Project Dissertation

on

Discovering Customer Insight from Twitter: the case of Indian Airline Industry

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Certificate from the Institute

This is to certify that the Project Report titled **Discovering Customer Insight from Twitter:the case of Indian Airline Industry** is a bonafide work carried out by Mr. **Mohit Dhawant** of MBA 2014-16 and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-110042 in partial fulfillment of the requirement for the award of the Degree of Masters of Business Administration.

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Declaration

I **Mohit Dhawan** student of MBA 2014-16 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-110042 declare that Project Report on **Discovering Customer Insight from Twitter :the case of Indian Airline Industry** submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This Report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship.

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Date: -May-2016

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Executive summary

This paper presents a study that uses Twitter to identify critical elements of customer service in the Indian airline industry. The goal of the study was to uncover customer opinions about services by monitoring and analyzing public Twitter commentaries. The purpose of this paper is to identify elements of customer service that provide positive experiences to customers as well as to identify service processed and features that require further investigation to ensure customer satisfaction and delightful experience.

The sentiment analysis was done via analyzing 2000 publicly shared tweets to identify customer sentiments about services of top four Indian airline companies.

By analyzing Twitter posts for their sentiment polarity crucial factors of customer service were identified that caused customer satisfaction, dissatisfaction as well as delight. Positive sentiments were linked mostly to on time flight, food, courteous cre. Negative sentiments revealed problems with usability of companies 'web sites, flight delays, lost luggage and customer care.

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INTRODUCTION

For as far back as couple of years, we have seen a thriving online networking. Individuals have been building a worldwide correspondence system on the Internet by means of various social media channels. Regularly a lot of extraordinary content is produced on social media, particularly on smaller scale blog administrations. The undeniably well known utilization of smaller scale blog for lightweight correspondence raises its potential for serving as another communication medium. Twitter, a standout amongst the most well known miniaturized scale blog administrations, guaranteed that there are more than 200 million Tweets or posts for each day. It is great that how content is created and conveyed by making, sharing, and finding messages without controlling. Mark Zuckerberg, the Facebook originator, said that this conduct has turned into another norm..

Customers have effectively incorporated online networking into their every day lives. It is easy and open to share any view on any company service. Besides, the way we express has been changed. Clearly, Twitter has drastically brought down the obstructions to produce content, and accordingly sharing content across users is easy. Individuals can update their status on Twitter and share their insights with followers also, in the system at any time anyplace.

As brands generally use online networking for their advertising methodology to popularize their products or service, to engage, as well as additionally to listen to the genuine voice of the customers in their own particular words. Most individuals hesitate to answer about feedback surveys, they express their considerations in social media and wield tremendous impact in forming the assessments of different brands. Social media is a rich asset for listening to this valuable data. It contains numerous brand conclusion expressions either positive or negative to a wide range of subjects in the business sector.

As noted by O'Leary and Thelwall et al., develop, tweets, online surveys, and groups offering reflection on items/administrations from the direct shopper viewpoint have transformed online networking into an unfathomable storehouse of data with inconceivable potential for recording, removing and handling client information. The primary point of interest of utilizing online networking as a wellspring of client input originates from the way that client critiques are posted on the web by the clients for the clients, making a perfect situation for

inconspicuous and non-meddlesome research into client outlook. This encourages the exploration on customer encounters, and stays away from run of the mill pitfalls in the bulky procedure of formal administration quality concentrates. (for example, selecting customers as members, building up formal principles of exploration, managing predisposition issues, and so forth.)

1.1 What is Twitter?

 Twitter (/ˈtwɪtər/) is an online long range informal social media tool that empowers users to send and read short 140-character messages called "tweets". Registered users can read and post tweets, yet the individuals who are unregistered can just read them. Users access Twitter through the site interface, SMS or cell phone app. Twitter Inc. is situated in San Francisco and has more than 25 workplaces around the world.

Twitter was made in March 2006 by Jack Dorsey, Evan Williams, Biz Stone, and Noah Glass and propelled in July 2006. The administration quickly increased overall prevalence, with more than 100 million clients posting 340 million tweets a day in 2012.The administration additionally took care of 1.6 billion inquiry questions for every day. In 2013, Twitter was one of the ten most-gone by sites and has been depicted as "the SMS of the Internet". As of May 2015, Twitter has more than 500 million clients, out of which more than 332 million are active.

