



BIG DATA IN MARKETING SPECIAL REFERENCE TO AMAZON.COM

Dr.K.Vidyakala* **Nakhala Devi .S.A.S****

**Associate Professor, Department of Business Administration, PSGR Krishnammal College for Women, Coimbatore, TamilNadu India.*

***Research Scholar, Department of Business Administration, PSGR Krishnammal College for Women, Coimbatore, TamilNadu, India*

Abstract

Big data has been used to convey all sorts of concepts, including: huge quantities of data, social media analytics, next generation data management capabilities, real-time data, and much more. Whatever the label, organizations are starting to understand and explore how to process and analyse a vast array of information in new ways. In this paper we have discussed about the characteristics of big data, big data marketing, and benefits of big data to marketers and how Amazon used big data to enhance its performance and how they leverage big data. Amazon has grown far beyond its original inception as an online bookshop, and much of this is due to its enthusiastic adoption of big data principles. It looks set to continue breaking new ground in this field, for the foreseeable future.

Keywords – Big data, Next generation data, Benefits, Amazon, Marketing, Principles.

BIG DATA

Big data is a general term which is used to describe the voluminous amount of unstructured and semi-structured data a company creates -- data that would take too much time, cost and money to load into a relational database for analysis. Big Data can be defined as large volumes of information, including both structured and unstructured data. Big data is traditionally characterized as a rushing river with large amount of data flowing at a rapid pace. Gartner defines "Big Data are information assets with volumes, velocities and/or variety requiring innovative forms of information processing for enhanced insight discovery, decision-making and process automation."

CHARACTERISTICS OF BIG DATA

1. Very large, distributed aggregations of loosely structured data – often incomplete and inaccessible:
2. Petabytes/Exabyte of data
3. Millions/billions of people
4. Billions/trillions of records
5. Loosely-structured and often distributed data
6. Flat schemes with few complex interrelationships
7. Often involving time-stamped events
8. Often made up of incomplete data
9. Often including connections between data elements that must be probabilistically inferred,
10. Applications that involved Big-data can be
11. Transactional (e.g., Face book, Photo Box), or
12. Analytic (e.g., Click Fox, Merced Applications).

Structured data is found in traditional enterprise databases or data warehouses. Unstructured data includes raw machine-generated data, data from personal productivity applications such as email, word processing, and presentation software, and rich mixed-media data from social networks.

Big Data is the result of two recent trends

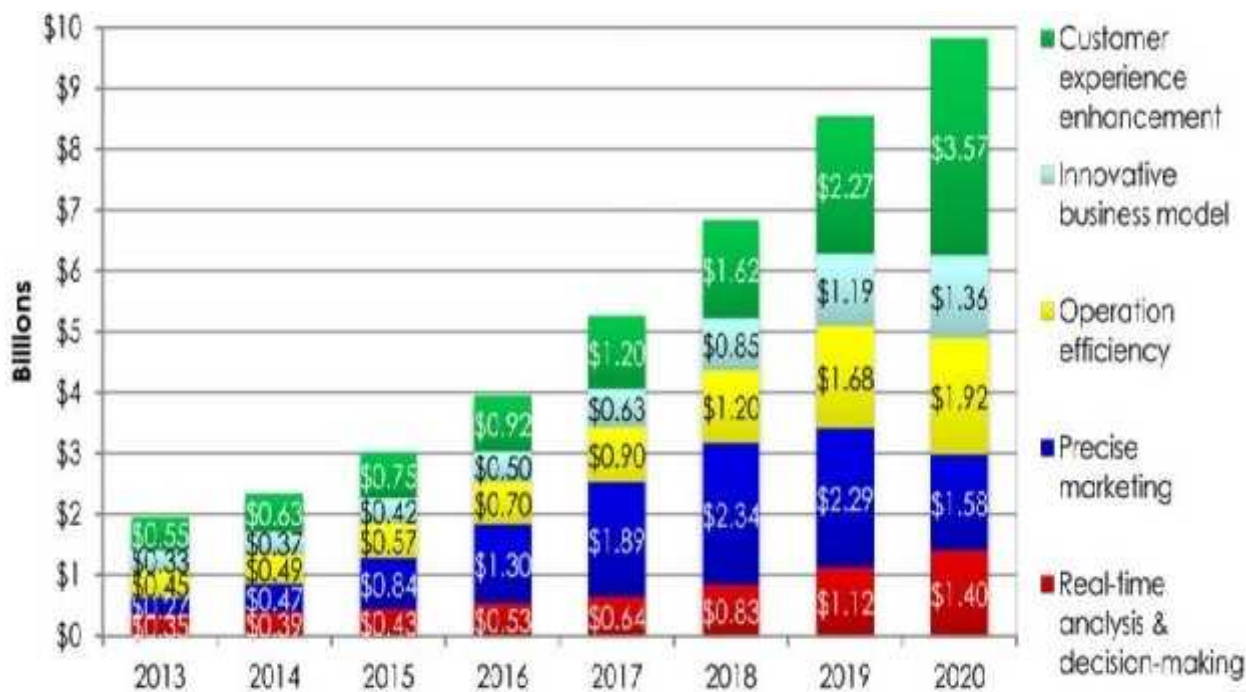
- Proliferation of data in both size and type. The growing popularity of social media and mobile devices has resulted in vast new archives of customer data. Consumers spend almost \$300,000 a minute shopping online; brands receive 350,000 "likes" per minute on Face book; and Twitter users send more than 600,000 tweets per hour. Six hundred million more people in the world own mobile phones (4.8 billion)

