

Marketing in Malaysian Technology Firms

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Abstract—Today's world technology recognizes Internet and World Wide Web as two of the main communication mediums in technology firms. modern technology and social networking turn out to be a part of a large number of people's lives. technology firms are challenged with this fast-moving social network in organization that encourage viral marketing too. There has been little study about the effect of viral marketing towards technology firms. This paper aims to explore the factors that influence the effectiveness of viral marketing, determine the most influential factor and identify the impacts of online contents that influence the effectiveness of viral marketing. a quantitative method was used and 384 respondents from Southern Region Malaysia participated in the survey. The results showed that all the motivational factors like playfulness, community-driven, perceived ease of use, and perceived usefulness had significant impact on the viral marketing in the Malaysian technology firms. Two other factors like critical mass and peer pressure were found to be insignificant in this study. The findings may contribute to the judgement on Malaysian technology firms about viral marketing that blend firm skills, knowledge and technical leadership roles to manage emerging technologies, develop innovative solutions and complex firm's problems.

Keywords—*Communication, viral marketing, innovation, emerging technology, malaysian technology firms*

I. INTRODUCTION

THE tremendous change in our technology landscape has become more challenging in terms of managing the flow of information through internet and other social media. One of the fastest medium and relevant technologies that can be used for any firms that put emphasis on their communication is known as viral marketing. Viral marketing communication is a consumer-to-consumer marketing tactic which employs the internet to encourage individuals to pass marketing messages to others [1].

II. LITERATURE REVIEW

A. Viral Marketing

Figure 1 shows an illustration of marketing strategy that involves creating online messages that's entertaining enough to prompt consumers to pass it on to others, spreading the message across the Web at no cost to the advertisers [2]. This illustration reflects the introduction of viral marketing to the technology firms that have the potential to use it to market their innovative products and services. However, problems may arise from viral marketing such as inappropriate usage which can create controversial issues, difficulty in measuring the effect of this viral marketing and exploitation of social media and networks by the firms. At this point of time, viral marketing communication is a new topic and the facts about its nature, characteristics and dimensions have yet to be agreed and established [3].



Fig. 1. Spread of Message with Viral Marketing (Source: Ma Wing Ki, 2010)

B. Importance of Viral Marketing to Technology Firms

Malaysian technology firms show great interest in viral marketing. Some researchers feel that this can be seen from the good support given by firms to the technology and innovation. First, the effectiveness of this viral marketing is through the support which has been shown by the success of the company’s performance in the business area [4]. Second, there is a positive relationship between branding strategy and technical knowledge towards the adoption level of mobile marketing [5]. Third, the characteristics of Malaysian Standards (MS), characteristics of SME, and external factors are positively associated with SME performance [6].

C. Theoretical Framework

Therefore, the theoretical framework for this study was based on a model known as the Social Network Website Influence model (SNWI), focusing on motivational factors. It is expected that natural motivators and social influence of user behavior are dominant predictor of usage. In this model, the networks’ characteristics include playfulness, critical mass, community driven, peer pressure, perceived ease of use and perceived usefulness involvement. The dependent variable is the effectiveness of viral marketing. It is expected that these factors will have a direct effect on implications of viral marketing and may become an effective technology in the future. The validity of this model (SNWI) and the relationship among its constructs were tested using structural equation modeling. This model demonstrated that social network websites are significantly influenced by their motivational characters on viral

marketing [7]. The model to explain why people revisit websites is based on the advancements of TAM in “traditional” information systems, and it is complemented by recent theoretical and empirical findings on Internet use. The original version of the Technology Acceptance Model was put forward by Davis et al [8-10].

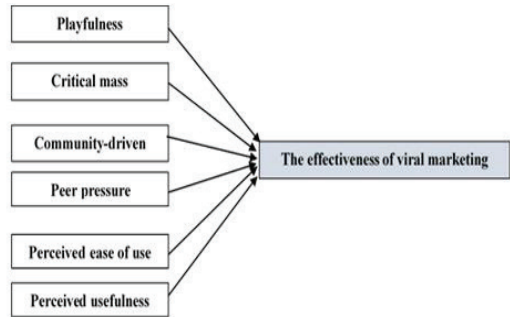


Fig. 2. Social Network Influence Model on Viral Marketing and Revised TAM Conceptual Framework. (Source: Abedniya & Mahmoudi, 2010, Davis, 1989; Davies et al., 1989; Davis et al., 1992)

