].

Second, social network analytics can also help businesses find potential partners and customers. By discovering and analyzing the relationships in social networks, enterprises can find organizations and individuals with common interests and values, and then establish cooperative relationships and open up new markets.

In addition, social network analysis can help enterprises improve the effectiveness of marketing. Traditional marketing methods mainly rely on advertising and traditional media delivery, but the effect of this way is not stable. Social network analytics can help companies discover and harness the power of word-of-mouth marketing [4]. By analyzing key nodes and information dissemination paths

in social networks, companies can find the most influential opinion leaders and direct information to them to reach a wider audience.

Finally, social network analysis also has an important impact on consumers' purchasing decisions. By analyzing user interaction and information dissemination in social networks, this paper can reveal the reference and influencing factors of consumers in the purchase decision-making process [4]. For example, when a user posts a recommendation or evaluation about a certain product on a social network, this information will often trigger other users' attention and discussion, which will affect their purchase decisions [5].

3. Contributions from Social Networks to Marketing Strategies

3.1. Optimal Marketing Strategy

According to network analysis, there is no uniform optimal strategy for different markets, and this paper can find the optimal sales strategy for markets with fixed characteristics through network analysis [6]. In the consumer consumption network, homophily is very significant, most customers with the same characteristics have a lot of overlap in the purchase of goods. Figure 1 shows the product information for sale on Amazon in the summer of 2006. It has four types of products: books, DVDS, CDS and videos. It can be seen that customers of each product form a cluster, which proves that customers in each market are different fixed groups. Therefore, this research only needs to analyze the market of a specific product type to get the optimal sales strategy for this market.

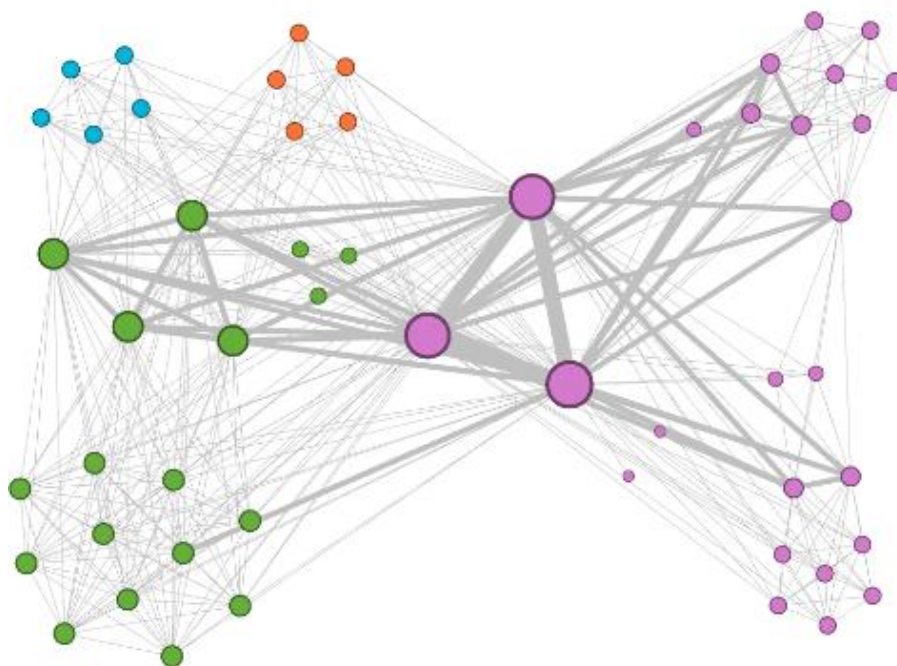


Fig. 1 The social network graph of Amazon customers by product type in summer 2006.

For example, a single-product monopoly strategy may be optimal in a market where it is expensive for innovators to produce low-quality products [6]. When there are two customer groups who are very interested in different product groups. One of the customer groups is much smaller than the other, but they are more closely connected, indicating that it represents the interests of the niche. Historical sales information will allow determining the contribution of this niche group to revenue. If considering its size and disproportionate contribution, retailers may be able to increase revenue by expanding or customizing services and products targeting this group [6]. The customer purchase record network in this kind of market generally forms a bell curve, and there are nodes with a high degree of centrality [6]. This means that most customers in this market are focused on buying a few products. A prime example is video game players. Video gamers typically buy fewer than a dozen games, but they play

them over and over again. In addition, in the video game market, the most popular games account for a large portion of total game sales, for example, 15 of the 185 games produced for the Nintendo Entertainment System sold more than 500,000 copies, suggesting that consumer utility to a particular gaming platform is largely derived from a small number of games [6].

