Spanning 36 years, the evolution and trend of word-of-mouth marketing research – based on bibliometrix analysis

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Abstract: Word of mouth is an important influencing factor of customers' purchase decision-making behavior, and also a key basis for product promotion and improvement in business activities. Word of mouth marketing is a new tool of marketing, which has a special communication mechanism and characteristics, and is the main focus of business activity research. Based on the retrieval data of web of science, this study uses bibliometrix software to conduct network econometric analysis on 259 literatures on word-of-mouth marketing in the past 36 years. The research on word-of-mouth marketing is divided into three stages, focusing on the evolution of research topics and future development trends.

Keywords: word of mouth, word of mouth marketing, network measurement, bibliometrix

1. Introduction

Individuals in social activities have a psychological need to share. They will share their views, news and information with relatives, friends and even strangers. Individuals in the society will discuss their views on goods and services, including products purchased by manufacturers, restaurant service environment, film quality, sports competitions and other consumer places. Thanks to the development of communication technology, people have been able to express their views more easily, from the initial broadcasting and television, to the popularization of the Internet, to the current mobile Internet devices. For consumer goods and services, these are word-of-mouth.

Different from the one-way communication mode of radio and television, the emergence of social platforms (Facebook, twitter, etc.) on the Internet can allow more convenient discussions between customers. Here we say "informal communicators on the ownership, use or characteristics of specific goods for other consumers" (RA Westbrook, 1987). Word of mouth includes product related discussions (for example, Nike is really comfortable) and sharing product related content (for example, Nike ads on YouTube). It includes direct recommendations (for example, you will like this restaurant) and only mentions (for example, we went to this restaurant). Word of mouth is not only a basis for other customers to make purchase decisions, but also an expression of self will. Objectively, it has played an increasing role in the dissemination of product service information. From the perspective of structural analysis, customers are not only the object of word of mouth, but also the origin of information. It is not only the intermediary of information transmission, but also the carrier of information. Thus, word-of-mouth is extremely important for enterprise sales, and word-of-mouth marketing is an indispensable main tool and means. So what have we done about word-of-mouth marketing?

This paper solves these and related problems and integrates various research perspectives to clarify the behavioral drivers of word of mouth. Here we suggest to understand word-of-mouth marketing from three stages: the first is its own characteristics and composition, the second is the communication mechanism and characteristics of word-of-mouth marketing, and the third is the spillover and application of word-of-mouth marketing. The above views are based on the results of the following analysis and discussion in this paper. We use some computer tools to extract the view classification of word-of-mouth marketing research literature, especially to explore the historical changes and development process of word-of-mouth marketing research. Finally, we discuss the fruitful fields to be further studied as the end.
2. Methodology

The research purpose of this paper is to analyze the development law and current research status of word-of-mouth marketing research field since the existence of web of science (WOS) records. To achieve this goal, we used bibliometrix R package (Aria M and Cuculullo C, 2017) and VOSviewer (Van Eck et al, 2010) to retrieve and analyze the bibliometric information of documents.

We used bibliometric indicators, such as the total number of publications, total citations, h index, link strength, etc. (Garfield E, 1964; Bamel et al, 2020). In order to accurately obtain the research scope of word-of-mouth marketing, we have conducted a series of rules retrieval on WOS. First, we use the strict keyword "word of mouth" + "marketing" (fixed with double quotation marks), Enter keywords in the literature title search column and the literature keyword search column respectively (in order to avoid retrieving other literatures that mention word-of-mouth marketing but the research content is not the subject, we did not fill in the keywords in the summary search column); In the search results, the year is limited and the literature in 2022 is excluded (we use the natural year as the boundary to analyze the distribution trend of publications); In order to avoid the interference of other non empirical articles and the distortion of cluster analysis results, the "paper" type is limited in the document type. The final total search result was 259 literature records. The bib search result file was obtained and imported into the bibliometrix analysis software. Here, we plan to answer the following five questions:

Hypothesis 1. what is the trend and characteristics of the literature publication of word-of-mouth marketing research?

Hypothesis 2. What are the characteristics of the research authors, publications and documents of word-of-mouth marketing research?

Hypothesis 3. What is the current research focus of word-of-mouth marketing and in which areas?

Hypothesis 4. What are the academic viewpoints of word-of-mouth marketing research, and what is the relationship between them?

Hypothesis 5. What are the problems encountered in the research of word-of-mouth marketing at present and what is the research trend in the future?