than own toothbrushes (4.2 billion). Mobile devices with GPS capabilities offer “location” information that can be very useful to marketers. And social media provides rich archives of data about consumer behaviors and attitudes towards brands that is invaluable.

- New technologies specifically designed to manage and analyze Big Data, such as Apache Hadoop and Apache Hadoop MapReduce, have helped companies more fully leverage information in real-time.

BIG DATA MARKETING

Big Data Marketing provides a strategic road map for executives who want to clear the chaos and start driving competitive advantage and top line growth. Using real-world examples, non-technical language, additional downloadable resources, and a healthy dose of humour, Big Data Marketing will help you discover the remedy offered by data-driven marketing. A brand marketing strategy infused with big data analytics provides marketers wider insights in developing better product engagement and customer response to your business. Digital Warriors can help build your marketing strategies with our big data analytics services. We offer social media marketing, IT consulting, marketing analytics, search engine optimization and web design and development services.



Big Data Analytics Market Size by Business Category

BENEFITS OF BIG DATA FOR MARKETERS

Big Data can help you address a wide variety of marketing opportunities and challenges, facilitating information sharing to get tasks done more effectively and efficiently, and powering automated systems. Some other benefits of Big Data include:

- Retain and up sell existing customers: Amazon.com, the largest online retailer in the United States, uses its customer data to power its recommendation engine. Amazon at one time credited 35% of sales to this

engine. Car manufacturers have been known to share website visitor behaviors, such as most-viewed car models and time spent on site with dealers after someone signs up for a test drive.

- Identify new customers: Marketers have historically defined their audience and customer base in terms of demographics, such as age, marital status, and geography, based on the belief that people who share similar characteristics are likely to behave in the same way. Big Data empowers a move to one-to-one marketing based upon consumers' actual behaviors and preferences. Beyond that, it helps to uncover new niche audiences by grouping people based on behavior and interests rather than traditional demographics. Zest Finance, the credit scoring company, uses Big Data to weigh factors that typical credit score models miss. The company offers its analytics services to lenders so they can "better assess the credit risk of potential borrowers" and offer loans to people with low scores but a high likelihood of making their payments. The Zest Finance model prompted Quentin Hardy to post "Big Data for the Poor" on the NY Times blog site.
- Reveal new marketing opportunities: Big Data helps to find patterns that yield new product segments or features and even new marketing opportunities. Online customer analysis by a leading appliance manufacturer revealed an opportunity to modify existing refrigerator product models to better serve customer needs.
- Driving more profitable advertising: Audience data, coupled with recent advancements in real-time bidding, allows making more precise media decisions. With up-to-the-minute data about audiences' behaviors and product interests, you can deliver highly relevant, one-to-one advertising messages. For example, if an airline knows that a customer has been researching a trip to Europe, it can deliver advertising creative that specifically references "Sale Fares to Europe." This form of one-to-one advertising has been shown to dramatically improve campaign results. You can also put Big Data to work using predictive modelling to automatically optimize large-scale media buying activities.
- Measure the impact of campaigns more accurately: Big Data can help for better understand how different media contribute to campaign performance, uncovering both opportunities and inefficiencies. By funnelling data on impressions, clicks, conversions, social actions and more into attribution and media-mix models, you can learn how effectively each channel drives towards your desired objective, leading to better informed budget allocations. For example, an attribution analysis for a 360i client revealed \$150MM of revenue that was directly driven by display media. Before the analysis, the brand had given display no credit for this revenue. The new understanding of display's role in driving value prompted the advertiser to increase display-related revenues by 200%.

BIG DATA IN AMAZON

Amazon, a company known for using data to create customer relationships and optimize customer service, whether it's suggesting items or resolving issues. In recent years, Amazon began selling its data on customers to third-party companies as a marketing solution — unlike other companies, Amazon doesn't offer browsing history; it knows what people want to purchase. Despite empowering other companies to market themselves better, Amazon has traditionally invested in its own product rather than in paid marketing opportunities such as TV ads — the company would rather grow by word of mouth. (Lindsay 2012).

