Smart Customer Care

Industrial Training Report

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A CSCI490 Project Report

Customer Loyalty In The Market

Importance of customer satisfaction in quantitative evidence from the mobile telecommunication market.

This study explores if customer satisfaction affects the relation between customer loyalty, service quality and perceived value. The study shows that the more a company has their customer's loyalty the more profit they earn.

Generic Data Gathering

- Long-Form Survey: In this method customers are required to answer a list of questions, a study shows that the more questions in the survey, the less time a customer will spend in it, giving inaccurate results.

- Phone calls: In this method customers are required to give their opinion by phone call, however the one calling has to have technical skills in case the customer has a problem, skilled people are costly.

- Transactional emails: this method is considered the easiest way to communicate with customers, but it lacks aesthetic appeal and Inconsistent customer experience**.**

Social Customer Relationship Management (SCRM): How Connecting Social Analytics to Business Analytics Enhances Customer Care and Loyalty?

This study investigates how Social Media (SM) has become an undeniable influence on customer care. Besides, how companies can use social media to strengthen customer care. Moreover, how can social media channels enhance customer loyalty, and examine what are the managerial and profit implications of these findings for managers and researchers.

The study examines three main questions:

- How companies can leverage SM to strengthen customer care
  - By communicating with their customers on SM

- How SM channels enhance customer loyalty
  - Customers get the feeling of being in control of the quality of the service they pay for

- What are the managerial and profit implications of these findings for managers and researchers
  - Enhancing customer loyalty increases customers and overall profits.

Additional Data

- Corporations hire social media teams.
  - That comes at a great financial cost

- Corporations invest in tools necessary to track shifts in loyalty and NPS.

- Corporations invest in manual "cleaning" of listening and analytic tool output to capture shifts in sentiment.

Software In The Market

Chatbots

One of the main recent methods of using Software systems to collect data about customer experience are smart chatbots.

Chatbots are used to automate customer communication to solve trivial or otherwise simple enquiries fast and efficiently. Most chatbots take advantage of an expert system to standardize the questions asked and follow up answers. This is usually the case as real world interaction is subjective by nature and varies heavily between one person and the

other.If the consumer's issues are out of the bot's solvable scope, they will be redirected to the regular call center phone service. This reduces the long traditional long waiting hours as there are less people with trivial problems and more unoccupied agents to answer calls.

There are also more benefits to them that make customer service is a less stressful:

Main Benefits of Chatbots:

1- Filters customers with trivial problems

2- Frees up call center agents / less waiting times

3- They are mostly available 24/7.

4- They are rather consistent in their answers.

5- Chatbot responses are instant.

Main Flaws of Chatbots:

1- They require constant maintenance.

2- Many chatbots can't handle more than basic questions.

3- Chatbots are quite difficult to create.

When it comes to smart chatbots there are four of them in the industry known as the big four: **IBM Watson, Microsoft Azure, Google Cloud and Amazon Polly.**

System Analysing Bots

Some companies heavily rely on their systems actively working all the time, and require that they not waste time identifying internal errors when an issue could be related to the customer's device. This is where system analysing would benefit these companies. Data and general interactions between any customer and the system is stored in a record and is analysed by the bot to identify whether it was a user or system fault.

This overall benefits the company as:

1. It improves subscribers' Quality-of-Experience (QoE) by correctly addressing their complaints

2. It maintains system dependability by quickly responding to any failures

3. This information helps in reducing the time complaints and issues are solved by the customer service systems a company is adopting.

This type of procedure also maintains some issues where:

1. It needs to be specifically tailored and built to work with a certain company's system. (Not easily accessible and expensive to modify)

2. Choices are limited when it comes to solving problems. It can only identify whether a customer's problem originated from the user's device or internally from the company.

An example of this is a system used by some cellular networks companies in China called **Intelligent Customer Care Assistant (ICCA).** Where 4G and 3G connections are monitored and analysed to ensure any network issues are solved quickly and system downtime is minimized .

Social Media Analyser (This Project's Category)

This type of software focuses on analysing data scraped from social media websites to discover people's relative opinions and topics on certain products or services. Companies use this data to learn and implement future improvements.

Benefits of this category:
1. Automated
2. Low cost (as a result of automation)
3. Acquires genuine feedback
4. Does not need direct customer interaction

Issues with this category:

1. Constant software maintenance, as social media websites tend to try and block scraping tools

2. Large amounts of data needed for analysis (If machine learning and modelling is used)

3. Most social media data is irrelevant and requires extensive filtering

One of the famous implementations is the paper regarding a **Twitter Emotion Analyzer.** This program scrapes tweets on twitter and identifies its sentiment or whether it is a negative or positive comment. It also tracks the sentiment level of the user over time to check satisfaction over periods of time. The scraping criteria focused on tweets from the accounts of four U.S telecom companies:

1. AT&T
2. T-Mobile
3. Verizon
4. Sprint

This implementation helped identify users with problems quickly for moderators to respond to where those with more severe sentiment levels were prioritized. On the other hand, this project lacks platform diversity as its only source of data is Twitter and can only identify emotions (Cannot apply classification). It also lacks international relevancy as it only tracks tweets from the 4 mentioned companies who are focused in the US and not other countries.

How We Can Improve On Existing Projects

Data Gathering

Our main source of data will be popular social media sites such as Facebook, Twitter and Instagram and as time goes on this list will gradually increase. Targeting multiple sites allows scraping the data of a higher percentage of the population. Which as a result, will substantially increase the amount of data gathered and used by our machine learning models. Our product will be generic in the way it handles search criteria where through our user interface the consumer can filter out exactly what they're looking for, an example of this could be: The target company, specific keywords, etc...

Our product will utilize natural language processing to be able to interpret and compile detailed customer reviews and inquiries set by the search criteria , rather than only being able to handle simpler ones such as the emotion identifier in the twitter scraper. This will allow for more accuracy when trying to identify issues customers have in general

Data Analysis

After the required data is collected, we intend to use all the information from analysing similar products in the industry to make our software as efficient as possible when handling the data.

The analysis phase starts by cleaning out data and presenting it in a format that is understandable by our models.

This data is then used to train and test our models so that we can identify patterns and categorize the issues and topics generally present and specific problems occurring with a user.

(The exact models we will use are as of this moment undecided)

As demonstrated, our implementation is expected to solve most of the disadvantages mentioned above to provide the consumer with a truly new and innovative product.

Expected Milestones

Throughout the course of our project we plan to have a few main stages, and we have set an estimated timetable for these events that we plan on sticking to.

Stage 1:

Data collection by web scraping data from social media sites

(Facebook at the moment - will be expanded)

We hope to have this stage completed by the end of January.

Stage 2:

Determining the models required to be used for our system and applying them

Deciding on the machine learning models needed for our system is our planned next step after data-collection is done.

We hope to have this stage done by no later than March.

Stage 3:

Building data cleaning algorithms and testing them

Such algorithms are needed to filter out irrelevant data obtained during the first stage.

Collected data will -hopefully- be fully cleaned as soon as May.

Stage 4:

Implementing UI designs and functionality on supported platforms

Final stage of our system implementation; estimatedly completed during June.

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