III. METHODOLOGY

A. Methodology Choice

This study was conducted using quantitative research method. The respondents consisted of 384 internet users from Malaysian technology firms. Based on the social media statistics of Malaysia until April 2017, 95.49% view social media market via Facebook shared by desktop, device and tablet platform compared to other social media such as Twitter and Pinterest [11]. The term Technology Based Firms (TBFs) define those companies in which their sales revenue is generated through the use of at least 51 percent of technology based operations e.g. internet, electronics, mechanical, automobile, clean energy, biomedical, communications, telephone, fax companies and so on [12-13]. Hence, the main trust of their business relies heavily on the use of high technology [14].

B. Location of Research

Melaka, Selangor and Kuala Lumpur were chosen as research locations because observations needed to be executed on how firms conduct viral marketing technology around their states. A comparison among firms’

understandings of viral marketing concept in Melaka, Selangor and Kuala Lumpur enabled researchers to get more insights on viral marketing.

C. Questionnaire Design

The questionnaire was developed based on previous studies and was divided into three parts. The first part focused on the respondent's demographic profile such as gender, age, states, firms' category, profit and hours spend on social media in a week and participation online forums. The input was used to determine whether there was any relationship between demographic profile and effectiveness of viral marketing among users in the firms. The second part focused on the impact of online contents that went viral. It examined whether the firms responded to viral messages when they received viral messages from someone they know very well. The questions covered the factors which affected the implication of viral marketing technology. Six variables which included playfulness, critical mass, community-driven, peer pressure, perceived ease of use; perceived usefulness were tested to meet the research objectives. Each variable consisted of five questions.

D. Data Analysis Method

The data analysis used was statistical analysis.

IV. RESULTS AND DISCUSSION

Six types of online activities were utilized to identify the impacts of online contents that influenced the viral marketing. Those activities were on receiving spam e-mails from friends and people they may know, sharing videos or online contents on social media, awareness towards the viral marketing campaigns, usage of the social media to share information or send messages to friends and family, reading information shared by friends and family on social media and reading and sharing online messages written by friends and people they may know about products services on social media. Software engineers spent a significant amount of time to collaborate across those

activities. Their jobs often involved working across many parts of company communication with product management, support, operations, sales, customer, service and others.

A. Demographic profile

TABLE I. SUMMARY OF RESPONDENT DEMOGRAPHIC

Demographic	Frequency with highest value	N	%
Gender	Male	258	67.2
Age	21 - 23 years old	247	64.3
State	Selangor	189	49.2
Education Level	Degree	281	73.2
Hour Spend	>12 Hours	358	93.2
Active in Forum	Yes	382	99.5

The Table above summarized the demographic characteristics of the respondents which include gender, age, state, education level, hour spend on social network, and also active in forum on social network that with highest frequency.

B. The Impact and Attribute of Viral Marketing Campaigns

Based on the results of this study, many people received spam emails, hence, viral works were effective in Malaysia. the majority of respondents expressed satisfaction and agreed with the online activities that they commonly facing during social networks use. Most respondents stated that they always receive spam e-mails from friend and people they know. Therefore, when a viral message was received multiple times by one person, this could backfire by weakening the credibility of the viral message as well as the brand, product or service the viral message is referring to [17]. However, people have learned to tune out a lot of standard marketing (spam), but people typically trust, and act based on recommendations from friends. Based on the findings, these online activities positively affect viral marketing campaigns. This shows that respondents were to undergo through viral marketing campaigns and attributes in their daily life on social networks.

C. Reliability Test

TABLE II. THE RESULT OF CHRONBACH'S ALPHA

Reliability Statistics		
Cronbach's Aplha	Cronbach's Alpha Based on Standardized Items	N of Items
.920	.916	36

The Cronbach's Alpha value was 0.920 > 0.600. Based on the results, each motivational factors and impact of online contents carried 5 to 6 questions and overall, 36 questions were used in this research. The dependent variable was the effectiveness of viral marketing and the independent variables were playfulness, critical mass, community driven, peer pressure, perceive ease of use and perceive usefulness. The Output of reliability statistics obtained Cronbach's Alpha value of 0.920. It can be concluded that this research instrument was highly reliable.