1.2 Sentimental Analysis:

Sentimental Analysis is utilization of language procession, content investigation and computational etymology to recognize and remove subjective data in source materials. Sentimental analysis is generally connected to online networking for an assortment of utilizations, running from advertising to customer relationship management.

As a rule, Sentimental Analysis intends to decide the state of mind of a speaker or an author concerning some point or the general logical extremity of a report. The disposition might be his or her judgment or assessment , full of feeling express (that is to say, the passionate condition of the writer when composing), or the expected enthusiastic correspondence (that is to say, the enthusiastic impact the writer wishes to have).

1.3 Aviation in India:

India is the ninth biggest aviation flying business sector on the planet having a capability of turning out to be third biggest flying business sector by 2020. It recorded an air activity of 163 million travelers in 2013, evaluated to be 60 million universal travelers by 2017. The business sector is additionally evaluated to have 800 airplanes by 2020. In 2015, Boeing anticipated India's interest for airplane to touch 1,740, esteemed at $240 billion, throughout the following 20 years in India. This would represent 4.3 percent of worldwide volumes. As indicated by Airbus, India will be one of the main three aviation market all inclusive in the following 20 years. Airbus is expecting a yearly development rate of more than 11 for every penny for the residential business sector in India throughout the following ten years, while the consolidated development rate for local and global courses would likewise be more than 10 for every penny.

The Ministry of Civil Aviation (MoCA) of Government of India is the nodal Ministry in charge of the definition of national strategies and projects for improvement and control of non military personnel flight, and for formulating and executing plans for the systematic development and extension of regular citizen air transport. Its capacities likewise reach out to supervising airplane terminal offices, air activity administrations and carriage of travelers and merchandise via air. The Ministry likewise oversees execution of the 1934 Aircraft Act and is officially is in charge of the Commission of Railways Safety.

The Directorate General of Civil Aviation (DGCA) is the Indian administrative body for common flying under the Ministry of Civil Aviation. This directorate researches flight mishaps and incidents. It is headquartered along Sri Aurobindo Marg, inverse Safdarjung Airport, in New Delhi. The legislature of India is wanting to supplant the association with a Civil Aviation Authority (CAA), displayed on the lines of the American Federal Aviation Administration (FAA).

Airport Authority of India, AAI execution of Automatic Dependence Surveillance System (ADSS), utilizing indigenous innovation, at Kolkata and Chennai Air Traffic Control Centers, made India the principal nation to utilize this innovation in the Southeast Asian locale, accordingly empowering airport regulation over maritime regions utilizing a satellite method of correspondence. Execution based route (PBN) methodology have as of now been actualized at Mumbai, Delhi and Ahmedabad Airports, and are liable to be actualized at different airplane terminals in a staged way. AAI is actualizing the GAGAN venture in

mechanical coordinated effort with the Indian Space Research Organization (ISRO), where the satellite-based framework will be utilized for route. The route flags along these lines got from the GPS will be increased to meet the navigational prerequisites of air ship. The primary period of the innovation's showing framework was finished in February 2008.Airport Authority of India, AAI has four preparing foundations: the Civil Aviation Training College (CATC) at Allahabad; the National Institute of Aviation Management and Research (NIAMAR) at Delhi; and the Fire Training Centers (FTC) at Delhi and Kolkata. An Aerodrome Visual Simulator (AVS) has been given at CATC, and non-radar procedural ATC test system gear is being supplied to CATC Allahabad and Hyderabad Airport. AAI has a devoted Flight Inspection Unit (FIU) with an armada of three airplane fitted with flight assessment frameworks to examine Instrument Landing Systems up to Cat-III, VORs, DMEs, NDBs, VGSI (PAPI, VASI) and RADAR (ASR/MSSR). Notwithstanding in-house flight alignment of its navigational guides, AAI attempts flight adjustment of navigational guides for the Indian Air Force, Indian Navy, Indian Coast Guard and other private landing strips in the nation. AAI has gone into joint endeavors at the Mumbai, Delhi, Hyderabad, Bangalore and Nagpur air terminals to redesign these air terminals.

