CUSTOMER PRODUCT EXPERIENCE ANALYSIS USING TEXT MINING: A NEURO LINGUISTIC PROGRAMMING APPROACH

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Abstract: Companies who sell their products through the e-commerce model frequently request that their clients review, survey or give a feedback for the products that they have bought. Companies that extensively use the e-commerce model depend on the large number of customer reviews that are collected for each product through the Customer Relationship Management (CRM) Application. CRM Managers find it very difficult to go through each and every review feedback, and to track and manage them. It becomes difficult to comprehend what the customer has actually liked and how they have experienced the product. The current CRM Feedback / Review Systems either contain closed end questions which can only generate numerical data or open end questions which generate responses which is an unstructured textual data. These textual data can be grouped together into Neuro Linguistic Programming predicates to generate insights into customer's experience. We can capture the customer's perceptual experience in most appropriate manner; which can be analyzed and used to retain customer's loyalty towards the Company.

Keywords: Customer Relationship Management, Neuro Linguistic Programming, Text Mining, Classifier.

1. INTRODUCTION

In the world of business, it is an acknowledged fact that customer satisfaction is the basic marker of accomplishment of the Business-Customer relationship. It single handedly determines the survival and prospering of any and every customer focused business establishment. The customer here refers to the entity which consumes product or services and is the one whose needs can hold the market up for a specific product. Thus businesses continue to invest their time and money in modern day technology resources that helps them in understanding the changing needs of their customers. In this way organizations keep on investing their time and cash in advanced innovation assets that helps them in understanding the changing needs of their clients. With the fast increment of web exchanges, an ever increasing number of items are sold online. In order to comprehend the customer loyalty and their experience about the product, it has turned into a typical practice for online sellers to request that their clients express their experience about the product.

To understand this customer experience, and it's importance ,the business needs to capture, learn and analyze the behavior pattern about how the customer thinks within the context of using the product. Thus a customer expresses this unique experience about the product in reviews which is been shared on company's own website. This review can be extracted by system and a mining result can be generated.

Fig1.Process of Customer Profiling Analysis

2. DETAIL EXPERIMENTATION ALGORITHM

In this research we have concentrated the issue, that the customer ongoing experience is not been captured. These experiences can be can be captured with the representational system of NLP is the art and science of personal excellence. Art because everyone brings their unique personality and style to what they do, and this can never be captured in words or techniques. Science because there is a method and process for discovering the patterns used by outstanding individuals in any field to achieve outstanding results. This process is called modelling, and the patterns, skills and
techniques so discovered are being used increasingly in counselling, education and business for more effective communication, personal development and accelerated learning.[Ref no. 13].

If our understanding is of primarily pictures, then we will tend to utilize more visual words depicting our contemplations. On the off chance that your contemplations depend on rationale or understanding something, we may tend to utilize words that mirror the rationale of our reasoning. In like manner, for sound-related and kinesthetic. The words we utilize mirror your inside manners of thinking. This is an imperative point as we are uncovering our inside considerations and thought structures to others through the words you utilize or not utilize .Each individual is solid in one of these faculties.

In our system, by extracting the key words which focus on the senses we can find out how the customer has perceived the product. Suppose the sample collection is of 100 reviews , out of which few customers have liked the visual features of model ,few have liked it in auditory quality,e.t.c. Thus each of this will reveal the features to improvise the product. To implement this concept we use Text Mining algorithm. Using this algorithm we will extract the language predicates and do the required mapping of keyword with the existing database to find out to which of the category the Individual belongs to .Based on that we can generate the templates to communicate with the customer and thus establish the rapport to retain him for a lifetime.

2.1. Procedures and Methodology

The proposed framework is partitioned into various parts which are as clarified beneath.

1) Screen Input

The screen input is a methods for the client to cooperate with the framework. It is a web interface which will request that the client to write the product review in terms of its usage. Its through the screen input the CRM administrator can enter name of the item and can additionally discover how its been seen by individuals .The consequences of the order are shown in a graphical form. The outcome will profile the client in view of its survey.

2) System Database

The System Database is a dedicated database for running pursuits against the ongoing list of late surveys. This will get the surveys from the distinctive reviews and stores it into the diligent medium.

3) Processed reviews

Reviews information is unstructured information. It should be processed before it can be utilized. This progression makes the information simple to prepare for further strides.

Formulation :-

Visual (A) ,Auditory (B), Kinesthetic (C) ,Digital Auditory (D) ,X is Total number of words

Probability of occurrence of a predicate

= ((A/B/C/D)/(A+B+C+D))*X) /2

Proposed: Predicates Classifier Algorithm

Step 1: Start
Step 2: Create Classifier set for NLP Predicates.
Step 3: Read Customer Review for the Product
Step 4: Processing the Customer Review
I. Convert Review into Lowercase
II. Remove special characters
III. Remove the Punctuation Marks
Step 5: Processed text is now generated
Step 6: Processed text words are now compared with classifier set for NLP Predicates
Step 7: Display the classifier set for NLP Predicates.
Step 8: Stop.

