

Research on Propagation Mechanism of Viral Marketing

ZHANG Jihua
School of Management
Jinan University
Guangzhou, P.R.China
E-Mail: jihuazh@126.com

Abstract—With the growing popularity of Internet, online advertising increases dramatically. But the immunity of users on advertisement gets stronger and stronger and the boycott means become more and more. How to make the clients accept the marketing communication? “Viral marketing” disperses to millions of recipients by taking the advantage of public praise of the clients. The public helps to realize the lever effect of marketing propagation. This thesis reviews the relevant literature on viral marketing and makes an in-depth analysis on the principles of viral marketing diffusion. It summarizes some steps for successful viral marketing and puts forward conclusion and suggestions in the end.

Keywords- viral marketing; propagation mechanism; social network; information technology.

I. ESTABLISHMENT OF CONCEPT OF VIRAL MARKETING

When Hotmail launched free e-mail in 1996, it set a link in e-mail to facilitate registration for the receivers of Hotmail e-mail. In this way, when sending an e-mail, the user generates free publicity for Hotmail. Within one and a half years after its establishment, Hotmail attracted 12 million users. Its rivals made a heavy investment of USD 20 million on traditional advertisement, but accomplished so little. Therefore, the novel marketing method astounded the industry. American investors Tim Draper and Steve Jurvetson initiated the concept of “viral marketing” when he commented the incident.

Digital viruses can spread internationally more rapidly than biological viruses that rely on the physical proximity of hosts for their spread - via a sneeze or handshake. Hotmail is the largest email provider in Sweden and India despite the fact that they have done no marketing of any sort in these countries. It's a happy day when you discover your business has displaced several entrenched competitors to become the market share leader in a country you have never visited. What's more, Hotmail is used in over 220 countries, despite the limitation that it is only available in English.

On the Internet, viral marketing is any marketing technique that induces Web sites or users to pass on a marketing message to other sites or users, creating a potentially exponential growth in the message's visibility and effect. BMW made a huge investment and invited Hollywood outstanding team to make short film. The film was post on Internet for free appreciation

and propagation. The breathtaking street racing, gripping hostage rescue and life and death struggle in a critical moment seemed the short versions of Hollywood commercial movies. Of course, the leading actor was BMW automobile. It greatly improved the market popularity of BMW.

In order to attract more dinners, Taiwan Pizzahut launched a network marketing program. In the e-mail titled “Eating Through Pizzahut”, it introduced some tips of getting more self-help salad by building a wider space with carrot strips, cucumber slices and pineapple chunks to reach 15 layers of salad. Photos were attached. Many people forwarded this e-mail to their friends and colleagues immediately after they received it and decided to have a try. Pizzahut carefully planed the powerful “pathogen” to propaganda among users. The advertisement spread fast like a virus.

At the end of 2005, in front of its rival—Google, Baidu prepared a new advertising campaign. However, due to the shortage of fund, it invested RMB 100,000 to shoot three video programs. The humoristic and funny video programs were propagandized through e-mails, QQ and forums by their employees and their friends. The three video programs focused on the key conception of “Chinese”, “Leading” and “Searcher” in order to completely display the concept of the leading Chinese searcher of Baidu. Many white collars were attracted and turned to Baidu.

II. REVIEWS ON RELEVANT LITERATURES

In the famous hypothesis of Six Degrees of Separation, Stanley Milgram, American professor of psychology, said that “there are no more than six people between you and any stranger. In other words, you can acquaint any stranger through six people at most”[1]. According to this theory, every one will owe a huge interpersonal network Marketing information will be conveyed to all people in the world according to this theory. With the help of Internet, the information will be spread more quickly in shorter time.

American well-known E-business advisor Dr. Ralph F. Wilson summarized the effective viral marketing into six basic elements, namely, providing valuable products and service; providing an easy method to convey the information; the possibility of expanding the range of information; taking the

advantage of public enthusiasm; utilizing current communication network and utilizing others' resources[2].

The transmission of viral marketing depends on spontaneous behavior of the netizens. Unlike the traditional websites with a top-down and point-face issuing platform, people would issue information on some "linkage" of network. To produce powerful social effects, the information has to rely on a propaganda network.

A social network consists of several links and the jumbles of the links. To a great extent, individual social network equals to the interpersonal network. Information is spread through the network[3]. The range, strength and nature of the interpersonal network will inevitably affect the information transmission. The larger the social network of the information poster is, the more contacts it will be. The more frequent contacts will result in more powerful transmission capability. The spreading range of the information will get wider.

As the information transmission of social network depends on the links, every link counts. Different choices made by a link will have a direct influence on the range and effect of information transmission. The choices may depend on the judgment of value of the information, or interpersonal relationship or recognition.

III. ANALYSIS ON PRINCIPLES OF VIRAL MARKETING EXPANSION AND DEGRADATION

Scientists who are engaged in epidemic study divide virus expansion mechanism as SIS (Susceptible-Infected-Susceptible), SIR (Susceptible-Infected-Removed) and SI (Susceptible-Infected)[4]. Based on this research achievement, individual in the network can be divided as susceptible, infected and removed individuals. Therefore, SIR mode is adopted for analysis. From the above analysis, virus expansion mechanism can be expressed by the following equation:

$$M = \sum_{i=1}^n K_{i-1} X_i Y_i$$

Where: M stands for the effective infected individuals, K refers to the previously infected individuals while X means spreading factor—judgment of susceptible individuals according to their interpersonal network and virus contents, which decides the number of links to transit the information. Y represents damping factor—the ratio of removed individuals in the links who receive the information. Therefore, the speed and range of viral marketing expansion mainly depend on the previously infected individuals, spreading factor and damping factor. In general, in the early stage of viral marketing, spreading factor plays a vital role. The information will be spread fast. When it reaches to a certain range, damping factor holds sway due to that the timeliness of the contents reduces and the new susceptible individuals become fewer.

