

BIG DATA ANALYTICS: A WAY TO BIG COMMERCE

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Abstract : There has been an increasing stress on knowledge analysis in e-commerce in the recent years. However, it remains poorly-understood as a result of which it's practical and theoretical development is at a halt. This paper explores analysis of huge amounts of customer and retailer data in e-commerce by drawing on a scientific review of the literature. The paper presents an associative and informative framework that explores the definitional aspects, distinctive characteristics, types, business price and benefits of BDA within the e-commerce landscape. This paper additionally triggers broader discussions concerning future analysis challenges and opportunities in theory and observation. Overall, the findings of the study synthesize various BDA ideas (e.g., definition of Big Data, it's nature, business intelligence and other relevant theories) that give deeper insights on the cross-cutting analytics applications in e-commerce.

IndexTerms - Big Data, E-Commerce, Customer Service, Big Data Analytics

I. INTRODUCTION

Understanding shopper's behaviour is crucial for success in business. Big data is a fundamental element of the process that provides information on trends, spikes in demands and customer preferences. Retailers can use this data to make sure that most popular products are available and advertised. If customers visit a certain website to search for some products, which unfortunately may not be available, then big data is how the retailer will learn about those searches, helping him/her to seize new opportunities while illuminating important behaviours and patterns, such as popular shopping times and spikes in product searches. More retailers are fine-tuning their marketing strategies, social media advertising and intuitive shopping processes to continue boosting sales and engagement in a competitive market. Understanding one's customers is important, but what's even more important is making it easy for them to contact your business, resolve issues or find answers to their questions. Big data provides the metrics needed to see how quickly customers can complete these tasks because 91% of unhappy customers will not willingly do business with a company if they've had a poor customer service experience. Focusing on customer service is essential to the success of all e-commerce businesses. Big Data also offer ways to track customer service experiences and add predictive monitoring which will help online companies identify potential problems and resolve them before a customer even gets involved.

Big data combines the different payment functions into one centralized platform. Not only does it ease the use of the services for customers, but also helps in reducing risks associated with fraud. The advanced analytics that are used in big data processing are powerful and intuitive enough to discover fraud in real time and provide proactive solutions for identified risks immediately. It can detect money laundering schemes that appear as legitimate transactions. Payment providers gain from monetizing merchant analytics which can help different retailers understand their customers better. Data analysis of big data allows e-commerce businesses to cross sell and up sell. Customer data can be effectively validated by using push notifications. This helps the customers to avoid scams.

Big data makes portability possible, especially when it comes to e-commerce. It helps retailers to make businesses scalable in nature, thus, providing flexibility to both business owners and customers as well. Brands collect data from multiple sources and analyse customers through mobile technology. Many search engines like Google have started giving preference to sites that are mobile friendly and responsive.

Companies who do not have mobile friendly websites will see a sharp decline in traffic to their websites. Also, big data can be connected with virtual reality technologies which enhance their effectiveness. Combination of big data with virtual reality is revolutionizing the e-commerce world. They offer the tools needed for retailers to more efficiently present their brand, advertise and offer an evolving shopping experience for customers – right from the comfort of their homes. Virtual reality can analyse big data and change actions based on its findings, often without the help of a human.

E-commerce businesses are one of the fastest groups that make use of big data analytics due to their need to stay on top of their game (Koirala 2012). Retailers deal with both structured and unstructured data. Structured data is a form of demographic data which includes name, age, gender, date of birth, address, and preferences, whereas, unstructured data includes clicks, likes, links, tweets, voices, upvotes, downvotes etc. In the big data analytics (BDA) environment, the challenge is to deal with both types of data in order to generate meaningful insights to increase conversions. Schroeck et al. (2012) found that the definition of big data

included various dimensions like greater scope of information; new kinds of data and analysis; real-time information; non-traditional forms of media data; new technology-driven data; a large volume of data; the trendy words; and social media data. As defined by Gantz and Reinsel (2012), big data focuses on three main characteristics: the data itself, the analytics of the data, and the presentation of the results of the analysis that creates business value in terms of new products or added services. Big data is defined in terms of five Vs: volume, velocity, variety, veracity, and value (White, 2012).

II. LITERATURE SURVEY

Big data is used in many areas of e-commerce including marketing, human resources management, production and operation, and finance (Agarwal and Weill 2012; Davenport et al. 2012). In e-commerce, a large amount of customer-related information is available simply when customers ‘sign in’: this data is of great interest to business decision makers. Davenport (2006) indicated that BDA refers to the quantitative analysis of big data with a view to making business decisions with the help of mechanisms such as statistical analysis and the use of an explanatory and predicting model, Bose (2009, p.156) described BDA as the “group of tools” used to extract, interpret information as well as predict the outcomes of decisions.

Table .1. Big data and their distinctive characteristics in the e-commerce environment

Voluminous	Large amounts of data that consume a massive storage may consist of huge number of records in form of tables etc.	Thirty billion pieces of content are shared every month on Facebook. (Manyika et al. 2011)
Variety	Data is generated from different sources having a variety of formats and types which may contain multidimensional data fields too.	Credit card companies use website click-stream data and other data formats from call centre operations to customize offers (Davenport and Patil 2012)
Velocity	Speed and frequency of data generation and delivery.	Amazon manages a constant flow of new products, suppliers, customers, and promotions without compromising on its promised delivery dates
Veracity	Generating authenticated and relevant data with the capability of screening out bad data. (Beulke 2011)	eBay Inc. developed an internal website (a data hub) that enabled managers to filter data replication.

