An empirical study of the impact of social media marketing on the product life cycle of brands of select companies prevailing in the Navi Mumbai region

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Abstract
Businesses have always strived to develop innovative strategies and tune them towards enhancing customer bases and revenues. Word-of-mouth (WOM) has proven to be effective and consequently has acquired the core of all marketing campaigns. Feedback systems and reference mechanisms are developed to access the prospective and existing customer psyche. In recent years, SNSs (social networking sites) have proven to be effective forums for these WOM expressions by customers. For a company having numerous products, understanding the performance of each product in the market place is imperative and also intricate. The comprehension of the product life cycle (PLC) for each product becomes all the more indispensable. Is the WOM on the social media affecting the products’ performance? Are the social media marketing activities of the company impacting the PLC of its brands?
Through their empirical study, the authors have attempted to address these questions and present the related insights by means of this paper.

Key Words
product life cycle, social media marketing, social networking sites, online marketing

Introduction
The product life cycle (PLC) aspect can be utilized beneficially by organizations. The strategies and business practices can be altered according to the requirements of the different stages of the PLC. Sales force effort can be monitored and compensation or incentives can be structured accordingly (Pankaj M. Madhani, 2011).
Technology has significantly improved the ways of communication systems. Social media has made it more convenient and cost effective. Businesses have been impacted due to this phenomenon and marketers are keenly monitoring and exploring means to gain benefits through these innovative communications. MNCs have commenced to shift their advertising budgets from massive advertising company accounts which practiced conventional promotional practices towards miniature startups involved in integrated marketing communications including digital and social media techniques. This has lead to making or breaking of brands in the virtual space.
There is surfeit of information related to customers and the market on the online social networks (OSNs). The monologue phenomenon experienced and observed by both customers and marketers in the conventional advertising for past few decades has been transformed due the dialogue presented by the social media platforms in the recent years (John L. Hopkins, 2012). Virtual worlds including social networking sites as Facebook, Twitter, YouTube, LinkedIn, Pinterest, Google+, etc are being recognized as vital marketing channels for creating brand awareness and generating brand loyal customers (Stuart J. Barnes, et al, 2011). Similarly, virtual platforms as Second Life are growing in their importance and are widely used by marketers.
In the recent years, customer engagement has evolved to a novel echelon due to internet and Web 2.0. Marketers globally have recognized the potential of social media and its importance in customer engagement. CRM has consequently been redesigned due to these virtual groups (C.M. Sashi, 2012). However there is much exploration and analysis that needs to be done as it is just in the preliminary phase. The extent of possibility of generating a purchase decision by advertising on these media needs to be further evaluated to make it further meaningful and profitable to companies (Stuart Barnes, 2007).

Literature Review
The life cycle concept in marketing as a historical review is discussed by (Martina Bauer, et al, 2012). The study reveals the events of life and the details relevant to the course of consumer life cycle. A sequential knowledge and the empirical life cycle research from the period of 1910 to 2010 are presented in the paper. An emphasis is laid on the ways to decrease brand switching and enhance customer loyalty (Martina Bauer, et al, 2012). The aspect of proposing a framework to select a precise sales force compensation plan commensurate to various stages of PLC presented by Pankaj M. Madhani (2011) seems to be highly interesting & valuable.

The trends and the extent of internet usage are being critically evaluated by (David C. Arnott, et al, 2002). Their study depicts that internet usage of mainstream companies is still merely restricted to information purpose only. Internet usage to construct relationships and for various transactions is prominently done only by larger companies. For the same, the authors quote the example of the US internet market which is not growing at the expected pace. The authors further mention that the safety of internet and the uncertainty of consumers as the reasons for the same.