How Amazon Leverages Big Data

Amazon uses big data also to offer a great service to its customers. This could be the effect of the purchase of Zapos in 2009, but it clearly helps that it ensures that customer representatives have all the information they need the moment a customer needs support. They can do this because they use all the data they have collected from their customers to build and constantly improve the relationship with its customers. This is something many e-tailers can learn from.



But Amazon is expanding its usage of Big Data since it notices that the competition is nearing closer. As such, Amazon added remote computing services, via Amazon Web Services (AWS), to their already massive product and service offering. AWS was launched in 2002, but only recently they added Big Data services and they now offer tools to support data collection, data storage, data computation along with data collaboration and data sharing. All are available in the cloud. The Amazon Elastic Map Reduce provides a managed, easy to use analytics platform built around the powerful Hadoop framework that is used by large companies, including Drop box, Netflix and Yelp.

Amazon also uses Big Data to monitor, track and secure its 1.5 billion items in its retail store that are laying around it 200 fulfilment centres around the world. Amazon stores the product catalogue data in S3. This is a simple web service interface that can be used to store any amount of data, at any time, from anywhere on the web. It can write, read and delete objects up to 5 TB of data each. The catalogue stored in S3 receives more than 50 million updates a week and every 30 minutes all data received is crunched and reported back to the different warehouses and the website.

MIT reported on a new project developed by Amazon: they are now packaging information on what it knows about consumers and sell this to marketers who can use it to advertise products tailored to what people really want. In contrast to Google and Face book, which might have more overall data about consumers, Amazon has a clear understanding of what people actually buy and therefore what they are looking for and what they need. This is much more valuable information and this could definitely grow Amazon's advertising revenue in the coming years.

In the past few years, Amazon has definitely moved away from a pure e-commerce player to a giant online player who offers much more than just products. It focuses massively on big data and is changing from an online retailer into a big data company.

How Amazon Uses Big Data to Enhance Its Performance

Amazon is a big data giant. Amazon pioneered e-commerce in many ways, but possibly one of its greatest innovations was the personalized recommendation system – which, of course, is built on the big data it gathers from its millions of customer transactions.

To know power of suggestion – put something that someone might like in front of them and they may well be overcome by a burning desire to buy it – regardless of whether or not it will fulfil any real need.

This is about how impulse advertising has always worked – but instead of a scattergun approach, Amazon leveraged their customer data and honed its system into a high powered, lazer-sighted sniper rifle.

Amazon systems are getting better day by day. The above discussed approaches were at the initial stages. On further evolution of big data Amazon has recently obtained a patent on a system designed to ship goods to the customers before they have even decided to buy it – predictive despatch. This is a strong indicator that their confidence in reliable predictive analytics is increasing.

An important factor to consider when looking at Amazon is how commercial its big data is, compared to those of other companies that deal with data on a comparable scale. Unlike, others like Face book, that has knowledge on the interests of the customers, say, the movies they like or who one's friends are – the vast majority of Amazon's data on customers relates to how they spend hard cash.

And having worked out how to use big data to seek more sales and thereby increasing their revenue, it is now setting out on a mission to help other global corporations do the same – by making that data, as well as its own tools for analyzing it, available to buy.

Amazon Revenue Growth Rate

This means that, as with Google, experts have started to see adverts driven by Amazon's platform and based on its



data appearing on other sites over the past few years. As noted by MIT Technology Review post 2009, this makes the company now a head-on competitor to Google – with both online giants fighting for a chunk of marketers' budgets.

However, ad sales is not the only arena in which Amazon is taking on Google – its Amazon Web Services offers cloud-based

computing and big data analysis on an enterprise scale. This allows companies which need to run highly processor-intensive procedures to rent the computing time far more cheaply than setting up their own data processing centres – just like Google's Big Query. These services include data warehousing (Red shift), hosted Hadoop solution (Elastic Map Reduce), S3 – the database service it uses to run its own physical warehousing operations and Glacier, an archival service. Recently added to this list is Kinesis, which is a real-time "stream processing" service, designed to aid analysis of high volume, real-time data streams.

Amazon has also incorporated big data analysis into its customer service operations. Its purchase of shoe retailer Zappos is often cited as a key element in this. Since its founding, Zappos had earned a fantastic reputation for its customer service and was often held up as a world leader in this respect. Much of this was due to their sophisticated relationship management systems which made extensive use of their own customer data. These procedures were melded together with Amazon's own, following the 2009 acquisition.

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CONCLUSION

Big data is not an end in itself. Used wisely, it allows creating a highly informed and effective marketing organization that can outflank one's competitors and make more relevant customers. Marketing data will continue to expand exponentially as more media is measured – via impressions, clicks, visits and social actions – and smart marketers must start to think about how they will leverage this data. Amazon has grown far beyond its original inception as an online bookshop, and much of this is due to its enthusiastic adoption of big data principles. It looks set to continue breaking new ground in this field, for the foreseeable future.

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