BIG DATA IN E – COMMERCE ANALYTICS: AN OVERVIEW.

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Abstract

Big data sizes are constantly increasing, currently ranging from a few dozen tera-bytes (TB) to many petabytes (PB) of data in a single data set. Consequently, some of the difficulties related to big data include capture, storage, search, sharing, analytics, and visualizing. Today, enterprises are exploring large volumes of highly detailed data so as to discover facts they didn't know before. Analytics based on large data samples reveals and leverages business change. However, the larger the set of data, the more difficult it becomes to manage. Naturally, business benefit can commonly be derived from analyzing larger and more complex data sets that require real time or near-real time capabilities; however, this leads to a need for new data architectures, analytical methods, and tools.

Keywords – Big Data, E commerce, Data Analytics **.**

INTRODUCTION

Big Data

We are entering the era of Big Data—a term that refers to the explosion of available information. Such a Big Data movement is driven by the fact that massive amounts of very high-dimensional or unstructured data are continuously produced and stored with much cheaper cost than they used to be. Big data basically means big sets of data which is fathered and then analyzed with the help of Machine learning technology in order to get an accurate decision for the business.

There has been an increasing emphasis on big data analytics (BDA) in e-commerce in recent years. However, it remains poorly-explored as a concept, which obstructs its theoretical and practical development. In the past few years, an explosion of interest in big data has occurred from both academia and the e-commerce industry (Nada Elgendy and Ahmed Elragal, 2014).

This explosion is driven by the fact that e-commerce firms that inject big data analytics (BDA) into their value chain experience 5–6% higher productivity than their competitors. A recent study by BSA Software Alliance in the United States (USA) indicates that BDA contributes to 10% or more of the growth for 56% of firms. Therefore, 91% of Fortune 1000 companies are investing in BDA projects, an 85% increase from the previous year. While the use of emerging internet-based technologies provides e-commerce firms with transformative benefits (e.g., real-time customer service, dynamic pricing, personalized offers or improved interaction) , BDA can further solidify these impacts by enabling informed decisions based on critical insights. Specifically, in the e-

commerce context, "big data enables merchants to track each user's behavior and connect the dots to determine the most effective ways to convert one-time customers into repeat buyers"). Big data analytics (BDA) enables e-commerce firms to use data more efficiently, drive a higher conversion rate, improve decision making and empower customers. From the perspective of transaction cost theory in e-commerce, BDA can benefit online firms by improving market transaction cost efficiency (e.g., buyer-seller interaction online),managerial transaction cost efficiency (e.g., process efficiency- recommendation algorithms by Amazon) and time cost efficiency (e.g., searching, bargaining and after sale monitoring). Drawing on the resource-based view (RBV) (Bhattacherjee, 2001).

Big data is a big buzzword when it comes to modern business management. It refers to extremely large data sets that may be analyzed to reveal patterns and trends in human behavior.

With people producing an estimated 1.7MB of new information per second, it is expected that our accumulated digital universe of data will grow from 4.4 zettabytes to 44 zettabytes (or 44 trillion gigabytes) by 2020. (Cohen *et al.*, 2009)

e-commerce Analytics?

E-commerce (electronic commerce) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer or consumer-to-business. The terms e-commerce and e-business are often used interchangeably. The term e-tail is also sometimes used in reference to the transactional processes for online shopping.

The beginnings of e-commerce can be traced to the 1960s, when businesses started using Electronic Data Interchange (EDI) to share business documents with other companies. In 1979, the American National Standards Institute developed ASC X12 as a universal standard for businesses to share documents through electronic networks (Fosso Wamba *et al.*, 2015).

Data growth has undergone a renaissance, influenced primarily by ever cheaper computing power and the ubiquity of the internet. This has led to a paradigm shift in the E-commerce sector; as data is no longer seen as the byproduct of their business activities, but as their biggest asset providing: key insights to the needs of their customers, predicting trends in customer's behavior, democratizing of advertisement to suits consumers varied taste, as well as providing a performance metric to assess the effectiveness in meeting customers' needs.

The term itself somehow is giving its introduction as this is the analysis of big shopping data. The analysis of big shopping data is really helpful in order to make a healthy relationship with your customers as well as to enhance the service for its customers. You can get the information regarding eCommerce analytics through various online case studies that are available on the internet easily. (Birnik and Bowman, 2007).

BDA also used to predict market trends, and competitor analysis and to perform customer targeted market. As mentioned in the challenges part in based on the result from the BDA it will change the existing organizational culture for business improvement.

E-commerce has helped businesses establish a wider market presence by providing cheaper and more efficient distribution channels for their products or services. For example, the mass retailer Target has supplemented its brick-and-mortar presence with an online store that lets customers purchase everything from clothes to coffeemakers to toothpaste to action figures (Setia *et al.*, 2013).

By contrast, Amazon launched its business with an e-commerce-based model of online sales and product delivery. Not to be outdone, individual sellers have increasingly engaged in e-commerce transactions via their own personal websites. Finally, digital marketplaces such as eBay or Etsy serve as exchanges where multitudes of buyers and sellers come together to conduct business (Adams,2010).

Application of big data analytics for E-Commerce functions

Personalization

Big data analytics facilitates providing customers with personalized service or customized products It offers customized content and promotions for specific segments. A personalization can increase sales by 10 % or more and provide five to eight times the ROI on marketing expenditures.

Dynamic Pricing

In order to attract new customers, E-Commerce companies must be vigilant and vibrant while setting competitive price for the products. E-Commerce firms need to actively influence the customer to buy at their site, which involves setting a competitive price. Dynamic pricing is required as majority of products compete on price offered with other sites.

Enhanced Customer Service

 Online retailers can use Big Data to provide an exceptional customer service experience. Providing excellent customer service can lead firms to achieve competitive advantage, even though the product or service is in the higher price segment.

Predictive Analytics to predict customer behaviour

Predictive analytics refers to the identification of events before they take place through the use of big data. Big Data can enable you to predict product demand, consumer behaviour patterns & supply chain mechanics. With the use of big data it will be possible to predict future sales revenues, based on the combination of past sales data and predicted customer‟ preferences (Song and Kusiak, 2010).

Fraud Detection and handling

 Big Data can help aid in detecting fraudulent activities. If fraud is detected in real-time, it leads to a speedier resolution. When fraud detection pattern is combined with Big Data powered real-time detection, the system gathers the required intelligence to detect & negate fraudulent practices. Having right IT infrastructure E-Commerce firms can analyze data at an aggregated level to identify fraud. In addition, E-Commerce firms are

able to identify fraud in real time by combining transaction data with customer purchase history, web logs, social feed, and geospatial location data from Smartphone apps (Kang,2003).

Supply Chain Visibility

In the current market scenario, the service to track your goods ordered online while the goods are still in shipment has become the standard. Customers expect specific supply chain information, such as the exact availability, status and location of their orders (Avinas and Akarsha, 2017).

CONCLUSION

Applying Big Data analytics has emerged as the new innovation and new method of the e-commerce landscape. Applying Big Data analytics increasingly provide positive value to customers by using dynamic, processes, and technologies to analyze data to customize consumers' need. Leading e-commerce applying Big Data analytics such as Google, eBay, Amazon, Taobao, and others have already applied and gained much business value. However, applying Big Data analytics also brings some negative issues to customers' responses. E-vendors can optimize the advantages of applying BDA but do not inclined to over reliance on BDA in order to avoid negative aspects. Validating checks with their real case would make suitable and effective marketing strategies.

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