3. Results and discussion

3.1 Publication trends and overview of publications

3.1.1 Overall publishing trend and cited structure

The literature publishing trend of word-of-mouth marketing research has spanned 36 years from 1985 to 2021. The annual literature growth rate is 64%, and the development trend is obvious. It is speculated that the prospect of word-of-mouth marketing research is clear and has great development potential.

Here we answer question 1: what is the trend and characteristics of the literature publication of word-of-mouth marketing research? Among the 259 literature search results, we can know that 15447 references were used, with an average of 59.6 references per article; The total number of citations is 21995, and the average number of citations per document is 84.9. The average number of citations is greater than the average number of documents used. It is speculated that the research on word-of-mouth marketing has won the attention of other academic circles and provided more research results for other research fields.

3.1.2 Main authors and citation structure

Here we will discuss the most productive authors in the field of word-of-mouth marketing. The top three are Yang Lx, Godes D and Haenlein M.

Yang Lx did not publish an article as the first author. The five studies he participated in used dynamic models to calculate the spread characteristics of word-of-mouth impact of advertising under the popularity of social networks (Li P et al, 2018), and used word-of-mouth marketing activities to achieve discount strategies to achieve promotion goals (Zhang T et al, 2019). After sales experience was used as a variable to specify product maintenance strategies (Peng H et al, 2020), We use word-of-mouth communication model to analyze the marketing effect of discount promotion tools (Chen J et al, 2019), and use word-of-mouth communication as a regulating variable to analyze the
evolution model of multi platform advertising in the market state (Huang K.et al, 2021).

Godes D always publishes papers as independent authors or the first group of authors. The article "the economics of cell phone reuse and recycling" has been cited for 1238 times, describing some problems, challenges and solutions that need to be faced in the research of word-of-mouth marketing (Godes D and Mayzlin D, 2004). The relationship between product use time and evaluation score and the impact of this relationship on other evaluators (Godes D and Silva JC, 2012) were discussed. The use of household reputation group size, user structure and user preferences will all affect the feedback of word of mouth, leading to the improvement direction of products (Godes D, 2017), Word of mouth will promote the dissemination of information and promote transactions, and will guide the evaluation of old customers to be the same as that of new customers (Godes D and Silva JC, 2012).

Yang Lx mainly used data tools to analyze the communication path and characteristics of word-of-mouth marketing. Godes D mainly studied the mechanism of word-of-mouth marketing and the interaction between manufacturers and consumers. Haenlein M focused on the specific operation methods of word-of-mouth marketing and the analysis of promotion benefits.

3.1.3 Most influential (cited) papers published

In the research field of word-of-mouth marketing, five articles of Leskovec J (2007), Litvin Sw (2008), Godes D (2004), Berger J (2012) and Zhu F (2012) are the most influential (cited) literature, of which Leskovec J (2007) has the most influence.

The themes and directions of these five articles are different. Leskovec J (2007) organized a large-scale behavior experiment, established an effective model through the collected data and information, and predicted the community atmosphere covered by word-of-mouth marketing and the pre pricing of product price categories. Litvin Sw (2008) discussed the impact of e-word of mouth on the hotel tourism industry, including the positive impact on business, technical problems and social moral problems. Godes D (2004) analyzed how dialogue in TV programs realizes word-of-mouth marketing, and established a TV audience rating model to explain the dispersion of cross community dialogue. Berger J (2012) used psychology to explain the characteristics of the viral spread of word-of-mouth marketing on the Internet, and how to guide people's emotional changes to participate in these communication activities. Zhu F (2012) found that the word-of-mouth effect of online reviews is very obvious between unpopular games (negative) and experienced game players (positive).

Only from the perspective of research topics, the times are developing. The research of Godes D (2004) is still in the stage of TV communication. Leskovec J (2007) and Litvin Sw (2008) have studied the users of online communities. Berger J (2012) has studied not only the impact of word-of-mouth marketing, but the impact of word-of-mouth on itself. The research topics are constantly changing, and the degree of research is also deepening.

3.1.4 Most influential publications

In the field of word-of-mouth marketing research, the three journals Journal of Research in Interactive Marketing (17), Journal of Business Research (12) and Sustainability (11) are the most published journals. However, according to the h-index analysis of literature influence, we can see that Journal of Business Research, Decision Support Systems, and Journal of Research in Interactive Marketing. Here we can see that Sustainability has published a large number of documents, but its influence is not as strong as Decision Support Systems. The conclusion here is that there is no obvious correlation between the number of documents and the influence of documents, which is consistent with our general understanding.