There are many types of big data such as transaction or business related data which is structured data from retail transactions, customer profiles, distribution frequency and volume, product consumption and service usage, along with nature of customer complaints, click-stream data which is data from the web, social media content, online advertisements (tweets, blogs, Facebook wall postings, etc.), then video data from stores which use sophisticated image-analysis software linked to their video-surveillance cameras to track in-store traffic patterns and consumer behavior, and voice data from phone calls, call centers, customer service etc.

III. NEEDS AND OPPORTUNITIES

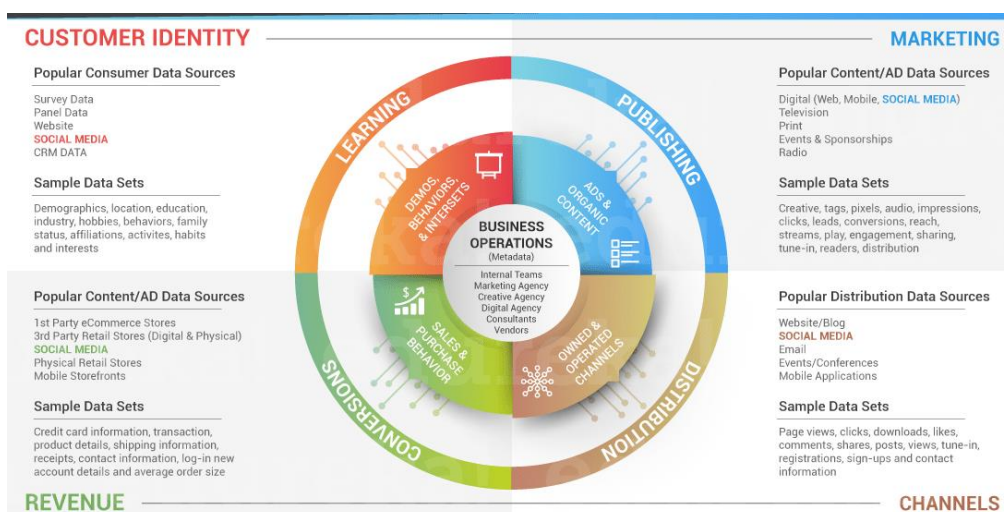


Fig.2. The Needs and Opportunities of Big Data Analytics in E-Commerce []

IV. ADVANTAGES OF USING BIG DATA IN E-COMMERCE

1. Drop-ship Something More Treasured :

Amazon uses advanced tools to persistently adjust the assess. This retailer can compare assess data from challenger and automatically adjust the cost of its own products and the price of some of the things changes more than ten times a day. With the right policy and web platforms it's easy. The vital cost means that companies can no longer compete by simply offering the lowest price. There is now more than ever a real need to offer something more than its worth, which means retailers must develop a good status and become the go-to option.

2. Stimulate Smart Utility :

Have you seen portals like Amazon shifting cost for a product or spotlight some products more in contrast to the other in the same set? This is because Big Data allows these businesses to collect information coupled to fellow behavior to deliberately use them to display consequences. With these vital cost updates, retailers focus to make more responsive contribution noticing the task levels, demographic movements and preference matrix, all sourced by real-time user data.

3. Manufacturing Accurate Forecast :

User data based on taste and desire help businesses to predict future trends and estimate upcoming request better. This allows them to pre-estimate and sort it for stock and strategy for the presentation resources, merchandising project and sales drives in advance. This further allows businesses to finer arrangement with provisioner and sellers and make the supply chain mechanism work in their goodwill and to that, most companies are not just tracing customer performance on their sites but also peeping through different social channels to get a comprehensive picture based on more revealing and assertive communication and reactions

4. Supply Fellow with a Quality Experience

Internet users are not surely comfortable about retailers knowing about their private lives, but the genuineness is that big data will refine the experience of the shoppers so that they can believe on retailers. Big data is an example which is being used by CNA and other companies to look for feasible duplicity and safeguard the identity of shopper. Credit card duplicity can be prevented in real time. thanks to the data which is collected from live transactions data and social feeds.mThe fact that a retailer knows some confidential details about your life can seem odd, but big data is favorable for companies and shoppers. Retailers can no longer focus on competing on prices alone. Since they have the tools mandatory for creating more satisfying personalized and flawless experience for shoppers.

V. CONCLUSION

Big data analytics delivers abundant promises for facilitating business insights by inspecting the customer response, but not without it's one unique provocation. According to research, the massive barrier to big data analytics are staffing and training, followed by privacy constraints. Majority of customers are distressed about how their personal identifiable information is used. Privacy expert believe that Big Data analytics is contravention on privacy of us daily lives. Despite these challenges a lot of companies are working to adopt big data in their e-commerce strategies. According to Mckinsey in (Manyika et al., 2011), majority of the top five business organizations in the USA claim to capitulate immense growth. Hence, by observing the promises of big data analytics that it holds for e-commerce, there is a need to teach mandatory skills and construct a quality governance framework for big data analytics.

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