

## A Study on impact of Big Data in E-marketplace

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### Abstract

Big Data is a wide term in the world of data analysis. Lots of successful E-commerce firms have proven the importance of big data in today's scenario as the India is becoming Digital India.

Many big E-commerce firms are using big data and Hadoop to understand the behavior of their customers and to increase their sales. But to know about the behavior of your customer is not so easy. Lots of challenges are facing by the electronic world such as- data analysis, search, curation, storage, visualization, and privacy

But companies who have implemented big data or using data to analyze the customer behavior, sales and market perception are doing amazingly well. In this paper we are going for a comparative study of different case studies from the Ecommerce industry those are using Big Data, Hadoop, Machine learning, and Analytics to scale their business.

**KEYWORDS:** Big Data, E-commerce, Data analysis, Hadoop.

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### I. INTRODUCTION

The world is changing towards digitization so the customer purchasing behavior is also changing. It is highly acknowledged that now a day's consumer purchase decision process flows through significantly different stages compared to purchase decision process of consumers before in the decades ago. [1] Pointed that the main change itself is observed not in the changing in consumer preferences, but also in a way each of us gets hands on the product desired. The current trend given the rapidly increasing number of online consumers as well as the number of consumers settling the bills by the means other than cash even if they shop at the physical store. This new era of shopping brings up challenges as well as opportunities to improve customer service and boost the sales. Every single consumer who shops online or transacts via online payments leaves so-called digital footprint, a trail of data one creates when performing actions online [2]. New way of customer behavior can easily confuse the merchants who are not equipped to deal with a new trend, at the same time, information collected from this footprint, given proper analysis, can tell the merchant unique hints on particular consumer's behavior and even habits. Big Data Analysis is a

powerful tool to tackle these challenges and utilize the opportunities [3].

This paper will investigate what impact does Big Data Analysis has on the current operations and to what extent it is utilized by the modern merchants as well as what exact benefits it can provide for the user. The remaining parts of this paper are organized in the following way. In Section two, existing literatures and researches related to the impact of big data on marketing,sales,production etc. The third section introduced the case study of different ecommerce sites. Next section compares the impact of big data in different aspects in eMarketplace. Finally, Section five indicates that this paper has answered major questions related to what is the impact of big data in eMarketplace ,which provide a comparative clear picture of big data.

## II. LITERATURE REVIEW

According to Bakos electronic markets play a central role in economy, facilitating the exchange of information, goods, services and payment? In the process they create economic value of buyers, sellers, market intermediaries. As the data from the various eMarket sites is increasing with a rapid rate on daily basis ,that data is being used by the company for knowing their customer and to increase their productivity .

More than 91% marketing leaders believe companies take a decision based on the customer data. [Source: iab.net]

85% of large corporate are using social media to drive as a marketing tool. [Source: iab.net]

But the sad part is 39% of marketers say they can't turn their data into actionable insight. This is the sad part of big data. [Source: iab.net]

86% customers are ready to pay more to get better customer experience. [Source: lunch pail]

87% marketing managers agree to the fact that right data is at most required to measure the ROI in their own company effectively.

Companies are successfully saving 25% budget on ads by optimizing their media inventory. [Source: vemployee]

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When Amazon implemented "Customers who bought this item also bought" recommendation feature, it had increased its sales by nearly 29%. [source: Fortune]

Magaseek, Japanese's top fashion retailer, increased its revenue by ¥40 million with optimization brought in through Analytics. [source: vemployee]

Close to 70% users on Social media buy bases recommendations from others and another statistic says that upwards of 40% of users who give a positive review on social media purchase a product. [Source: Quora]

54% of the survey says big data has brought gains in multi- channels sales. [source: Wipro]

## III. CASE STUDY

Big data has been around for a long time even from the 19th century but the only

difference between then and now is the internet, immediate availability of data and triangulation of many sources which have now taken over and made data readily accessible and available. According to McAfee, Andrew [4] big data has enabled managers to measure and know radically more and more about their businesses. This knowledge can improve decision making and performance. As an example, Zalando which is an online retail store, uses the concept of big data to predict its fashion trends by tracking the number of visits to their website, stock counts and lots more. Big data helps organizations to create opportunities, retailers to optimize their stock based on web search and it is also cost effective.

The era of Big Data has brought with it potential benefits for businesses, people and technology as a whole. On one hand, it is seen as a powerful tool to address various societal ills, offering the potential of new insights into areas as diverse as cancer research, terrorism, and climate change. On the other, it is seen as a troubling manifestation of Big Brother, enabling invasions of privacy, decreased civil freedoms, and increased state and corporate control [5].

