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# Consumer Feedback Analysis Through Social Media for B2C Electronic Companies in India

**Riktesh Srivastava***

**Abstract**

Indian B2C electronic commerce market is rising at an aggressive pace of 21.3% and is likely to reach $28 billion revenue by 2019-2020 with annual growth rate of 45% in next 4 years. Also, the electronic commerce contributes 1.23% of the consolidated 7.6% GDP of India. The electronic commerce progression rate for India is expected to be 31.2%, as compared to 9.9% and 8.3% for China and Australia, respectively during 2016-2021. Also, B2C electronic commerce industry in India is the fastest growing industry, as matched to other industries, and has reached $38 billion market value in 2016, a jump of 67% from 2015. Also with mobile shopping further maturing and consumer mindshare continuing to split across multiple devices, these companies struggle to align consumer interactions with business strategies. It is due to this reason, they use social media for better consumer interactions and spreading brand awareness digitally. It is presumed that social media has the ability to increase sales because of their strong online presence. Also, when these companies communicate with consumers through social media networks, they are able to get feedback instantly, which gives them quick acumen into what they want. The current study focuses on an analysis of these feedbacks collected by top 5 B2C electronic companies in India, namely, Amazon India, Flipkart, Snapdeal, Myntra, and eBay India. The feedback analysis is conducted based on the tweets from these companies on Twitter for 3 months, from 01-01-2017 to 31-03-2017. The experiment is conducted using Naïve Bayes Algorithm for 1500 tweets and places the response into one of the quadrants on proposed investigation model called "4AIM" – 4A Investigation Model. Based on the outcomes, the study adopts the generic social media strategies (BWDC, 2014), which these companies can embrace and implement accordingly.

**Keywords:** Electronic Commerce, Naïve Bayes Algorithm, 4AIM, Amazon India, Flipkart, Snapdeal, Myntra, eBay India, Social Media Strategies

## Introduction

For B2C electronic commerce companies, it is difficult to identify and influence the factors that drive consumers' attitudes and behaviour. Conventionally, in order to get consumer insights and feedbacks, these companies trusted on a blend of quantitative data from surveys (to evaluate consumer satisfaction and feedback) and qualitative insights from focus groups and interviews. However, both types of tools relied deeply on consumers' remembrances and recall capability, which declines hastily. It was due to this motive, Internet-based research tools were introduced to capture consumer experiences almost instantly. However, these tools provided just 15% of consumers' encounters with companies (Emma & Macdonald, 2012). Advent of social media has both motivated and accorded a dramatic change the way businesses and consumers interact. Social sites such as Twitter and Facebook provides platform as an integrated communication model, where consumers have the choice of how and when they communicate with companies (Causon, 2015). Nielsen reported that nearly 70% of adults who use social media to buy products digitally (Neilsen, 2012). Another study states that 44% businesses had acquired consumers using Twitter (Georgieva, 2012). Thus, the most important usage of Twitter by Electronic Commerce companies are consumer interaction (Blacknell, 2011) and audience extension (Booth & Matic, 2011).

The study is divided into four steps mentioned in Fig. 1:

* Associate Professor, Information Systems, Skyline University College, Sharjah, UAE. Email: rsrivastava@skylineuniversity.ac.ae

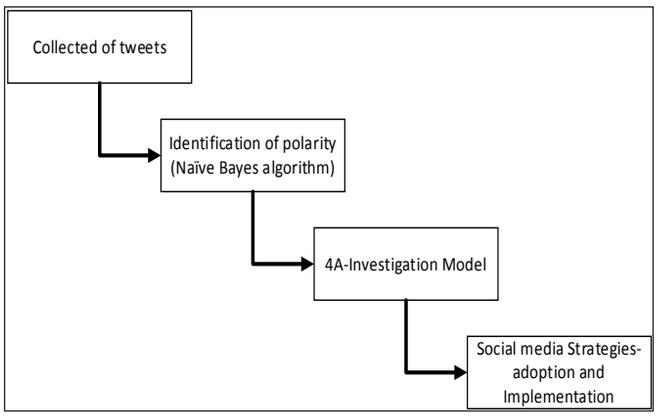


**Fig. 1: Step-by-step Illustration of the Study**

As mentioned in Fig. 1, step 1 collected the tweets to maximum of 1500 and is mentioned in second section. Third section elaborates step 2 and exemplifies use of Naïve Bayes algorithm for feedback analysis. Step 3 mentions recommended 4A-Investigation Model (4AIM) and places the positive polarity of feedback collected into one of quadrants, as stated in fourth section. Step 4 outlines the social media strategies to be adopted and implemented by these companies and is mentioned in fifth section.