3.2. Utilizing Network Marketing

Do marketing. Specifically, sellers infer the purchasing preferences of people in different regions based on network analysis and then push related products to customers in specific regions to promote marketing.

First, the network that embodies the purchasing relationship between goods can indicate the market basket, that is, the bundled goods and services [7]. In this way, if the seller pushes the bundled item to the area with high bundled item sales, the bundled item is more likely to have high sales. Figure 2 shows data from more than 660,000 transactions in the Notre Dame community in 2006. Each node in the network represents a product and an edge appears between any two products when they are purchased at the same time. The most effective communities were made up of different types of chips and salsa, which sent a direct message that chips, and salsa were only connected to each other [8]. From this, it can infer that potato chips and salsa are complementary products, and people often buy the two together [8]. Therefore, salsa sellers should choose to sell in areas with high potato chip sales, and vice versa.

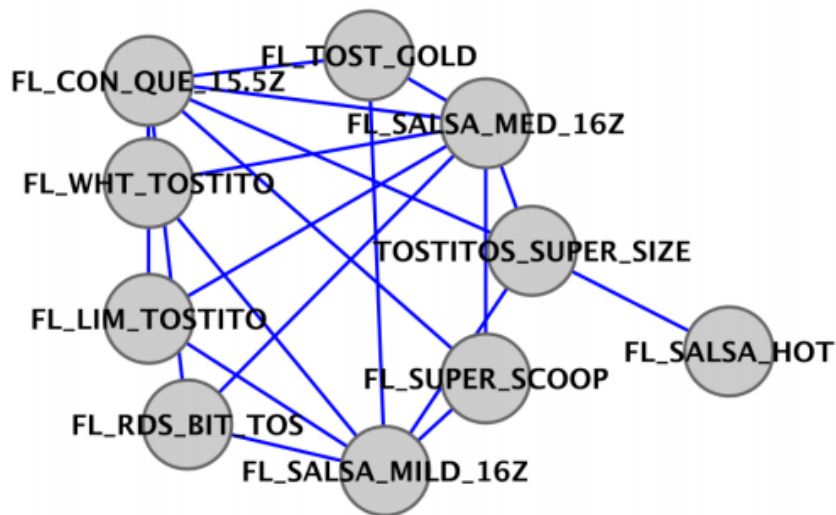


Fig. 2 Association Rules Network between chips and salads [8].

In addition, for goods without fixed complements and substitutes, network analysis can clearly show their connection to other goods. Figure 3 shows a larger Notre Dame community exchange network than Figure 2. The node with the most degree centrality is a bagel and is linked to a range of drinks that are not related to each other. This finding still allows us to see commodity correlations in the Internet, i.e. bagels and drinks can drive each other's market development. But the variety of bagel "neighbors" allows them to span different parts of the product space, so the best way to sell bagels is not to really push products to a few locations, but to sell products across a wide area [9].