3.1.5 Most common keywords

As shown in Figure 1: word-of-mouth, impact, information, model, behavior, communication, product, antecedents, trust, consumers are the highest frequency keyword extracted by bibliometrix software from 259 articles in the field of word-of-mouth marketing research. Analyzing this key can help us answer question 3: what is the current research focus of word-of-mouth marketing research and which areas are concentrated? And question 4: what are the academic views of word-of-mouth marketing research and what is the relationship between them?

Because "word of mouth" appears first in frequency, there is serious endogenous, because 259 articles are retrieved through this keyword, and there is no research value here. "Impact" and "information" reflect the effect and corresponding object of word-of-mouth marketing, which are in line with our general understanding of marketing and communication. "Model" is an important method
to study the empirical research of word-of-mouth marketing. If we want to know the mechanism, scope of influence and business value of word-of-mouth marketing, model analysis is an unavoidable research tool. "Behavior" and "communication" are actually the media characteristics corresponding to the communication mode in the process of word-of-mouth marketing. The key node of word-of-mouth marketing is the consumer itself, so the behavior mode and communication mode of consumers have a very important impact on the communication of word-of-mouth marketing. "Product", "antecedents", "trust" and "consumers" are all elements of word-of-mouth marketing. The object of product marketing and the quality of products directly affect the results of communication. Moreover, word-of-mouth marketing is very directly related to the use experience of products; Antecedents are the necessary conditions for abstract view of the initiation of communication behavior, and are the main driving force for word-of-mouth communication; Trust is the reason why customers endorse the product experience, affecting the speed and effect of communication; Even if consumers are the object of word-of-mouth marketing, they are also an important medium and carrier in the process of word-of-mouth marketing.

Figure 1: Tree of high-frequency keywords in the literature

Here we can see from the high-frequency keywords that the literature on word-of-mouth marketing can be divided into three stages of understanding. The first stage is the research on the structural characteristics of the elements of word-of-mouth marketing. Literature such as "product", "consumers", "impact", "information" and "model" keywords discusses the constituent elements and characteristics of word-of-mouth marketing; The second stage is the analysis and discussion of the communication mechanism of word-of-mouth marketing. The literature of keywords such as "antecedents", "trust", "behavior" and "communication" uses empirical analysis to analyze the effect and scope of user behavior and communication on word-of-mouth marketing; The third stage is the spillover effect and targeted application of word-of-mouth marketing in business. The literature of keywords such as "sales", "satisfaction", "management", "engagement" and "performance" combines word-of-mouth marketing with product promotion effect, especially discusses customer satisfaction, and finally proposes sales strategies with sales volume as the target.

3.1.6 Countries with the most authors

We use the correspondence author count. The United States is the country with the largest number of authors studying word-of-mouth marketing, and it is also the country with a large proportion of writers of the same nationality (SCP). China is the second country with the largest number of authors studying word-of-mouth marketing, but it is more multinational cooperation, with the largest proportion of multinational authors (MCP). German researchers are far less than those in the United States and China, but the proportion of local cooperation is the highest.

As Figure 1 shows, the international partners of American scholars are all over the world, with no obvious country differences; But the international partners of Chinese scholars are concentrated in China, Britain and Australia, mostly in the English speaking region; Australia's partners are also
concentrated in Britain and China.

To sum up, in part 3.1, we answered question 2: what are the characteristics of the research authors, publications and literature of word-of-mouth marketing research?

As for the cooperative characteristics of the author's country and nationality, we can not give a reasonable explanation here. There is no doubt that the United States is more mature in the field of word-of-mouth marketing research, with global partners, which is the future development direction of researchers in various countries. For the current state, we look forward to corresponding research results in the future.

3.2 Conceptual structure of word-of-mouth marketing research

We used bibliometrix to analyze 259 documents. See Figure 2. Here, we can see that the thematic map is divided into four quadrants: through the division of quadrants, it is used to answer question 3: what is the current research focus of word-of-mouth marketing research and which areas are concentrated? And question 5: what are the current problems in word-of-mouth marketing research and what are the future research trends?