Due to the affordability and the reach, social networking sites (SNSs) are largely been accepted by researchers both from industry and academics. A brief record and the various features of the SNSs are discussed in the introductory article by Danah Boyd, et al (2007). Stuart Barnes (2007) studied the aspect of the emerging marketing domain of virtual world advertising during the period of 2007-2014. Alessandro Acquisti, et al (2006) survey a sample of members of Facebook at an academic institution in US, to understand behavioral differences between communities of network members’ vis-à-vis non-members wrt privacy concerns. They astonishingly found out that privacy concerned individuals joined the network and reveal high level of personal information. Lars Backstrom, et al (2006) in their study generate a valuable insight that the propensity of any person to connect with a specific community does not as much depend on the quantity of the friends in the community, as on the quality of the friends. Moreover, social media has posed as a challenge for direct marketing. Adrian Palmer, et al, (2012) provide a review of the changing media landscape of direct marketing in the advent of social media marketing. We come across a detailed study of the social media marketing with reference to the hotel industry in Hong Kong in the investigation of the 23 social media sites for the businesses of 67 hotels in Hong Kong in the works of Nga Ling Chan, et al, (2012). The shift of the brand value of real life brands to the virtual world of Second Life is studied by Stuart J. Barnes, et al, (2011) using axiology for data of total of 211 responses collected via web survey and automated avatar survey bots. The phenomenon of OSNs especially Facebook, and whether they can be employed by SMEs for their growth is investigated by John L. Hopkins (2012) via a case study on helping babies sleep during the night in New Zealand. The aspect of the involvement of a person in the organization through the social media and thereby enhance employee performance was examined by Elena Alberghini, et al (2014) in an integrated energy company operating in over 70 nations.

The aspect of consumer engagement cycle and developing a consumer engagement matrix proves to be significant to understand the consumer engagement cycle. In an endeavor to elaborate the same C.M. Sashi (2012) depicts the various stages of customer engagement cycle viz. connection, interaction, satisfaction, retention, loyalty, advocacy, and engagement, providing the strategic framework to improvise customer satisfaction using the Web 2.0. Anna Váňová, et al, (2011) mainly describe the impact of economic cycle on the PLC, i.e. territory, by factoring differences of PLC vis-à-vis economic life cycle.
Research Methodology
Data from the respondents was collected based on a structured questionnaire. Critical factors relevant to the study were identified during the literature review phase supplemented by the inputs during the exploratory study. The items were rated on the five points Likert scale. We carried out the reliability test of the questionnaire using the SPSS 20 software. The questionnaire was then tested with eight employees. Statistical tests as Chi-Square test for goodness of fit, Chi-Square test for independence and one way ANOVA were utilized to analyze the data.

Sampling & Data Collection
We conducted the study in the Navi Mumbai region of the Maharashtra state. Convenience sampling was used to select the subjects. An email was sent with the below link to all respondents https://docs.google.com/forms/d/1COWFh63K_EmrqJbyC7V3Ugt2C8H95sx8bF76_u5o71o/viewform?c=0&w=1&usp=mail_form_link Respondents were requested to respond to all the questions. Total of 197 questionnaires were administered to a group of employees in selected organizations either having their manufacturing or business locations in Navi Mumbai. We received total of 127 completely filled questionnaires.

Analyses
I. Reliability test for the questionnaire
The questionnaire was subjected to reliability test using SPSS 20 software. The results as shown in Table 1 had a Cronbach’s score higher than 0.7. This proved that the questionnaire was reliable.

Table 1: Reliability Statistics for Questionnaire

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.812</td>
<td>27</td>
</tr>
</tbody>
</table>

Different companies managed their social media profiles differently. Also the practices of updating the social media profiles of the companies were significantly different. We had to find out whether specific groups utilizing respective practices had significantly more representatives in our sample than others.

Table 2: Chi-Square Test for Goodness of Fit

<table>
<thead>
<tr>
<th>Frequency of Social Media profile updation</th>
<th>Observed N</th>
<th>Expected N</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>several times daily</td>
<td>20</td>
<td>25.4</td>
<td>-5.4</td>
</tr>
<tr>
<td>at least once daily</td>
<td>58</td>
<td>25.4</td>
<td>32.6</td>
</tr>
<tr>
<td>few times weekly</td>
<td>21</td>
<td>25.4</td>
<td>-4.4</td>
</tr>
<tr>
<td>few times monthly</td>
<td>15</td>
<td>25.4</td>
<td>-10.4</td>
</tr>
<tr>
<td>Occasionally</td>
<td>13</td>
<td>25.4</td>
<td>-12.4</td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The values as shown in Table 2, for observed and expected frequencies of updating the social media profiles as practiced by various companies showed significant difference.

Table 3: Test Statistics

<table>
<thead>
<tr>
<th>Frequency of Social Media profile updation</th>
<th>Chi-Square</th>
<th>Df</th>
<th>Asymp. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>54.063a</td>
<td>4</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 25.4.
From Table 3, we observed that the frequency values of updating the social media profiles as practiced by various companies exceeded their respective minimum expected frequencies.