D. Pearson Correlation Analysis

Based on the output, playfulness scored highest for the Pearson correlation which was 0.691 with significant level 0.000. This showed that there was strong correlation between playfulness and effectiveness of viral marketing. Secondly, critical mass scored 0.420 for Pearson correlation and significant level with value 0.000. This showed critical mass variable is valid has slight correlation with dependent variable. Community driven scored 0.663 for Pearson correlation with significant level 0.000. This showed that community driven has a strong correlation with the dependent variable. Peer pressure scored 0.682 for Pearson correlation with significant value 0.000. This showed that there was strong correlation between peer pressure and effectiveness of viral marketing. Perceive ease of use has scored very low Pearson correlation value 0.192 and scored 0.000 for significant level. This also showed that perceive ease of use has a very weak relationship with the dependent variable. In addition, perceive usefulness scored Pearson correlation with value 0.649 and scored 0.000 significant level. This showed that perceive usefulness has

strong relationship with dependent variable. According to the correlation output, majority of the variables were very significant with effectiveness of viral marketing.

TABLE III. THE RESULT OF CORRELATION

		Playfulness	Critical Mass	Community-Driven	Peer Pressure	Perceive Ease of Use	Perceive Usefulness	Effectiveness of Viral Marketing
Playfulness	Pearson Correlation	1	.498*	.766**	.769**	-.139*	.629**	.691**
Critical Mass	Pearson Correlation	.498*	1	.627**	.507**	-.066	.478**	.420**
Community-Driven	Pearson Correlation	.766**	.627**	1	.834**	-.127*	.673**	.663**
Peer Pressure	Pearson Correlation	.769**	.507**	.834**	1	-.121*	.764**	.682**
Perceive Ease of Use	Pearson Correlation	-.139*	-.066	-.127*	-.121*	1	-.046	-.192**
Perceive Usefulness	Pearson Correlation	.629**	.478**	.673**	.764**	-.046	1	.649**
Effectiveness of Viral Marketing	Pearson Correlation	.691**	.420**	.663**	.682**	-.192**	.649**	1

E. Multiple Regression Analysis

TABLE IV. THE RESULT OF CORRELATION MULTIPLE REGRESSION

Model	Coefficients ^a		Standardized Coefficients	t	Sig.
	Unstandardized Coefficients				
	B	Std. Error	Beta		
(Constant)	2.624	.378		6.941	.000
Playfulness (P)	.191	.033	.329	5.859	.000
Critical Mass (CM)	-.042	.076	-.024	-.551	.582
Community-Driven (CD)	.122	.057	.150	2.128	.034
Peer Pressure (PP)	.067	.055	.090	1.223	.222
Perceived Ease of Use (PEU)	-.158	.051	-.105	-3.094	.002
Perceived Usefulness (PU)	.293	.055	.280	5.307	.000

a. Dependent Variable: Effectiveness of Viral Marketing

Based on the output of Multiple Regression, the significance of playfulness was 0.000 < 0.05. Hence, the playfulness has strong significant

relationship on the effectiveness of viral marketing. This significant community-driven generated from SPSS was 0.034 which was less than P value 0.05, hence, the community-driven has a significant relationship on the effectiveness of viral marketing. The significance of perceived ease of use was $0.002 < 0.05$, this showed strong significant relationship between independent variables and dependent variable. Therefore, it can be concluded that perceived ease of use has significant relationship on effectiveness of viral marketing. Besides, the significance of perceived usefulness was $0.000 < 0.005$, this showed strong significant between independent variables and dependent variable. Therefore, it can be concluded that perceived usefulness has a significant relationship on the effectiveness of viral marketing (EVM). The linear equation was developed as follows:

$$EVM = 2.624 + 0.191P + (0.42CM) + 0.122CD + 0.67PP + (-0.158PEU) + 0.293PU \quad (1)$$

Based on the linear equation above, there was a positive relationship between the factors playfulness, community-driven, peer pressure and perceived usefulness (P, CD, PP, and PU) towards the effectiveness of viral marketing. However, the critical mass and perceived ease of use were not significant with the effectiveness of viral marketing. The result of this research is supported by The Model Deep Social Media use [18] stating that play is regarded as an intrinsic motivation for users who find interest and fun when using Facebook. According to [19], websites that enhance visitors' perceived sense of control, entertainment, interactivity, and brand experiences are most likely to draw out positive consumers' attitudes. The results of the current study are incompatible with the results of [20] as entertainment adds value for customers and increases customers' loyalty thus resulting in a positive attitude towards viral marketing. As stated by [21], the customers' attitudes also effected by interactive advertisement that make customers more engaging and interesting. Thus, a selection of target consumers is an initial seed in social media marketing due to consumers play an important role on the purposive value

and entertainment value of message during the decision-making process [22-23].