The Airline companies in India are:

1. Indigo Airlines
2. Spice Jet
3. Jet Airways
4. Air India
5. Air Costa
6. Go Air
7. Vistara
8. TruJet
9. QuikJet Cargo

1.4 Purpose of the study:

The purpose of this study is to distinguish components of airline services that give positive encounters to customers and also to recognize good services and further investigates improvements that can be done to delight and satisfy customers. The goal of the study is to reveal customer conclusions about services by analyzing and breaking down open Twitter feed.

CHAPTER 2

LITERATURE REVIEW

Consumer insight is the exploration, who the consumer is, what they do how they think and feel. It may be the direct marketing, personal selling to customer relationship management or customer experience management. Brands can exploit this understanding to build their go to market, marketing strategies to delight their customers, make them loyal as well as improving themselves too. Rigorous consumer insight is the backbone of good customer relationship management. Therefore, exploiting that brands will be able to position themselves as per the customer needs and requirements.

Insight is not only behavior, attitude, thought of consumers but most of them are influenced by multiple external factors from the society they live, the economy they face and to the way a brand is marketed. Brands can collect this information from proper market research, techniques like survey feedback, in depth interviews can be used while with the helm of data and tools available data mining exploration is also a good option.

Measuring customer satisfaction has become very important, setting targets based on information about what consumers are saying can affect brand creativity and limit innovation. In large company, the measurement will by reducing cost and increasing control. This has ended up inner; driving staff and the whole company far from first considering the customer. As a result, they fall in customer general fulfillment. The customer knowledge process changes how brands consider purchasers, staff and our associations, instead of backing a counterproductive state of mind about them they should come up with real things, meanings and inferences.

Sentimental analysis, or sentiment mining, has been considered important by numerous analysts lately. It is a kind of computational investigation of content in regular dialect which expects to distinguish opinion extremity, force, and themes those sentiments apply to. Sentiment turns out of the requirement for robotized supposition divulgence and synopsis framework managing the expansive measure of information to permit machine to comprehend human produced content. In business stadium, this innovation has been utilized as a part of suppositions for brand observing, surveys, money related exchanging, advertising and numerous and for more genuine issues.

Customarily, endeavors may direct a brands study to examine what customer need. Various techniques like questionnaire, surveys are available. Individuals are unwilling to give precise answer that reflects disliked states of mind or sentiments in these techniques giving result to bias. Despite the fact that the specialists concocted all around outlined reviews that can give quality estimations, these methods could be expensive and time devoured. Sentimental Analysis is another option to break down existing information without predisposition by not unequivocally posing any questions to the general population. This methodology will reflect individuals genuine assessment than conventional review reacts. Be that as it may, there is a downside with respect to population which may not guarantee the objective gathering of responders. Therefore, sentimental analysis would not have the capacity to totally supplant the conventional approach yet it could act as a complimentary arrangement.

Actually, sentimental analysis is a piece of Natural Language Processing (NLP) study. Subjectivity classification and sentimental grouping are maybe the most broadly concentrated on subjects in this field. Subjectivity classification is a procedure to isolate subjective things from target sentences or recognize suppositions from actualities while sentimental classification is a procedure to decide opinion introduction whether that sentence communicated positive or negative feeling. Additionally, some researchers are intrigued in deciding the power (quality) of slant extremity to quantify the semantic force. Feature based estimation investigation is an inside and out study that alludes to the deciding of the communicated notions on various components of elements. For instance, the feature based estimation of advanced mobile phone screen is to learn about individuals expression on screen whether it is sure or negative.

Sentimental Analysis is a diagnostic methodology for exploring bits of content into bunches containing opinions on specific subjects. As indicated by Ku et al. each feeling is portrayed by its holder, its objective and its extremity. Utilizing opinion mining, content what's more, computational phonetics, conclusion investigation permits analysts to recognize subjects of sentiments, characterize them as per the perspectives and decide their enthusiastic meaning, in this manner empowering analysts to figure out what parts of client encounters are bringing out specific reactions and sentiments.