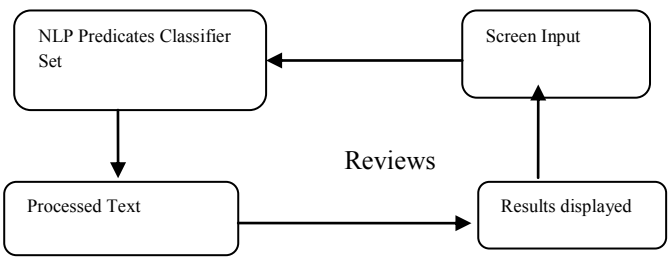

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Fig 2 .Architectural Overview of Feedback System

The customer expresses his unique experience of the product and gives reviews to the Company's website. This review is stored in a database and a predicate classifier set is created to compare the processed text. The text is read across to compare how many predicates of reviews fall under which category of classifier set. On this basis a graphical chart is generated to explore how the user has perceived the product, if the graph represents its more of visual, then the customer has liked its visual appearance, if the customer describes it in terms handling of the product then the customer has been talking about kinesthetic part of it.

Visual	Auditory	Kineshthetic	Digital Auditory
See	Hear	Feel	Sense
Look	Listen	Touch	Experience
View	Sound(s)	Grasp	Understand
Appear	Make music	Get hold of	Think
Show	Harmonize	Slip through	Learn

Fig 3: NLP classifier predicates

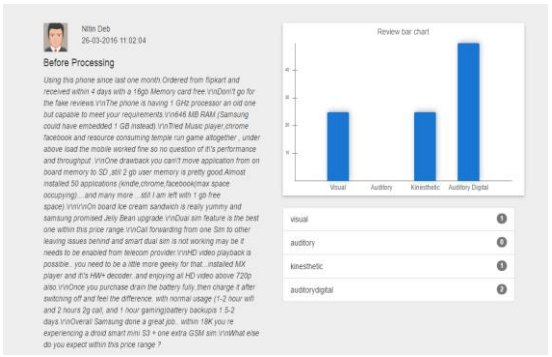
The CRM Manager can thus see in aggregation how the product is been perceived overall through the report

3. RESULTS AND DISCUSSION

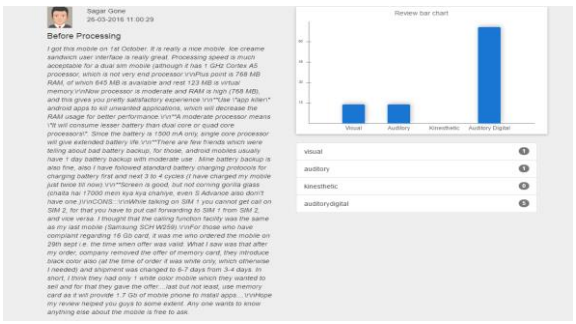
The following review is for the product of SAMSUNG ACE DUOS which is implemented through the system and the result is been generated.

Result 1 : Review 1 and its Customer Profiling

Result 2 : Review 2 and its Customer Profiling



Result 3 : Review 3 and its Customer Profiling



Result 4: Review 4 and its Customer Profiling

In the above reviews each of them are processed and each keyword is been compared to the existing dataset of NLP predicates and the probability of occurrence of each of keyword in review , makes the system to decide the customer can be profiled into which of the category.

While reading customer reviews / feedback on a product is finding words that fall in categories of Visual description, Auditory description and Kinesthetic description. Also there is Smells and Taste that people may use to describe their own

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experience. Thus the System can evaluate it in a form of a graph by reading the text.

With the help of this kind of Customer profiling, we can analyze :

1. Understanding of User about product.
2. Customers experience and satisfaction with product.
3. Most likeliness of customer going to purchase the next product.
4. Newly generated requirements of customer for future.
5. It focus on the words which strongly represents the expression of customer/user.
6. It makes very easy for an customer relationship manager to identify and measure the customer satisfaction.
7. It helps customer relationship manager to find out the trend and review of product and its competitiveness in current market scenario.

After the System identifies and classifies which type of personality the Customer falls into , the CRM Manager and personnel try to communicate with the customer using the same predicates and language so as to retain the client for lifetime.

4. CONCLUSION

In this paper we proposed a set of technique required to summarize and filter product reviews, in a specific manner so as to understand the overall Customer experience based on text mining and neuro linguistic programming. The objective is to provide a language a medium through which a customer can be profiled and be retained for a life time , benefitting the Organization business.

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