V. CONCLUSION

In conclusion, the results show that all the motivational factors like playfulness, community-driven, perceived ease of use, perceived usefulness have significant impact on the viral marketing in the Malaysian technology firms. Two other factors like critical mass and peer pressure were insignificant. Hence, firms should focus and improve on their effective viral marketing campaigns to suit Malaysian users' attitude and behavior. Strengthening these four motivational characteristics will give the most effective and successful viral firm activities. Designing a good viral marketing campaign can develop the better understanding and boost the spreading of viral contents on social networks among users. Viral marketing has become an important component of marketing strategy, not only due to its cost-effectiveness and broad reach, but also because consumers have come to perceive traditional online advertising as often irrelevant and therefore are increasingly turning towards alternative sources, most importantly word of mouth, to gather credible information about new products [24]. As mention by [25], word of mouth marketing is more competent in an offline social network than in an online social network because the social ties in an offline social network are stronger. However, if a firm can invest to enlarge the network size, an online network can return much higher earnings due to the network effect. Effective implementation of viral marketing campaigns can create an immediate buzz and help boost the promotion of brands, products and services [26]. It is necessary for firms entering the social media world and planning to employ it in its marketing communications. Moreover, firms also have to be more careful in case of mobile social media as compared to other conventional media because of the vulnerability of brand equity through User Generated Content [27]. For practitioners who adopt a social network marketing as low-cost marketing strategy, hiring a credible source to write reviews and

adopting reviewers' argument to spread the word of new products/services are the essential strategic movements to deliver users' purchase intention on this platform while minimizing their risk perception and getting best practice with highest outcome [28].

This study may contribute to the judgement to Malaysian technology firms about viral marketing that blend firm skills and knowledge to develop innovative solutions in the fast moving and complex firm's problems. Firms should adopt new digital technologies as they emerge to provide more value to customers. However, the value delivered to customers depends on the provision of reliable and superior service using the technology [29]. Future research may look into other aspect such as pricing and ethics as also mention by [30].

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REFERENCES

- [1] R.F. Wilson (2000), *The six simple principles of viral marketing*. [Online]. Available: <https://www.practicalecommerce.com/viral-principles>
- [2] Ma Wing Ki. (2010). *Viral Marketing-SPD4290 Year 2010 summer*. [Online]. Available: <http://klove-n-peace.blogspot.com/2010/06/definition-of-viral-marketing.html>
- [3] C.Danilo and F. Chris, "Evaluating Viral Marketing: Isolating the Key Criteria", *Marketing Intelligence & Planning*, Vol. 26, No 7, 2008, pp. 743-758.
- [4] Othman, A., "The Prospect of E-Mail Marketing: A Survey in Malaysia Airports Technologies Sdn Bhd (MATSB), Malaysia. Viii Conference of Preliminary Papers to Congresses of Business (p. 13), Barcelona: Autonomous University of Barcelona, Spain, 2010.
- [5] Musa, H., Li, S.C.H., Abas, Z.A., Mohamad, N., "Adoption factor of mobile marketing: The case of small medium enterprises in Malaysia", *International Review of Management and Marketing*, 6 (Special Issue), pp. 112-115, 2016.
- [6] Musa, H., Azmi, F.R., Khalid, F.A., Yunus, A.R., "Analysing the adoption of Malaysian standards (MS) on SME performances: The mediating effects of innovation adoption factors", *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 8-10 March 2016, pp. 976-984, 2016.
- [7] Abedniya, A. & Mahmoudi, S.S., "The Impact of Social Networking Websites to facilitate the Effectiveness of Viral Marketing", *(IJACSA) International Journal of Advance Computer Science and Applications*, Vol.1, No.6, 2010.
- [8] Davis, F.D., "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, pp. 319-340, 1989.
- [9] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. "User acceptance of computer technology: a comparison of two theoretical models," *Management Science* (35:8), pp. 983-1003, 1989.
- [10] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. "Extrinsic and intrinsic motivation to use computers in the workplace," *Journal of Applied Social Psychology* (22), pp. 1111-1132, 1992.
- [11] StatCounter. *Social Media Stats in Malaysia* (2017). [Online]. Available: <http://gs.statcounter.com/social-media-stats/all/malaysia>, 2017.
- [12] K. Ismail, A. S. Aslan and M. A. Ajagbe, "An Investment Framework to Help Equity Financiers Select Tech SMEs in Malaysia". *Interdisciplinary Journal of Contemporary Research in Business*. ISSN 2073-7122, IJCRB Sept.Ed. vol.3, no.5, pp.966-983, 2011a.
- [13] Y. Yip, Y. Su, and J. Ang, "Effects of Underwriters, Venture Capital and Industry on Long-Term IPO Performance". *Managerial Finance*, vol.35, no.8. 2009, pp.700-715.
- [14] C. Mason and R. Brown, "Creating Good Public Policy to Support High-Growth Firms". *Small Business Economics*, 2011, DOI 10.1007/s11187-011-9369-9.
- [15] Saunders, M., & Lewis, P. *Research methods for business students* (6th ed.). Harlow, England: Pearson, 2012.
- [16] Lucey, T. *Quantitative techniques*. 5th ed. London: Thompson learning, 1996.
- [17] Kiss, C., Bichler, M., "Identification of influencers – Measuring influence in customer networks". *Decision Support Systems*, 46, 2008, pp. 233-253.