Big Data due to its various properties like volume, velocity and variety, is prone to challenges. Social scientists have long complained about the challenges of big data. According to Danah Boyd in 2010, collection of data over the years has been hard, time consuming and resource intensive. [6]. Unfortunately, even with the excitement and advantages that comes along with big data, companies might not be able to reap the full benefits of a transition to using big data unless they're able to manage effectively these [4].

Some of the most common Big Data challenges are: Privacy Concerns and Insecurity, Talent Management, Data Storage, Technology and Timeliness.

Here are some of the most successful case studies in eMarketplace and retail industry which will inspire to use data even more correctly. These companies are the market leaders in their niche and have reported some huge profit in business after using big data.

### **Alibaba Big Data Case Study**

This China-based billion dollar Ecommerce Company and world's largest retailer has revealed how big data has helped them to increase the revenue. It has also helped them to use the data in the offline sector and another retail sector to grow the business.

According to Dongfeng Li (Alibaba's director of big data and technologies), Alibaba's various properties hold about 80% of China's PC, internet and app data, which it can integrate with first-party data to create singularly powerful data models.

According to the report by Reuters, the number of mobile-first users have been increased to 42% and has reached to 410 Million. This accounts for the total of 73% GMV.

### **Aetna Big Data Case Study**

AETNA is one of the largest healthcare insurance company of USA. Especially after the merger of Aetna and Humana, they have become one of the top healthcare, insurance and Wellness Company.

With around 19 Million customers, Aetna is using big data to improve the health and diagnostic of their clients.

After looking at the patients' metabolic syndrome-detecting tests assesses patient risk factors, patient risk factors, company is focusing on finding the top factors which will impact the patient's health most. These data will help 90% of patients who doesn't have a previous record, and 60% patients will increase the adherence.

### **General Electric (GE) Big Data Case Study**

GE which is mainly known for their consumer-centric business like jet engines, oil & gas plants, and several such products.

In late 2011, GE made an intelligent move by bringing William Ruh from Cisco Systems to start the Big Data system in GE.

In 2012, GE CEO Jeffrey Immelt announced to invest USD 1 Billion in the Big Data & Analytics segments over a period of four years.

GE collects the significant data from their jet engines, turbines, trains, and medical equipment and analyzes those to enhance the business and consumer lifestyle.

GE estimates, data can boost productivity in the USA by 1.5%, which will save enough money to raise the average income of citizen by 30% over a period of 20 years.

### **Kroger Big Data Case Study**

Kroger is making use of big data through its joint venture with Dunnhumby. They collect, manage and analyze the data from their 770 Million consumers.

Claiming 95% of sales are rung up on the loyalty card ,Kroger sees an impact from its award-winning loyalty program through close to 60% redemption rates and over \$ 12 billion in incremental revenue by using big data and analytics since 2005.

### **Amazon Big Data Case Study**

Amazon is an idea example of eMarketplace as for how big data can be used to scale the sales. For Amazon, customer satisfaction is more important than the sales and figures.

Amazon is using	the data to	personalize	customer
interaction, predicting	trends and	improving	customer
experience			

### Walmart Big Data Case Study

This mega retail company introduced semantic data in their search platform which improved online shoppers completing a purchase by 10% to 15%. In Wal-Mart terms, that is billions of dollars.

It was the mid of 2012 when Walmart announced the addition of Polaris, an in-house designed product to enhance the machine learning experience to their search engine. And the result of it is to the world now.

### eBay Big Data Case Study

eBay is using big data to provide better personalization and customer experience to the users.

Their system now handles final data velocity with 6 billion writes and 5 billion reads daily. The amount of data stored: 250 TBs.

### Groupon Big Data Case Study

If you do online shopping, then you must have come across coupons websites like Zoutons, Groupon, etc.

Groupon is also using Big Data Hadoop to leverage the most out of it. It collects the data from both ecommerce companies and users to make daily deal transactions seamless.

Groupon is using Cloudera Hadoop system for the infrastructure and analysis of data on a large scale.

## IV. CONCLUSION

These were some of the great Big Data ecommerce case studies. Almost all the big companies have started using big data to personalize the user experience, to make the customer experience better and in return to increase the sales & business. In all case studies that we discussed above we conclude that by using big data and analysing the same by using different tools and techniques will increase the productivity of the company and keep the relation with the customers in long run.

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