A new branch in sentimental analysis field focuses on breaking down Twitter data to make forecasts about future customer conduct, to dissect the impacts of particular occasions and to screen general conclusions on different themes. The method of reasoning for utilizing Twitter

data as a part of analysis is the accompanying: when a customer reacts to an occasion by tweeting, she/he illustrates which basically contains a full of feeling part (e.g. judgments or expectations), and in this manner uncovers essential data about customer. What's more, conclusions on the tweeted subject researchers observed that while singular tweets won't not be of extraordinary worth, taken together they open an amazing window into the states of mind, contemplations, and opinion permitting researchers to track what everyone says in regards to everything.

While the volume of studies utilizing Twitter for sentimental analysis is still in nascent stage, the enthusiasm for the channel as a wellspring of far reaching customer data is developing. Analysts are as yet trying different things with different methods for investigating Twitter feeds and extracting significant and valuable data. Based on the existing researches, the study tries to give a case of how Twitter data can be utilized to evaluate customer encounters in the airline services.

RESEARCH METHODOLOGY

3.1 Significance and Scope of the study

The idea of the study was to provide alternative approach to assess customer service experiences by analyzing the content shared on Twitter. The aim of the study was to describe how text analysis can be used to understand information depicting indicators of feedback about received airline services. The scope of this paper is however limited only to top four airlines ie Indigo Airline, Spice Jet, Jet airways and Air India.

3.2 Objectives

1. To analyze Twitter feeds to discover hidden insights on customer satisfaction or dissatisfaction with Airline services

2. To identify type of knowledge regarding customer experiences in Airline services which can be obtained from Twitter

3.3 Data collection

The data was collected using Twitter search tool where one can search tweets regarding services and brands present on network. The content related to four airline carriers was collected and analyzed in order to see customer feedback, reviews and reactions about their services, Twitter was used because it has several advantages over other social media channels. First clear concise tweet of 140 characters which becomes easy to analyze. Second platform offers search as per the criteria and specified keywords which helps to avoid irrelevant tweets.

The data collection process started with Twitter search tool to identify and record tweets containing names of four Indian airline companies. Symbols '#' and '@' were deployed in combination with each brand name in order to collect relevant pool of data. 2000 tweets were analyzed ie 500 per brand for sentiment analysis and to discover hidden customer insights regarding airline services.

The "good" and "fail" keywords were selected as a screening of the content for expressions of sentiments. Queries like "good @Indigo6E", "fail@Indigo6E" were processed to see customer reviews and experience about Indigo Airlines. Similar methodology was chosen for

other three brands also. Although simple, this method helps to introduce enquiry into a vast pool of data we collected initially, and lets us create first broad categories of tweets with possible positive and negative sentiments. It is vital to describe that in Twitter platform, customers include keywords with the "#" symbol , to express a strong distinct thought or emotion and convey a message that is easily understood by the Twitter community, even without using much of the text space that individual tweet is limited to.

All tweets were collected in English language only as to avoid any confusion when translating tweet from other language. Amid this procedure every tweet was screened exclusively physically by me. Human examination is fundamental in feeling mining, as unstructured and casual messages in online networking regularly contain content in different expressions that pass on slants that occasionally can't be recognized by programming (i.e. mockery, cleverness, incongruity, and so forth.) and hence their meaning could accordingly be misconstrued.

ANALYSIS AND RESULTS

4.1. Categorizing tweets containing word "good"

1000 tweets were analyzed , 500 per brand to extract customer sentiment about services. Table 4.1 illustrates comparison of four airline carriers according to categories. Figure 4.1 illustrates line chart depicting customer sentiments.

Indigo has 39% of positive tweets. Tweets with positive sentiment describe that users like service offered by Indigo. Customer care is also quick in resolving customer queries,refunds,cancellations and updates. Food served inside flight also delights the passengers. Passengers also don't refrain to share when flight is on time on social media. On the other hand Indigo has 32% negative comments which are due to rude ground staff, flight delay, check in issues, baggage lost and damage and problems faced while booking tickets from website. About 25% tweet volume includes personal opinions regarding incidents but not flight experience. These tweets include Indigo participation in helping people during Chennai floods. These tweets under personal category can be referred to company in a neutral way. In line chart Indigo has very low slope which depicts that amount of positive sentiment is just bit higher than negative sentiments. Difference between amount of positive and negative sentiments is low.