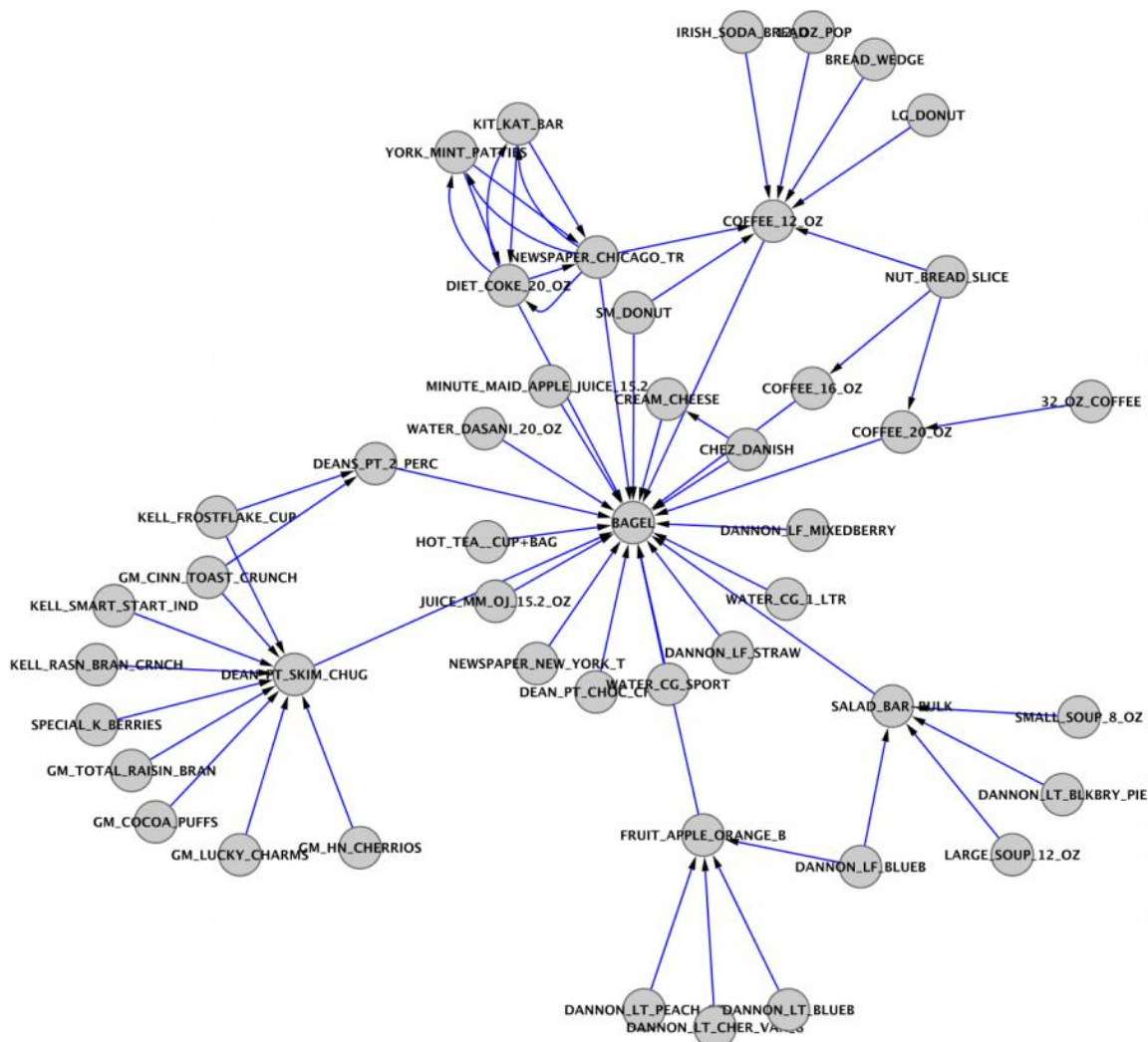


Fig. 3 Association Rules Network with z = BAGEL [8].

3.3. Market Selection and Entry Mode

Analyze the network to let sellers know the market structures of different markets, so as to accurately select and enter the market. In economics, market structure is mainly defined by three aspects: firstly, the number of producers or enterprises within the industry [10]. Secondly, the degree of product differentiation among producers of various enterprises in this industry [10]. Thirdly, the size of the entry barrier [10]. Therefore, after knowing the first two factors, the seller can roughly infer the third factor and use this inference to make reasonable market choices.

In a perfectly competitive market, when each merchant acts as a node, the number of nodes is very large, but there is almost no path connection between them. This means that new sellers from outside can easily enter the market, as entering the market does not require contact with other nodes [11]. In relatively monopolistic markets, there are several nodes with high centrality, and there is a high degree of connection between them [11]. These connections may represent diverse agreements, trade flows, and so on [12]. This means that new sellers find it difficult to enter the market, as they are often forced to enter these high-degree connections.

For example, figure 4 shows the automotive supply relationship network. The central node has the highest centrality, which means it has become a monopolistic supplier. Other nodes, such as Arkay, select Ind, and Honda Trading, are small suppliers. According to this network, it can be seen that this automotive manufacturing market is not the best choice for new businesses to enter the market, as it

is almost monopolized by a large supplier and can easily become an outlier in the market without being connected to the central node [13].

