

An Evolution of Big Data for Enriching the Customer Sophistication with Crowdsourcing

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Abstract: The main object of this survey is to evaluate the customer sophistication by using the Big Data with crowdsourcing. It is to increase the customer satisfaction and loyalty. Now a day, the customer satisfaction is aimed to improve the target profits. It focuses on the outcomes from crowdsource officials, data providers and big data analytics. At present, the Big data dominates the commerce and business. It is going to transform into crowdsourced business intelligence. It can explore the big benefits from a customer satisfaction. The companies are largely able to understand and monetize their customers.

Keywords: *Big Data, Crowd Sourcing, Customer sophistication, CX Analysis, Prescriptive, Predictive, Diagnostic and Descriptive, etc.*

I. INTRODUCTION

The companies have so far faced certain challenges in the past. Now there is a tremendous change and evolution take place with the invention of Big Data of Crowdsourcing. In those days, there were no technical staff to communicate the technical problems.[1] But now-a-days, a large data is produced from structured to tackle the customers sophistication. It is necessary to include the shopping giants such as Flifcart, Amazon, e-pay, E-shoppe, etc., It processes large amount o data to find out the patterns. These data have to be extracted, transformed and loaded to study patterns about customer behavioral interactions.

In the modern world, the companies are ready to standardize the overall growth by using the customer feedbacks. The survey like this from Big Data helps them know their growth in the competitive market.

It is true that without the human involvement, there cannot be reliable data management to find for errors. Yet we need crowdsourcing in their operations to make sure objectivity and diversity and prevent errors effectively. Both Big Data and crowdsourcing give a way to modern data collection for customer sophistication to create information more reliable, authentic and manageable. A remarkable change and a big desired benefit can be achieved by clubbing crowdsourcing with big data.[2].

II. A SURVEY OF BIG DATA IN CUSTOMERS SOPHISTICATION

Many international journals searched big data with crowdsourcing work of recent findings. It gets largely to explode valuable customers sophistication day by day. It needs the combination of people, process and analytical tools to acquire the maximum business impact. It needs to stay customers, their loyalty and relationships. The problems of customers should be solved by the best price. [4,5]

Big data with cloud sourcing fulfill the needs of customers. Take for instance, Amazon and other companies use big data to create the value of customers. They are ready to answer, “what do I learn from other customer? “ How do I compare with other customers? What are the bad experiences of customers? [6,7]

The Social medias like Facebook, whatsapp know the customers’ differences. INRIX gathers traffic data from customers’ mobiles to provide the real time traffic reports. Through power customers can share their bills with facebook friends to differentiate the rates. INRIX gathers traffic datas from the customers’ mobile phones. Zillow clubs datas to give total insight of home values, competitive properties, to buyers, sellers and agents. Hence the customer behavior is cared in real time results. The countries like USA, UK and China apply Diabetes for shoppers to suggest how to minimize the diabetes risk.[8]

Most of the organizations can compare and contrast the data and improvise the productivity. The companies like Nickelodeon, MTV have made a real time big data analytics by using Apache spark and Databricks. They can examine the quality of video feeds and fix resources in real time.

According to the history, about 70% of customers data is never utilized for development. Only 30% are able to use CX to aware of pitfalls and succeed in today’s market. [8,2]

III. AN ANALYTICAL SURVEY OF BIG DATA WITH CROWDSOURCING FOR CUSTOMER SOPHISTICATIONS

Big data is meant by three dimensions – Volume, Velocity and Variety. Veracity and Value are additional dimensions. We have to predict the type of analytics to indentify the customer behavioural pattern. There comes discovery of this golden data.[9,10]

The Apache Hadoop ecosystem contains Hadoop Kernel, MapReduce, HDFS and Zookeeper. Crowdsourcing is clubbed with big data using Amazon web service technologies like Mechanical Turk, Elastic MapReduce for getting queries of customer data. It gathers facts from the crowd with innovative ideas. Thereby the companies can develop their products. It helps then find the customer experiences. By social media, like YouTube convey the necessary actions. The messages are transformed by using mining, cleaning and modeling.