Hypotheses Validation

Every marketing activity of a company affects the existence of its brands; thereby they have an effect on the PLC of the brand. For a recently introduced brand, the company’s activity may either augment or exhaust the sales of the product. Consequently, diminishing the introduction phase and advancing the growth phase in the former situation or conversely extending the introduction phase and postponing the growth phase as in the latter. Likewise for a brand which has reached the maturity phase of its PLC the company’s marketing activity may affect the sales and consequently its PLC. Our study was related to the social media marketing activities of companies impacting the product life cycle of brands. The impacts could either prepone or postpone the various phases of the PLC viz., introduction, growth, maturity and decline.

H1: The growth phase in the PLC of a product is prepone due to social media marketing.

Chi-square test for independence and One-way ANOVA were applied to test H1.

To test H1 two factors were considered viz. the frequency of the social media updation by companies and generation of higher revenues by recently introduced brand due to its promotion on the SNS. The former was inserted at the column box and the latter at the row box in the SPSS 20 software during the analysis. We obtained results as in Table 4.

### Table 4: Chi-Square Test for Independence for H1

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>74.234a</td>
<td>8</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>71.607</td>
<td>8</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>19.559</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>127</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is 1.02.

The results in Table 4 depicted that the Pearson Chi-square value "Asymp. Sig" was <0.05. This indicated that the rows and columns values were dependent. This proved that H1 is accepted.

Also, the general association of generation of higher revenues by recently introduced brand due to its promotion on the SNS vis-à-vis the frequency of the social media updation by companies showed significant difference. The results are shown in Table 5.

### Table 5: One –Way ANOVA test for H1

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>15.500</td>
<td>4</td>
<td>3.875</td>
<td>13.076</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>36.154</td>
<td>122</td>
<td>.296</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51.654</td>
<td>126</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As the results showed a significant difference in the values of the two variables (p< 0.05) the Hypothesis H1 was accepted.

H2: The decline phase in the PLC of a product is postponed due to social media marketing.

When a product descends from the maturity phase to the decline phase its sales begin to diminish. Losing existing customers is the primary reason for the same.

We tested H2 using Chi-square test for independence and One-way ANOVA.

Two factors were considered viz. frequency of the social media updation by companies and the existing customers retained due to company’s marketing activities of on these sites. The former was inserted at the column box and the latter at the row box in the SPSS 20 software. Results as per Table 6 were obtained.
The analysis as per Table 6 showed that the Pearson chi-square value "Asymp. Sig" was <0.05. This indicated that the rows and columns values were dependent. Thereby, H2 was accepted.

Moreover, the general association of retention of existing customers due to SNSs vis-à-vis the frequency of the social media updation by companies showed significant difference. The results are shown in Table 7.

Table 7: One-Way ANOVA test for H2

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>33.502</td>
<td>4</td>
<td>8.375</td>
<td>57.086</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>17.900</td>
<td>122</td>
<td>.147</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51.402</td>
<td>126</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results, as per Table 7 showed a significant difference in the values of the two variables (p< 0.05). Therefore, the Hypothesis H2 was accepted.

**Major Findings & Conclusion**

Our findings specify that businesses usually do not aptly utilize the social media space to understand their customers completely. Several obstacles prevail which need to be addressed by businesses during the practice of social media marketing (Nga Ling Chan, *et al.*, 2012). Virtual forums are largely growing as spaces for personal information revelations and confessions. This has consequently compromised on their privacy aspect (Emöke-Ágnes Horvát, *et al.*, 20012). There is enormous growth in the number of internet and more so in the usage of SNSs as Friendster, MySpace or Facebook in the recent years. These are efficient means of interaction albeit there is a rising concern of privacy and security concerns (Alessandro Acquisti, *et al.*, 2006). There is substantial increase in the number of virtual communities and users of MySpace and LiveJournal. This poses an obscurity in accumulate and process the massive data of the social groups. A marketer therefore needs to carefully screen the data and make it more meaningful and gainful (Lars Backstrom, *et al.*, 2006). Businesses must precisely take into account the aspect of suitability of the new age social media advertising factors necessary for a brand to be successful (Stuart J. Barnes, *et al.*, 2011). Our study emphasizes that social media marketing practices are affecting the PLC of brands and can be employed diligently to establish sustainable brands.

**References**