## Collection of Tweets

During the study, it was witnessed that these companies had two Twitter accounts (except for eBay). One is the official account, where these companies displayed the updates, sale, and offers, and, other for support or assist consumers for the queries. Table 1 mentions the comprehensive status of twitter accounts of these companies.

**Table 1: Twitter Status (as on 31/03/2017)**

| *Company* | *Twitter Account(s)* | *Total Tweets* | *Total Followers* |
|---|---|---|---|
| Amazon | @amazonIN | 21.7K | 637K |
| | @AmazonHelp | 1.31M | 103K |
| Flipkart | @Flipkart | 32.8K | 1.48M |
| | @Flipkartsupport | 332K | 63.4K |
| Snapdeal | @Snapdeal | 26.2K | 696K |
| | @Snapdeal_Help | 217K | 24K |
| Myntra | @Myntra | 80.9K | 350K |
| | @MyntraSupport | 29.4K | 16.7K |
| eBay | @ebayindia | 84K | 210K |

Step 1 executes the R code to collect the tweets and comments from 01-01-2017 to 31-03-2017 to maximum of latest 1500 tweets. The outcome of step 1 is given in Table 2.

**Table 2: Feedback Collected**

| *Twitter Account(s)* | *Tweets (n=1500)* |
|---|---|
| | *Feedback Collected* |
| @amazonIN | 1500 |
| @AmazonHelp | 1500 |
| @Flipkart | 1500 |
| @Flipkartsupport | 1500 |
| @Snapdeal | 1500 |
| @Snapdeal_Help | 1500 |
| @Myntra | 1500 |
| @MyntraSupport | 818 |
| @ebayindia | 1199 |

## Identification of Polarities Using Naïve Bayes Algorithm

Naïve Bayes algorithm is used to outline the contextual polarity of comments by consumers of electronic commerce companies. The comments are collected as "bag of words" and provided to Naïve Bayes algorithm, which treats each comment independent of each other. Based on each word from each tweet, the algorithm determines the classes of each word as positive, neutral, or negative. The aggregate of class for each tweet then classifies into one of three polarities.

The mathematical representation of Naïve Bayes algorithm is represented in equation 1 as:

$$P(A/B) = \frac{P(B|A)P(A)}{P(B)} \quad \ldots(1)$$

where,

$P(A|B)$ is the probability of A (class), given B (tweet).

$P(B|A)$ is the probability of B (tweet), given A (class).

$P(A)$ is the probability of A (class), and is independent of each other.

$P(B)$ is the probability of B (tweet), and is independent of each other.

Based on equation (1), positive and negative tweet are represented as

$$P_{(\text{positive}|\text{tweet})} = \frac{P(\text{tweet}|\text{positive})P(\text{positive})}{P(\text{tweet})} \quad \ldots (2)$$

$$P_{(\text{positive}|\text{tweet})} = \frac{P(\text{tweet}|\text{negative})P(\text{negative})}{P(\text{tweet})} \quad \ldots (3)$$

It is observed that probability of tweets, $P(\text{tweet})$ is constant, and can thus be ignored. Thus, equations (2) and (3) can be represented as:

$P(\text{positive tweet}) =$

$P(\text{tweet}|\text{positive})\ P(\text{positive})$ … (4)

$P(\text{negative}|\text{tweet}) =$

$P(\text{tweet}|\text{negative})\ P(\text{negative})$ … (5)

The more precise notation of each class is thus given in equations (6), (7), and (8) respectively.

$$P(\text{positive}) = \sum_{j=1}^{m}\sum_{i=1}^{n} P(T_i|\text{positive}) \quad \ldots (6)$$

$$P(\text{positive}) = \sum_{j=1}^{m}\sum_{i=1}^{n} P(T_i|\text{negative}) \quad \ldots (7)$$

$$P(\text{neutral}) = 1 - [P(\text{positive}) + P(\text{negative})] \quad \ldots (8)$$

where,

$i = 1,.\ n \rightarrow$ à total number of words for each tweet

$j = 1,.\ m \rightarrow$ à total number of tweets

Based on equations (6), (7), and (8), Table 3 gives the polarities of tweets for these companies.