In the lower left quadrant, the key word focused on "customer satisfaction" was only five articles, with an average year of 2015 and an average number of citations of 59. The main study used structural equations to demonstrate that customer satisfaction plays a mediating role between halal tourism and word-of-mouth (Y Wardi .et al, 2018); Similarly, service quality and customer loyalty can also play an intermediary variable relationship between brand image and customer satisfaction (MR Jaliivand .et al, 2017); The environmental and economic aspects of sustainable management activities play an important role in enhancing customer satisfaction, which has a positive impact on word-of-mouth intention and repurchase intention (Shin Y, 2017); Word of mouth and participation to predict customer repurchase demand when customers become production resources are an important factor in enterprise growth (AB Eisingerich .et al, 2014); Customer age plays a regulatory role in positive and negative word-of-mouth due to satisfaction (McCoy SS and Natsuaki MN, 2013). There is little research on customer satisfaction, either new or marginal.

In the upper right quadrant, there are "media" (34 articles, with an average of 69 citations) and "mobile marketing" (6 articles, with an average of 42 citations). The main research points are: on social media, public word-of-mouth is not simply adding or amplifying marketing information, but embedding and changing marketing information into word-of-mouth (Kozinets RV .et al, 2010); Because of its word-of-mouth value, social media predicts a company's share price faster and more accurately than traditional online media (Luo X .et al, 2013); Positive word-of-mouth environments motivate users to express their views more than negative word-of-mouth environments (Moe WW and Da Schweidel, 2012); Three elements that e-word of mouth on social media needs to meet to achieve viral transmission: send the right information to the right people in the right environment (Kaplan AM and Haenlein M, 2011); Customers' buying decisions are influenced by product reviews, people tend to post more positive reviews than negative ones, and men are more likely to post online reviews than women (Mendonca C .et al, 2012). It can be seen that the literature studied with the keyword "media" mainly analyzes the impact of media on word-of-mouth, the value, role and various characteristics of word-of-mouth on social media. Mobile app downloads are closely related to user word-of-mouth comments (Gokgoz ZA .et al, 2021); Mobile devices such as smartphones guide users to generate shorter information content and form certain objective trends (Melumad S .et al, 2019); Because of the difference in the cost of information release, word-of-mouth information distributed by mobile devices can lead to consumers' willingness to buy more than information distributed by other devices (Grewal L and Stephen AT, 2019); The utility of mobile apps is correlated with stickiness and positive reviews from users (s Kim, 2016). Mobile apps seem to be a new media vehicle, and research has focused on consumer motivation and behavioral characteristics. These developments, while good, do not seem to have much impact on the field.

In the lower right quadrant, there are "word of mouth marketing" (8 articles, with an average of 35 citations) and "relationship marketing" (17 articles, with an average of 31 citations). The literature with "word of mouth marketing" as a key identifies some basic concepts: viral marketing of word-of-mouth information can attract a large number of customers and significantly improve the speed of communication (C kiss and m bichler, 2008); Involving stakeholders in brand building activities can effectively reduce sales, R & D and development costs because word-of-mouth plays an important role in achieving wider dissemination and faster user feedback (a roncha and N Radclyffe Thomas,
Service satisfaction plays a mediating role in the relationship between reliability and responsiveness and word-of-mouth (NK Jain et al., 2020). In the context of catering industry, the conceptual model and measurement scale of Po are developed and empirically verified. The model includes basic interpersonal variables such as belonging, identity and perceptual control as antecedents of Po (vs asatryan and H Oh, 2008). The environmental and economic aspects of sustainable management activities play an important role in enhancing customer satisfaction, which has a positive impact on word-of-mouth intention and repurchase intention (MSS jajja .et al., 2017); Positive (negative) services lead to higher (lower) hedonic value. Higher hedonic value leads to positive word of mouth, willingness to pay and reduced conversion intention (a sukhu and a bilgihan, 2021). The above research belongs to a small and refined field, which is very important, but the current development is not very good, generally some basic concepts.

In the upper left quadrant, the key words focused on were "electronic word of mouth" (13 articles, with an average of 79 citations). In electronic word-of-mouth, negative information has more influence than positive information, and experience goods are more affected by negative word-of-mouth information than search goods (C Park and TM Lee, 2009); Online word-of-mouth of hotel tourism products will affect customers' purchase decisions, others oriented customers prefer to make positive comments, and self-oriented customers prefer to make negative comments (f Bronner and R de Hoog, 2011); Online word-of-mouth has three channels: personal, marketing and editorial, and user generated content appears to be highly trusted and shows a high degree of integrity (a dickinger, 2011); Monetary incentives can improve the enthusiasm of customers to publish online word-of-mouth and bring some negative effects, but corresponding measures can be taken to eliminate it (t Reimer and m benkenstein, 2016); Three new factors (desire for information sharing, desire for self display and open market incentives) and two established factors (open market satisfaction and open market loyalty) are factors affecting online word-of-mouth (SH Lee .et al, 2013); Using e-word of mouth and social media can increase consumer awareness and acceptance of the food supply chain (a elghannam .et al, 2020).