Spice Jet has 52% positive tweets. Users are happy due to cheap refreshments, on time flight, service experienced, food and courteous behavior of crew. On the other hand 26.4% tweets are negative. Negative sentiment is due to uncomfortable seats, cancelled flights without prior notification and luggage safety. Many users posted pictures of damaged luggage on twitter to express their negative sentiment. 18% tweets are neutral ,personal category about good financial results obtained by Spice Jet. In line chart slope is higher than Indigo.

Summary	Indigo	Spicejet	Jet Airways	Air India
Total Tweets	250	250	250	250
Positive	99	132	143	133
Negative	81	66	48	55
News	7	7	5	10
Personal	63	45	54	32

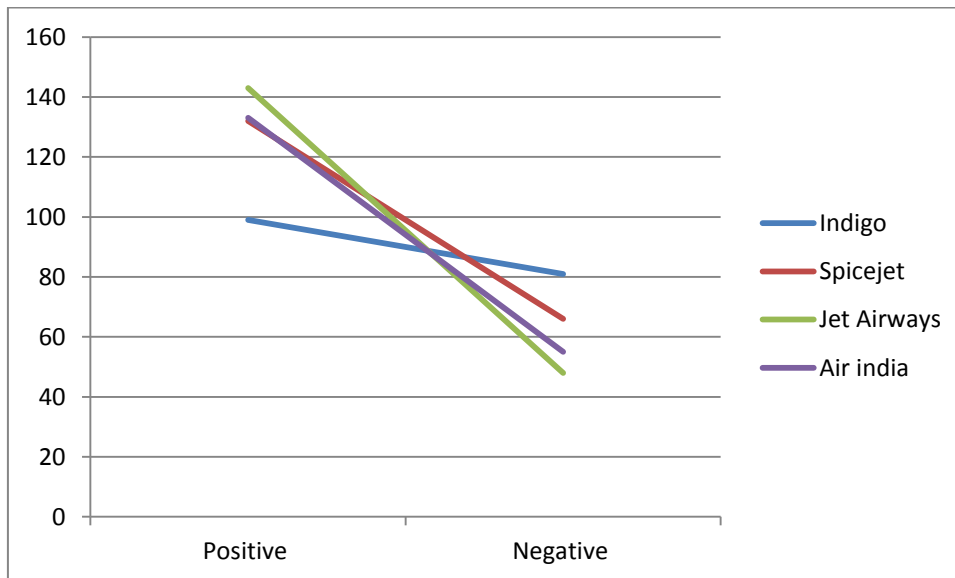**Table 4.1: Comparison of tweets for term "good"**

Figure: 4.1 Line chart on user sentiments

Jet Airways has 57% of positive tweets. Positive sentiment is due to service offered, on time flight, food offered, crew behavior. Even people are happy due to the movies they show during flight. Another important aspect is Jet airways CRM is good which offers users relevant discounts and schemes which users don't hesitate to share on Twitter. About just 19% tweets are negative which is due to baggage issues. Moreover Jet airways Platinum customers didn't get promised benefits as mentioned by airways in the plan. This tends users to show dissatisfaction that despite paying more for platinum membership they don't get

promised benefits. Jet airways line chart has highest slope and minimum difference in sentiments among all four airlines.

Air India, government enterprise has 53% positive tweets. Reasons for that is comfortness, food, legroom, crew and Dreamliner. Users don't hesitate to put photos while traveling in Dreamliner on twitter, they feel good traveling in long range mid size plane developed by Boeing. There are 22% negative tweets which are due to delay and luggage issues. 20% sentiments are neutral and in personal category that reflect user opinions on Air India longest flight from Delhi to San Francisco.

Table 4.2 summarizes the reasons of positive sentiments and customer experiences across all four companies. Totals refer to number of reasons for sentiments.