**Table 3: Polarity Status of Selected Companies**

| *Twitter Account(s)* | *Polarity* | | |
|---|---|---|---|
| | + | +/- | - |
| @amazonIN | 66.87% | 14.80% | 18.33% |
| @AmazonHelp | 54.87% | 17.73% | 27.40% |
| @Flipkart | 66.60% | 8.20% | 25.20% |
| @Flipkartsupport | 46.67% | 20.00% | 33.33% |
| @Snapdeal | 56.20% | 16.73% | 27.07% |
| @Snapdeal_Help | 54.93% | 18.87% | 26.20% |
| @Myntra | 76.67% | 11.67% | 11.67% |
| @MyntraSupport | 72.13% | 14.67% | 13.20% |
| @ebayindia | 78.32% | 12.93% | 9.17% |

The twitter graphs are constructed for the companies in stages using publicly available data from the Twitter API. From the list of each companies' tweets, only the comments on which the consumers react are collected; this cuts unknown consumers' who did not comments and thus are unlikely to provide useful information. Also, the rapid pace of growth on Twitter, the polarity tends to grow quickly; thus the overall polarity is a representation of the companies' current social status and not the exact status that existed at the time of the tweet. The feedbacks from these consumers are collected for the period 01-01-2017 to 31-03-2017 and maximum 1500 tweets were collected.

Figs. 2 to 6 show the feedback polarity breakdown for these companies.