- [18] W. W. L. Chan and W. K. M. Will, "The Influence of Playfulness and Subject Involvement on Focused Attention when Using Social Media". *Journal of Communication and Education*, Vol. 1, no. 1, pp. 16-27, 2014.
- [19] H. Gangadharbatla, "Facebook Me: Collective Self-Esteem, Need to Belong, and Internet Self-Efficacy as Predictors of the iGeneratio's Attitudes towards Social Networking Sites". *Journal of Interactive Advertising*, Vol. 8, no. 2, pp. 5-15, 2008.
- [20] F. Saadeghvaziri and H. Hosseini, "Mobile Advertising: An Investigation of Factors Creating Positive Attitude in Iranian Customers". *Africal Journal Business Management*, Vol. 5, no. 2, pp. 394-404, 2011.
- [21] G.C.Shen, J.S. Chiou, C. H. Hsiao, C.H. Wang and H.N. Li, "Effective Marketing Communication via Social Networking Site: The Moderating Role of the Social Tie". *Journal of Business Research*, Vol. 69, pp. 2265-2270, 2016.
- [22] S. Zeng, J.Li, X. Ni, Y.Yuan, and F. Y. Wang, "Research on Social Marketing Strategies with An Agent-based Propagation Model". *IFAC Papers OnLine* Vol 50 (1), pp. 13582-13586, 2017.
- [23] C. Pescher, P. Reichhart, and M. Spann, "Consumer Decision-making Processes in Mobile Viral Marketing Campaigns" *Journal of Interactive Marketing*, Vol. 28, pp. 43-54, 2014.
- [24] O.F. Koch and A. Benlian, "Promotional Tactics for Online Viral Marketing Campaigns:How Scarcity and Personalization Affect Seed Stage Referrals" *Journal of Interactive Marketing*, Vol 32, 37-52, 2015.
- [25] F. Li and T.C. Du "The effectiveness of word of mouth in offline and online social networks", *Expert Systems with Applications*, 2008, Vol 88, 338-351, 2017.
- [26] S. Haryani and B. Motwani, "Discriminant model for online viral marketing influencing consumers' behavioural intention", *Pacific Science Review B: Humanities and Social Sciences*, Vol 1 pp.49-56, 2015.
- [27] M. Yadava, Y.Joshib, Z. Rahmanc, "Mobile social media: The new hybrid element of digital marketing Communications", *Procedia - Social and Behavioral Sciences*, Vol 189, pp.335 - 343, 2015.
- [28] D.D. Gunawan, and K.-H. Huang, "Viral effects of social network and media on consumers' purchase intention" *Journal of Business Research* Vol 68, pp. 2237-224, 2015.
- [29] P.K. Kannan and H.A. Li "Digital marketing: A framework, review and research agenda" *International Journal of Research in Marketing* Vol 34, pp.22-45, 2017
- [30] J. Salo, "Social media research in the industrial marketing field: Review of literature and future research directions" *Industrial Marketing Management* Vol 66, pp. 115-129, 2017.