IV. KINDS OF ANALYSIS FOR CUSTOMER SOPHISTICATIONS

Analytics is to analyse and acquire intelligence from Big data with crowdsourcing. 23% of articles deals with the foundations of crowdsourcing, 75% deals with experimental ways and 2% says about the review papers.[11]

There are certain kinds of analytics. There are,

Prescriptive: By this method, we know the actions of customers. We can form rules and suggest ideas.

Predictive: Here, we can find history of data patterns of customers for forecasting.

Diagnostic: This kind roots out the causes and shares for other users.

Descriptive: This can mine the customer experiences in real time.

Using all the above kinds, the organizations analyse the behavioural lifestyle of customer. They monitor their customers across channels. Modeling can be done to predict the responses of customers'. So, we can utilize crowdsourcing for finding knowledge of customers'.

V. DISCUSSION

Findings and Practical Implications

According to the recent findings, many firms start using the big data with crowdsourcing to decide the success of new location, traffic, area demographic etc., so the crowd will give informations. Starbucks can provide accurate estimation of success rate, revenue growth etc., Crowdsourcing thus, gives structure to big data to increase by 25%. [4] Another instance is Refugee Crisis in United Nations. This agency has clubbed with Mindjet's spigit engage platform to solve problems by Crowdsourcing.

A. Practical Implementation approach

Some questions are considered

1. What do we store our customers data for analysis?
2. How do we pull all data?
3. How can we apply crowdsourcing and analysis for other details of the customers?
4. How and when do we visualize all data on a single board?

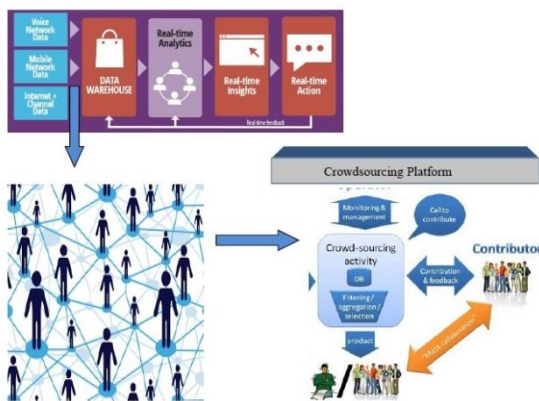


Fig.1 shows incorporating crowd sourcing in the big data process for customer Analytics

Crowd Sourcers (Workers)

The important aspect is to handle massive data and give operations per second. Unstructure data are stored in Hadoop Servers like Apache Hadoop which can store data in cluster, NOSQL like MongoDB, MPP database, HIVE for distributed data, SGOOP to transfer data from database.

Unlike traditional sources, the crowdsourcing is more useful in storing large data and be split as work among workers. So the job can be done with whole assurance. Elastic MapReduce algorithms scale data from multiple processing platforms for Crowdsourcing. The input data is passed to the mapper

function. It processes and makes smaller chunks. We can use for top Queries. The Reducer processes the data from the mapper to know about the customers. The data comes from CRM data servers, ERP and APP server logs, Click stream data, web and social media logs and call centre data etc., The datas are of two kinds. One is static and other is dynamic. Static datas are the customers' of address, and other details and dynamic deals the customer shops. Thus we can pull data from crowd sourcing engines and use intelligent systems. We can acquire real time recommendations from crowdsourced data.[11,12,13,18,19]

To understand the problems, companies get feedbacks of customers. They use some analytics. They are sentimental analysis, customer usage analysis, text analysis to collect all the behaviours of the customers. We can get hour or second details. The detailed report analysis known as 360⁰ view of the customers example monthly churn graphs from multiple channels.[20,21]

This step shows customer records in different formats. Fig 2 and Fig 3 refer this. It also shows interaction history with outcomes. This helps us known likes and dislikes of customers. By crowdsourcing, positive and negative outcomes of products can be achieved. These visuals suggest to promote products and acquire new customers.[14,22]