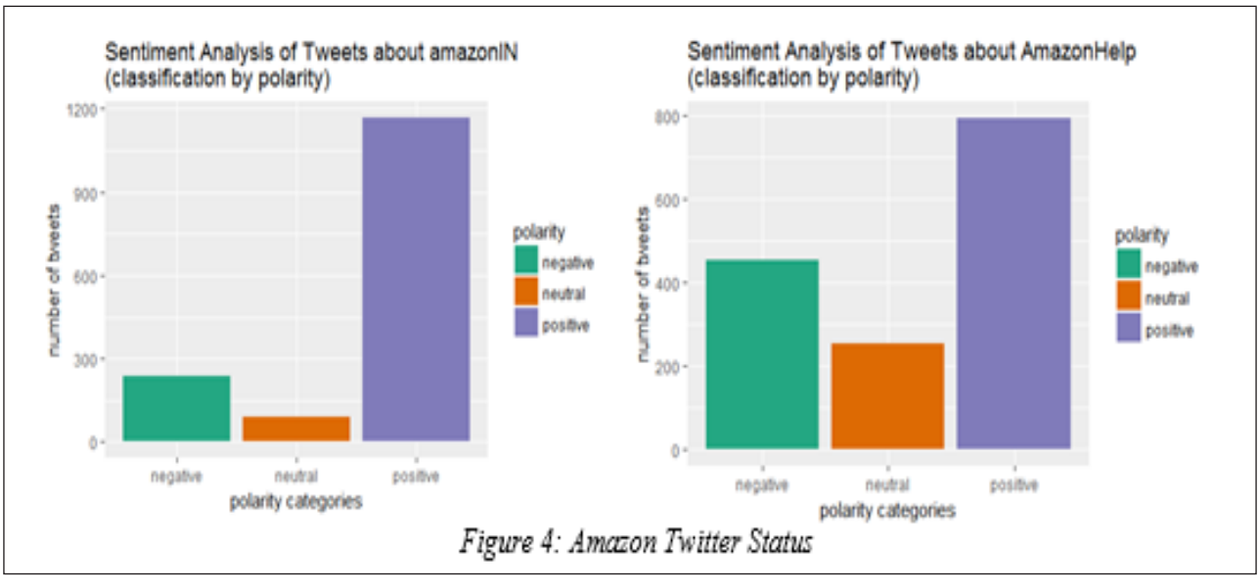


*Figure 4: Amazon Twitter Status*

**Fig. 2: Amazon Twitter Status**

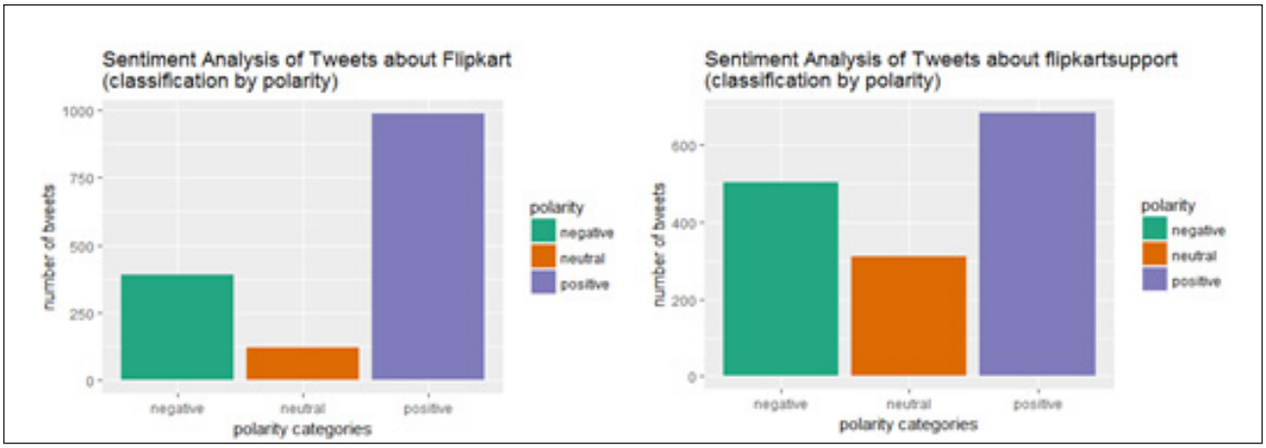


**Fig. 3: Flipkart Twitter Status**

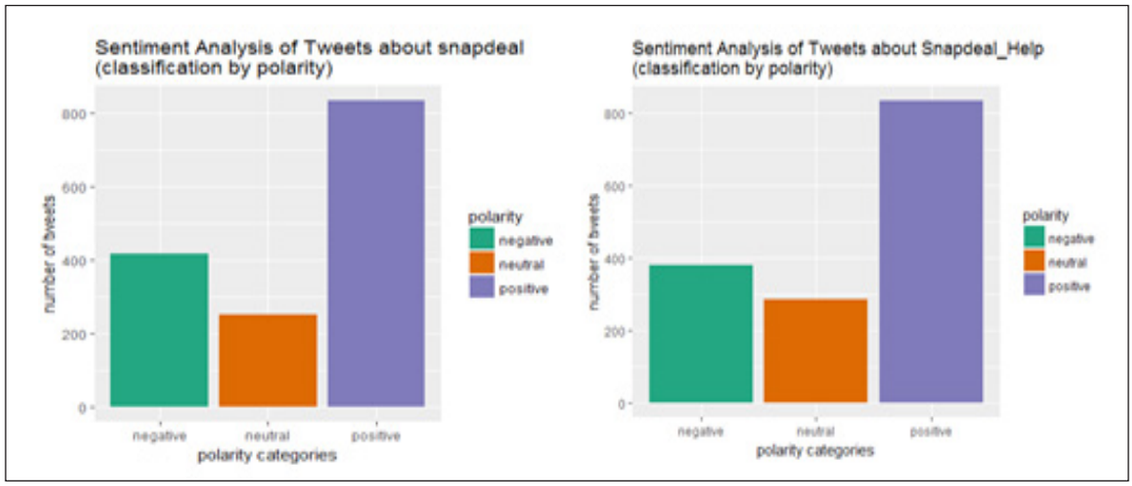


**Fig. 4: Snapdeal Twitter Status**

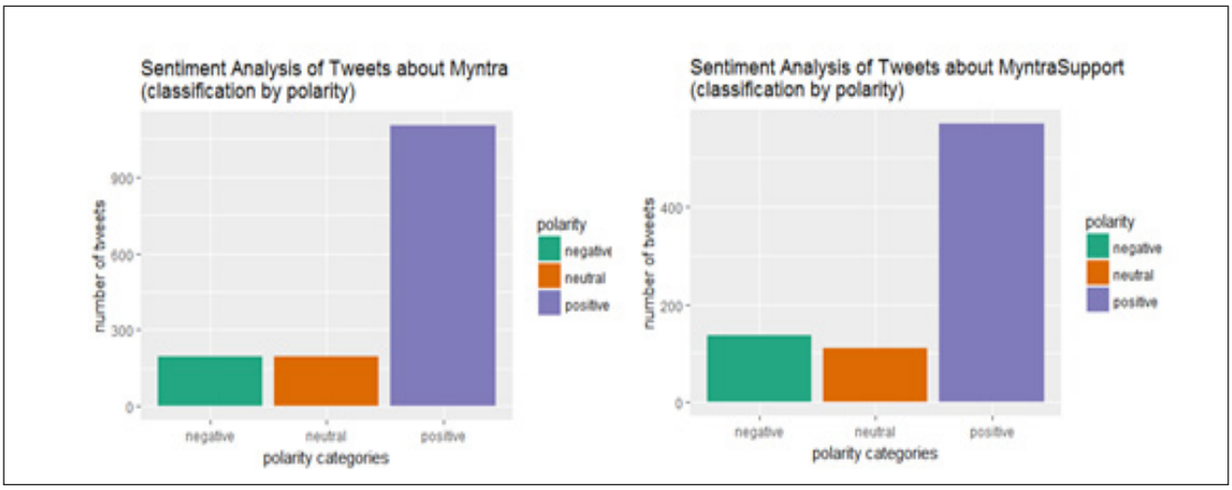


**Fig. 5: Myntra Twitter Status**

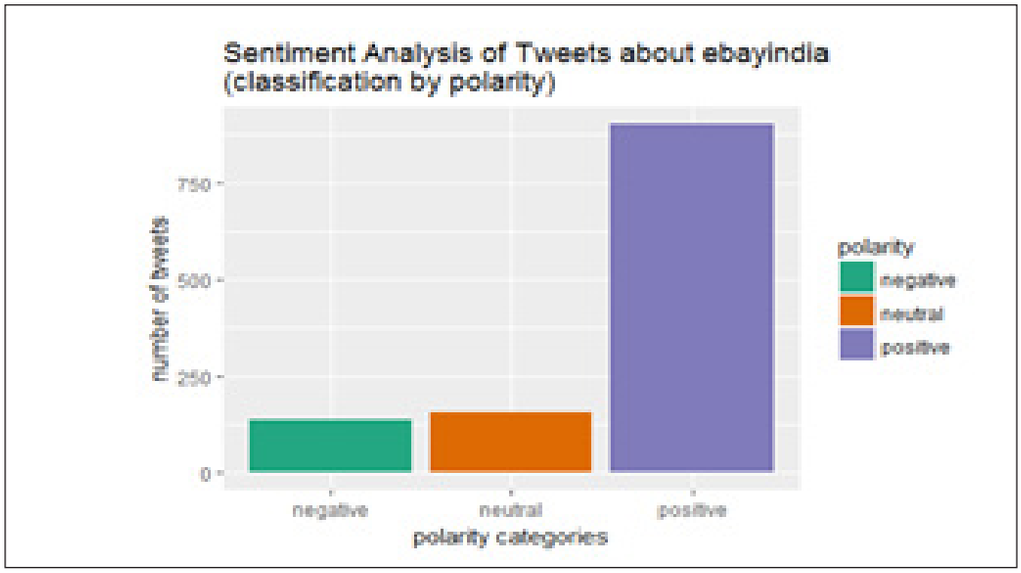


**Fig. 6: eBay India Twitter Status**

## 4A-Investigation Model

4A – Investigation Model (4AIM) is proposed to analyse the consumer feedback. The model uses positive polarity to identify the status of current engagement of these companies with consumers, as illustrated in Table 4.

**Table 4: Evaluation Table for 4A-Investigation Model**

| *Positive Polarity (in %)* | | *4AIM states* |
|---|---|---|
| 0 | 30 | Anxious |
| 31 | 60 | Apart |
| 61 | 80 | Ardent |
| 81 | 100 | Active |

The analysis for a model is mentioned in Fig. 7. The model is divided into four quadrants based on the percentage of positive polarities. Placing the outcomes into these quadrants easily identifies the current state of social media adoption, and strategies to be adopted in case required.

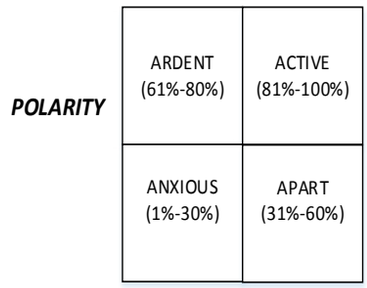


**Fig. 7: Feedback Analysis**

## Implication of 4AIM for the Observed Outcomes

This section illustrates the implication of outcomes in the proposed 4AIM. Fig. 8 displays the outcomes of the experiment conducted.