Category	Indigo	Spicejet	Jet Airways	Air India
On Time	Yes	Yes	Yes	Yes
Food	Yes	Yes	Yes	Yes
Service	Yes	Yes	Yes	Yes
Customer Care	Yes			
Crew		Yes	Yes	Yes
Safety			Yes	
Comfortness				Yes
Miles and bonus			Yes	
Total	4	4	6	5

Table 4.2: Reasons of positive sentiments and customer experience

4.2. Categorizing tweets containing word "fail"

Twitter users often express their failed experience and share it widely on Twitter. 1000 tweets were analysed , 250 tweets per brand in order to see what are reasons that led to a failed experience and service failure in airline services.
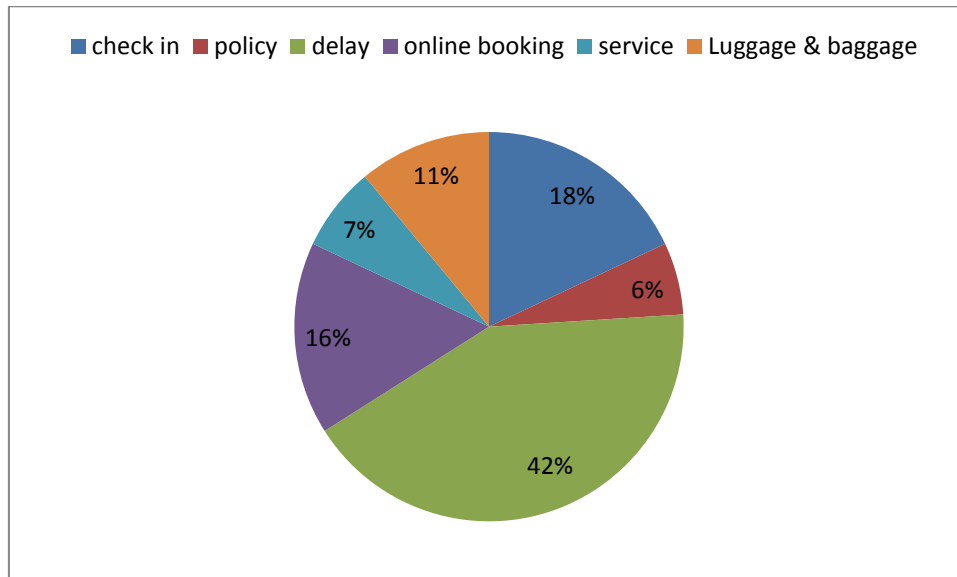

Figure: 4.2 Reasons of failure in case of Indigo Airlines

Figure 4.2 describes reasons for service failure in case of Indigo Ailrines.42% tweets are regarding to flight delays, users expressed their frustration by dictating even pilot is in cabin don't know why plane is still not running. 18% tweets are related to check in and boarding process. People have to stand in long queues before boarding plane which leads to dissatisfaction.16% tweets are related to online booking, problems customer face while booking tickets from Indigo website, many quoted user interface is not good and there are constant login issues. 11% tweets are due to luggage problem, 7% due to services offered and 6% due to policy, mainly refund policy.
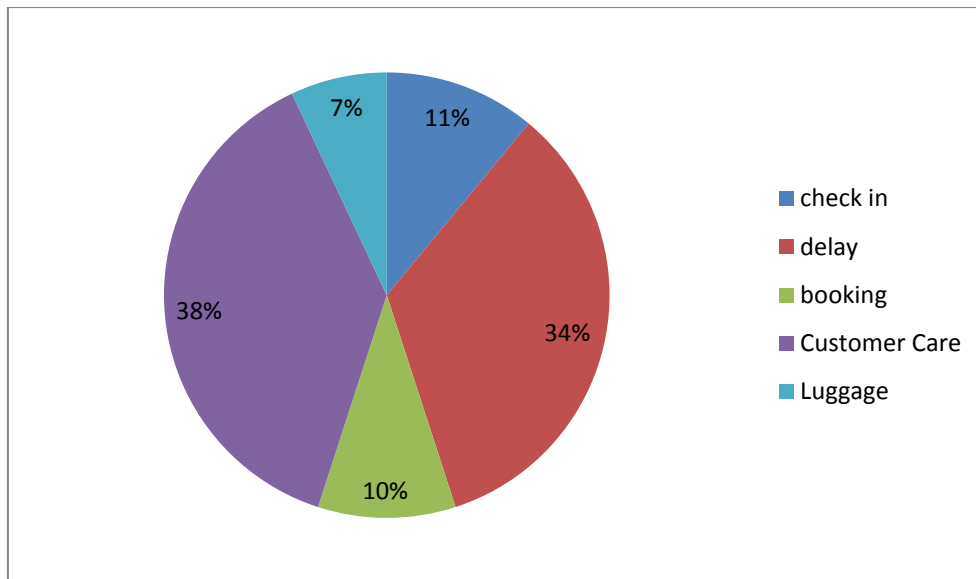
Figure: 4.3 Reasons of failure in case of Spice Jet Airlines