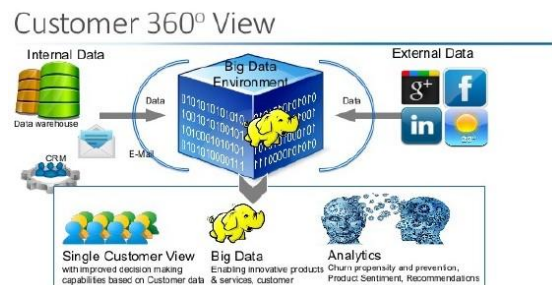


Fig 2. 360 degree view of the customer

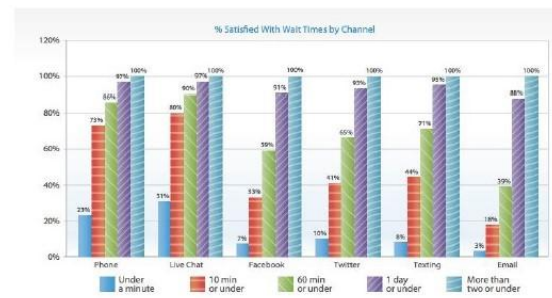


Fig 3. Example of Live visualization of Big Data from different sources

These frameworks are followed by both developed or under developed companies Terradata, ZoomData, HortonWorks,, Datameer, Cloudera.[16,17]

B. Case Studies

Lufthansa group uses Terradata Software to tackle its vast sector of airlines. It made a data language from multiple data sources. By crowdsourcing, we can measure each customer travelling sophistication.[15] Carrefour groups use Terradata Enterprise Management model. It collects mistakes of workers, predict seasonal demand of customers. It also monitors the sold and unsold items in the markets.

American Airlines uses Datameer's big data customer analytics. It gives the assess point to open power of Hadoop they use Hadoop to gain insights. Shoepassion.Com used

marketing metrics model to know buying behaviours. They used Datameer’s Flipside framework model to see profile of all the data.[24,25,28,29]

Table 1: Comparative analysis of software’s[23,25]

<u>Terradata</u>
Actually, the process with high fault tolerance and data safety is too unsuitable for OLTP databases. It is too expensive software though there are some merits, it is not easy to attend the queries without delay. This type is very complex and difficult to use.
<u>Zoomdata</u>
Though we use Google cloud support with less costly than terradata. It does not monetize profit level analysis and predictive analysis etc.,
<u>Datameer</u>
In this method, we can promote markets and get fraud detection. It contains more algorithms to shape predictive models but less matured tools. So we need to invent newer trends for the current positions.

Table 2: Analysis of features that can be provided when using big data with crowdsourcing for customer

<u>Data Cleansing and Analysis</u>
Here, Crowd source officials will find out the errors and give correct data. The companies like Amazon use these kinds of tasks.
<u>Segmentation</u>
Through Crowd sourcing, the collected data will be segmented into certain smaller groups with same attributes.
<u>Process Automation and Crowd sourcing</u>
In this process, social media analysis, monetary values, workflow and churn analysis should be made with automated process.
<u>Data Exploration</u>
In this stage, the datas are explored visualization, Data trees and value charts and statistical graphs are discovered.

C. Limitations

It is true that change is permanent. Everyday there is change in all the fields’ including Big data. Only less data scientists work with the data. Though crowdsourcing helps us know the happening in real time, we do not know why it is happening. The data can be useful for online customers not for offline customers. Sometimes, the tools get issues with the data. So more research should be done. It is also a threat for data privacy.

CONCLUSION

Thus, the main idea of paper can act as a guide for joining crowdsourcing with Big data customer analytics. If there is any issue, that can affect all the data. So the crowdsourcing issues are largely focused with correctness. However, we shall discuss the issues in the future research by right planning and understanding of crowdsourcing in Big data for customer sophistications.

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