IV. IMPLEMENTATION STEPS FOR VIRAL MARKETING

Viral marketing is fairly easy to define, but very difficult to accomplish successfully. The secret of viral marketing is "to make every recipient become propagator". Corporate brand

information will be spontaneously transmitted by the recipients. There are three steps: designing the seed, seeking for susceptible individuals and seeking for media channels.

A. Designing the seed

To design an attractive pathogen—recreational transmission contents containing corporate values to easily reproduce, transmit, repost, download or transmit by e-mail for users. Viral marketing shall stimulate the participation and enthusiasm of consumers. Therefore, it shall provide values to the recipients, including pragmatic value, news value and recreation value[5]. Viral marketing of Hotmail provided e-mail service for the recipients. Free trial software provides software service and some funny pictures and video provide recreation value.

Target consumers shall be positioned first, to have an insight into consumers and find out their demands. The value of viral marketing is huge. A good viral marketing program will bring far better effects than that of traditional advertisement. Of course, it is harder to be successful in viral marketing. It calls for unique creativity. It has to elaborately embed the marketing information into it by means of video, images, voice and characters. Otherwise, the too much advertisement will affect the transmission effect.

B. Seeking for susceptible individuals

To seek for the potential susceptible individuals who are willing to participate in viral marketing. Detailed plan and demonstration are required before designing marketing program. We have to understand who are our target consumers and what are their excitatory point[6]. It is advisable to conduct a test in a small range in advance to find out whether the virus is susceptible and whether the information will be spread again.

The voguish "Hoodlum Rabbit" was designed by Korean animation new star Kim Jae In. The cartoon rabbit has a trifling appearance, dirty behavior and simple thought, wily, roguish and greedy. However, it becomes a negative star. It challenges all value concepts and reflects the desire of public to get rid of reality and the system limitation. Flash of Hoodlum Rabbit has been posted in BBS and Flash websites and other web portals. Netizens transmit it through chat tool and e-mail. Over 1000 commodities have been derived from this online virtual star. It has successful become a patented commercial logo.

C. Seeking for media channels

That is to find out the platforms for virtual marketing. In traditional media era, communication forerunner Paul F. Lazarsfeld put forward the concept of "secondary transmission", which meant that the information will be transmitted to only a few opinion leaders through public media. Then they will transmit to the common recipients. In new media era, methods for information transmission get more and more: online tools such as QQ, MSN, BBS, BLOG and download software, video players and even mobile phones and wireless media. Transmission speed, volume and convenience are greatly enhanced. The transmission cost is reduced but the interaction among recipients is enhanced. Such "We-Media" grows and replaces the mainstream transmission mode.

As more Internet and Intranet applications move beyond computation to embrace communication, the Viral Marketing strategy has wide applicability. E-commerce, groupware, community, messaging and promotions businesses can all use these techniques to further the Internet explosion.

V. CONCLUSION

With the increasing application of Internet, web advertisement grows explosively. More and more users have distaste for advertisements. Methods to boycott the interference of advertisement come into being. Pop-up advertisements can be blocked, page advertisements can be covered and e-mail advertisements can be discarded into junk mail folder. Virtual marketing brings fun as well as corporate value in the course of transmission. It promotes the transmission among users just as a virus reaches the body, reproduce quickly and expand extensively. It saves promotion cost and improves transmission effect.

Public media advertisement has a radiating marketing mode of "one point to multiple points". In fact, it is hard to confirm whether the advertisement information reaches the target recipients. However, viral marketing is a spontaneous behavior to spread the information. It is not evenly, simultaneously and blindly transmitted to every one. Contrarily, the product and brand information will be transmitted by the consumers to their contacted individuals through the channels that are similar to interpersonal transmission and group transmission.

A good viral marketing program will achieve a better effect than that of traditional advertisements. Definitely, viral marketing requires sophisticated skills and unique creativity as well as constant follow-up and improvement. A successful viral marketing may be a contingent case but opportunities favor the minds that are prepared. Only by continuous learning and summarization of the marketing teams can they make progress and improve the future probability of success.

ACKNOWLEDGMENT

This paper is supported by the National Natural Science Foundation of China (No. 71002085 and No. 71003043).

REFERENCES

- [1] S. Milgram, "The small-world problem". *Psychology Today*, pp. 61-67, May 1967.
- [2] R. F. Wilson, "The Six Simple Principles of Viral Marketing", unpublished.
- [3] P. F. Lazarsfeld, R. Boudon, "On social research and its language", University of Chicago press, pp. 32-41, 1993.
- [4] R. P. Satorras, A. Vespigni, "Epidemics and immunization in scale-free networks", Chapter in handbook of Graphs and Networks from the genome to the Internet. Wiley-VCH, 2003.
- [5] M. X. Xu, X. Wang, "Research on communication channels of Viral Marketing", *Journal of Yunnan Finance & Economics University*, Vol. 24, No. 1, pp. 98-100, 2009.
- [6] D. Rushkoff, "Media Virus: Hidden Agendas in Popular Culture", Ballantine Books, 1996.