Figure 4.3 depicts the reasons for failure in case of Spice jet Airlines. 38% tweets reflect poor customer care services offered by Airlines. Users queries are not resolved, many people despite calling and mailing didn't get their refunds even after 10 days. 34% tweets are due to delay .11% tweets are due to check in issues.10% tweets reflect failure in booking. Spice jet offered promotional campaigns like tickets at Rs 599 which no user was able to book leading to customer dissatisfaction and campaign failure. Even people face issues while booking through their mobile application. 7 % tweets were due to luggage issues. People quoted that even after so many days they have not got their misplaced luggage back. Some were so frustrated that they called spice jet officials as thieves to stole bag, purse and warned users to keep a watch before boarding spice jet flight.
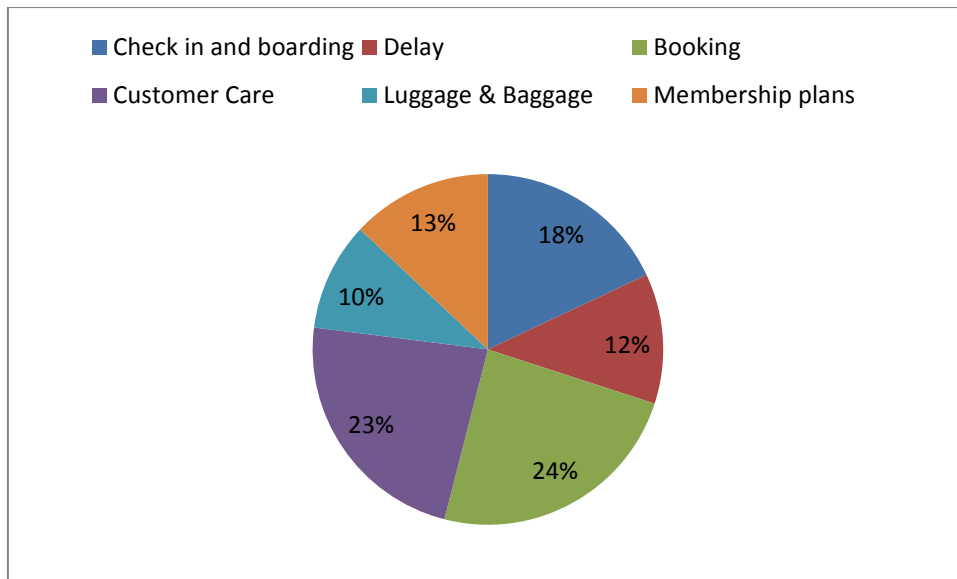
Figure: 4.4 Reasons of failure in case of Jet Airways