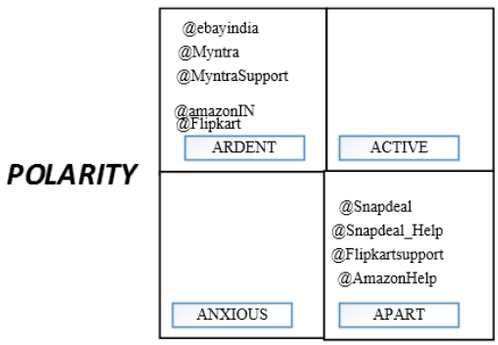


**Fig. 8: Outcomes of Twitter Status**

Surprisingly, the feedback for tweets are only in two states – apart and ardent. Also, none of these companies fall in "anxious" state, which demonstrates these companies have accepted Twitter and use it for updates and feedback quite regularly. However, surprisingly, none of these companies have reached "active" state, even after years of Twitter adoption, which is shocking.

Also, the average feedback for "ardent" state is 72.12% and for "apart" state is 53.17%. The study also specifies

that consumers are not contented with the response they are getting online from these companies. Thus, the help/support segment of Twitter account by these companies are not aiding consumers. Social media strategies should be in place to guide these companies to wrestle the consumer queries and respond accordingly. Fifth section exemplifies these strategies in element.

## Social Media Strategies for Electronic Commerce Companies

Social media strategies outline the detailed plan for these companies to contact potential consumer and device communication blueprint. For electronic commerce companies, increased communication through social media that will guide them to be in the "active" state of 4AIM.

Table 5 delineates the social media strategies to be adopted and instigated by these companies.

**Table 5: Social Media Strategies**

| *Strategy* | *Description* |
|---|---|
| S#1 (Know where your consumers are?) | Identify which platform consumers are engaged in. |
| S#2 (Engage consumers) | Open dialogue with consumer, content development, and consumer stories |
| S#3 (Build trust) | Genuine willingness to help |
| S#4 (Add social sharing buttons) | Social sharing buttons can be included on the website, so consumers can share them with others. |
| S#5 (Create Videos) | Videos of consumers with products, office environment to be updated in Social media. |
| S#6 (Exclusive offers) | The inclusion of Exclusion offers like free delivery, Upcoming sale, breaking news to be included. |
| S$7 (Competitors Analysis) | Three steps include:<br>Type of content<br>Social networks used along with number of followers and their interaction<br>Promotion strategies by competitors |
| S#8 (Don't always push products and promotions) | Blog on electronic commerce site and feed the blog content into social accounts<br>Share stories and messages from other sources<br>Pictures and videos of company events or engagements<br>Ask questions, discussion forums and poll using social media |
| S#9 (Infographics Investigation) | Generates high-value backlinks and helps in SEO |
| S#10 (Serve consumers) | Extend to social media to know more about consumers' satisfaction, problems and complaints. |

## Alignment of Social Media Strategies with 4AIM Model

After the identification of social media state through 4AIM, the use and enactment of strategies (as mentioned in Table 5) becomes straightforwardly fathomable.

Table 6 demonstrates the strategies to be agreed for different states of 4AIM for these companies.

**Table 6: Social Media Strategies for Different States of 4AIM**

| *4AIM State* | *Strategies to be adopted* |
|---|---|
| Anxious | S#1 (Know where your consumers are?) S#2 (Engage consumers) S#3 (Build trust) |
| Apart | S#4 (Add social sharing buttons) S#5 (Create Videos) S#6 (Exclusive offers) |
| Ardent | S$7 (Competitors Analysis) S#8 (Don't always push products and promotions) |
| Active | S#9 (Infographics Investigation) S#10 (Serve consumers) |

Social media offers organisations with a way to connect with their consumers. Customer service is a basic aspect and an obvious customer loyalty opportunity. 65% of users are willing to make more purchases from a brand if they get customer service on social networks (Carter, 2016). The recommendations for these companies are listed in Table 7.

**Table 7: Recommendations for Companies**

| *Twitter* | *Strategies' in place* |
|---|---|
| @amazonIN | S#7,S#8 |
| @AmazonHelp | S#4,S#5,S#6 |
| @Flipkart | S#7,S#8 |
| @Flipkartsupport | S#4,S#5,S#6 |
| @Snapdeal | S#4,S#5,S#6 |
| @Snapdeal_Help | S#4,S#5,S#6 |
| @Myntra | S#7,S#8 |
| @MyntraSupport | S#7,S#8 |
| @ebayindia | S#7,S#8 |

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