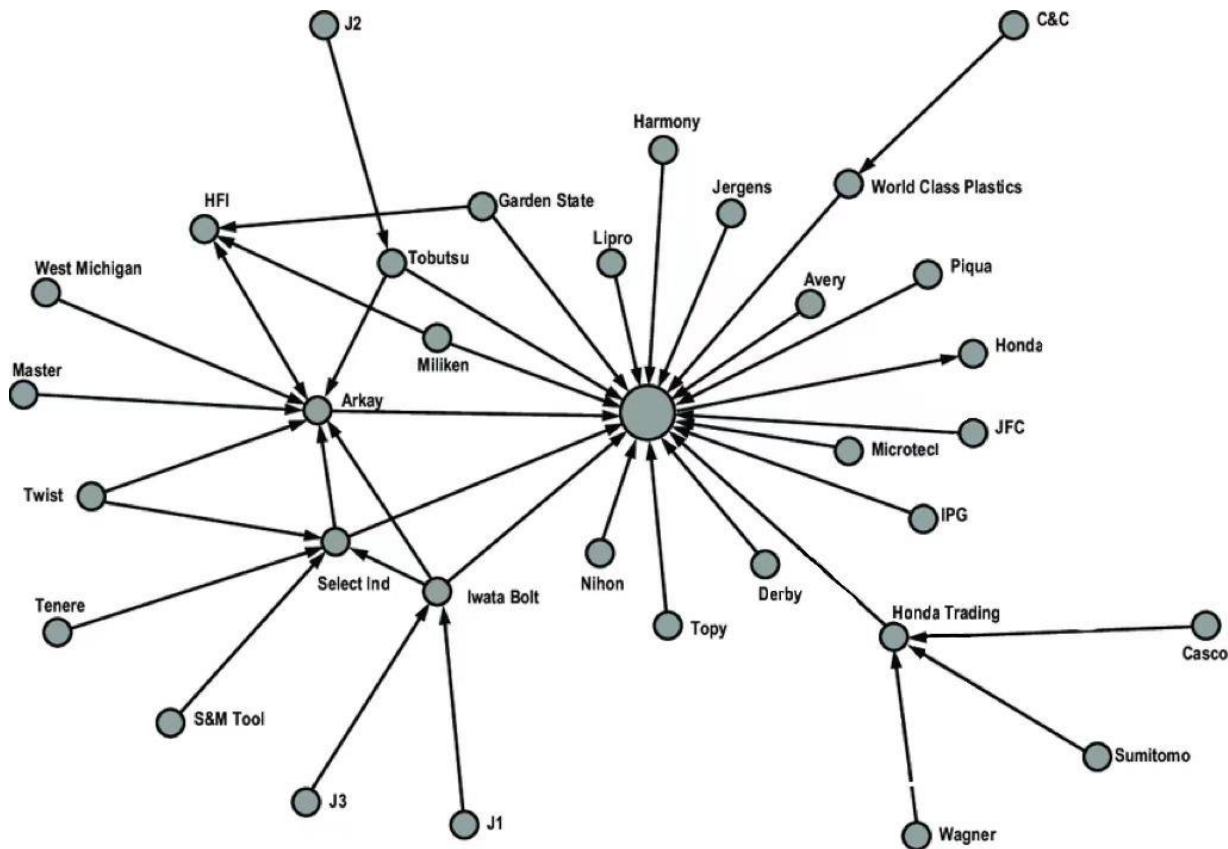


Fig. 4 Automotive supply relationship network [13].

4. Conclusion

This paper shows that firstly, due to the homogeneity of consumers, this study can find out the optimal sales strategy of different markets with fixed characteristics through the network diagram. Secondly, through network analysis, sellers can infer the buying preferences of people in different regions and the relationship between products, such as complementary products or products in the same market basket, and then push related products to customers in a specific region, thus promoting marketing. Thirdly, by analyzing the nodes and paths in the network diagram, the corresponding market structure is determined, so as to accurately select and enter the market.

Future extension work will allow for in-depth and accurate analysis. Because the structure of the market and the relationship between products have no invariable characteristics, and under the development of technology, the structure of the market and the relationship between products in real life are more loaded, so the result analyzed through the network diagram is a trend or estimate. Accurate analysis of the results is supported by multiple network diagrams with a large amount of real-world data.

5. References

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