In case of Jet Airways the reasons for failure are depicted in Figure 4.4 . 24% tweets are due to Booking issues. Their website is not good enough similar with their mobile application forcing customers to book flight tickets on third party providers like makemytrip.com. 23% tweets are due to customer care issues. 18% issues are due to check in process. Jet airways offers web and app check in through which users can easily check in, but unfortunately both are fail. Users despite having checked in earlier through web have to check in again at airport which causes dissatisfaction. Even their check in kiosk at airport are not functional which makes users to share it on Twitter. 13% tweets are reflected to delay while 10 % to luggage and baggage. 13% tweets are due to membership plans. Jet airways offers multiple plans like Platinum ,Gold, Silver which users can subscribe as per his convenience and avail benefits. Every plan offers different benefits. Users complained that they didn't get benefits as per mentioned by Jet Airways in plans despite paying the extra charges. This led to frustration in customers.
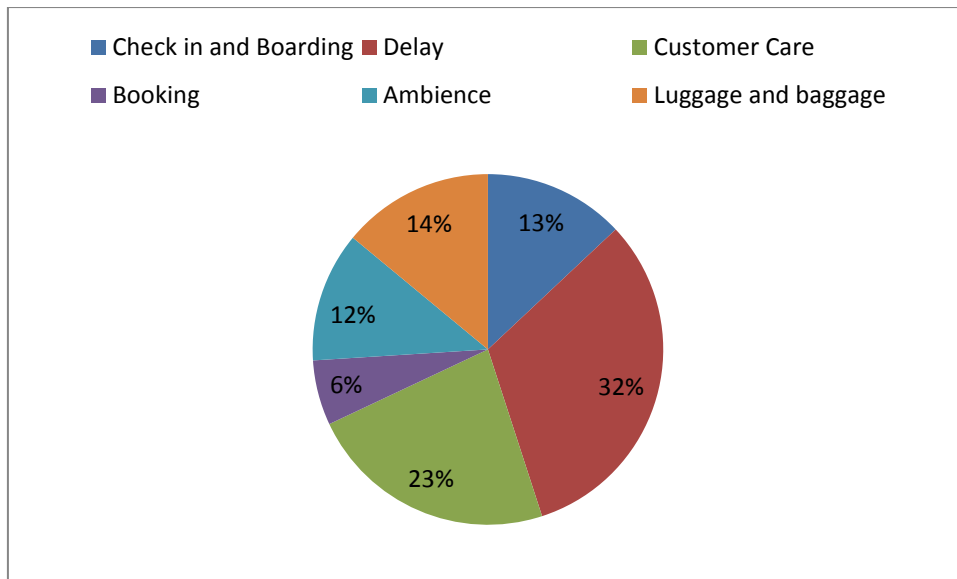
Figure: 4.5 Reasons of failure in case of Air India

Figure 4.5 depicts the reasons for failure in Air India. 32% tweets are due to delay in service. The users don't reach their destination on time.23% issues are due to customer care. People don't get their refund back, their customer care are helpless, despite multiple calls users don't get any refund back causing them trouble.13 % issues are due to check in and boarding.People have to stand in long queues and wait till last moment to make check in. 12% issues are due to ambience in flight. Many users complained about broken seats, unfunctional screen and even presence of mosquitos in flight. 14% issues are due to luggage and baggage while just 6% is due to booking tickets website and mobile application.

CHAPTER 5

CONCLUSION

This study adds to the learning of how companies can profit by the utilization of a genuinely new technique, Sentimental Analysis in assessing customer experience. However by analyzing Twitter feed I were able to analyze source of negative sentiments and problems customers face in airline service (e.g. customer care, booking, check in issues). Similarly approach also uncovered service practices (e.g. crew, on time) that caused positive sentiments and delights the customer which ultimately leads to good worth of mouth and repeat business.

This study proposes that Twitter sustains data about customer encounter with services.. Customers of airline service are anxious to share both positive and negative parts of their encounters, and are frequently specifically tending to organizations with solicitations to address their issues. This is an essential finding, which leads to proactive position on customer behalf to bring issues about service failures while also indicating factors that created a joy feeling.

This study suggests that customer experience can be evaluated through information accumulation from online networking instruments . Organizations must be ready at all times and equipped for translating the signs originating from their customer base. Negative tweets can harm an organization's value, in this manner a quick is an outright need.

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CHAPTER 6

LIMITATIONS AND RECOMMENDATIONS

6.1 Limitations:

During the research paper certain limitations were faced, which include

1. The research was solely focused on four brands only and that too in airline industry only.

2. Only 2000 tweets were analysed , volume can be increased.
3. Further research can be conducted in other industries as well.

6.2 Recommendations:

From the analysis done on the primary data and after going through the secondary data, a conclusion was reached. Based on that, the following recommendations can be given.

1) Indigo offers low cost tickets but most of there flights are not on time so they need to address this issue as to retain their market share.

2) Jet Airways is best performing in customer satisfaction among top four airlines in India as it has least negative sentiment . However they need to take care of their premium plans and offer benefits as mentioned.

3) Spice Jet and Air India both have poor customer care service. They need to work upon this and refunds of cancelled tickets. However both offer customer comfortable inflight experience.

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