These studies are the most worthy areas of word-of-mouth marketing because they and their importance (high citations) have developed well (published at a relatively new time).

Although there are many focuses on word-of-mouth marketing research, the earlier ones are "word of mouth marketing" and "relationship marketing", which determine some important basic concepts, such as word-of-mouth is conducive to promotional activities and has commercial value (C kiss and m bichler, 2008), which can reduce the commercial cost of many sides (a roncha .et al, 2016). The key to achieving word-of-mouth marketing lies in dealing with interpersonal relationships (vs asatryan and H Oh, 2008) and ensuring customer satisfaction (MSS jajja .et al, 2017; a sukhu and a bilgihan, 2021). These basic concepts have been highly cited in the past, and there is little research now. Research on "customer satisfaction" seems to connect with "relationship marketing", and the main ideas and ideas are consistent with the previous ones (AB eisingerich .et al, 2014) and developed (McCoy SS .et al, 2013; y WarDi .et al, 2018), but the literature is too little to determine the future trend of this aspect.

![Figure 2: Thematic map of word-of-mouth marketing literature](image-url)
The research on “media” and “mobile marketing” has brought us many new views, mainly analyzing the development and changes of word-of-mouth and word-of-mouth marketing on new platforms (Kozinets RV et al., 2010; Kaplan AM and Haenlein M, 2011; Grewal L and Stephen AT, 2019; Melumad S et al., 2019; Gokgoz ZA et al., 2021), and the reason why these studies have not received more attention is that, there may be some overlap with the “electronic word of mouth” study, including behavioral customer behavior characteristics (C Park and TM Lee, 2009), motivational factor analysis (SH Lee et al., 2013), the relationship between customer characteristics and word-of-mouth (f Bronner and R de Hoog, 2011), and the application of word-of-mouth rules (a elghannam et al., 2020). In the foreseeable future, “electronic word of mouth” can better cover the meaning of keywords such as “media” and “mobile” at a time. Some researchers have to be reminded that careful creation of new terms as a form of innovative behavior, “mobile marketing” is meant to be an app marketing campaign on mobile devices, which is essentially not divorced from the concept of “electronic”, which also leads to a low average number of citations in the literature using “mobile marketing” as a key word (42).

4. Conclusions and limitations

With the help of the analysis function of bibliometrix software, we answered five questions and objectives raised above through analysis: first, what is the trend and characteristics of the literature publication of word-of-mouth marketing research? From the perspective of data analysis and prediction, the literature related to word-of-mouth marketing research still has a great probability of growth in the future and has great research potential; Secondly, the characteristics of the research authors, publications and documents of word-of-mouth marketing research, the ranking of these authors and publications is relatively stable, and the basic system of word-of-mouth marketing research has been established and the structure is stable; Thirdly, what is the current research focus of word-of-mouth marketing research and where is the concentrated area? Combined with the results of high-frequency keyword tree analysis, it focuses on three areas of word-of-mouth marketing research, namely, the structural characteristics of the elements of word-of-mouth marketing, the communication mechanism of word-of-mouth marketing, the spillover and application strategy of word-of-mouth marketing in business; Fourthly, what are the academic views of word-of-mouth marketing research and what is the relationship between them? The three areas of word-of-mouth marketing research focus on are exactly the three stages in the chronological order from the occurrence to the end of word-of-mouth communication; Fifthly, what are the problems encountered in the research of word-of-mouth marketing at present and what are the research trends in the future? With the help of thematic map analysis, some basic concepts of word-of-mouth marketing and relationship marketing have been determined. There may be no more new related research in the future. The concepts of mobile marketing and media marketing have not been recognized by most researchers. Instead, online word-of-mouth, a larger and newer platform concept, More relevant research literature may be produced in the future.

Due to the limitation of research time and article length, this study fails to discuss more about the literature search rules of word-of-mouth marketing research, which may lead to the inability of follow-up researchers to repeat the results of this study; And the use of tools that do not explain more details, such as regression analysis by Stata software, and do not provide corresponding model formulas. Then there are some details in the research that are not rich enough, such as the failure to cite more relevant literature on high-frequency keyword cluster analysis, which is not conducive to researchers to understand this part of the content, as well as the view of three stages of word-of-mouth marketing research, based on the judgment of the author's own experience, there is no corresponding reference evidence. We are confident that the follow-up research will effectively solve the previous problems.

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