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GLOBAL SALES DATA ANALYTICS

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ABSTRACT

In recent years, there has been an increasing emphasis on big data analysis (BDA) in e-commerce. However, as a concept, it remains little explored, which hinders its theoretical and practical development. This position paper examines BDA in e-commerce based on a systematic literature review. The paper presents an interpretive framework that explores the definitional aspects, characteristics, types, business value and challenges of BDA in an e-commerce environment. The paper also triggers broader discussions about future research challenges and opportunities in theory and practice. Overall, the conclusions of the study synthesize various BDA concepts (e.g., big data definition, types, nature, business value, and relevant theory) to provide a deeper insight into cross-sectional analytics applications in e-commerce.

INTRODUCTION

In the past few years, an explosion of interest in big data has occurred from both academia and the e-commerce industry. 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. Big data analytics (BDA) enables e-commerce firms to use data more efficiently, drive a higher conversion rate, improve decision making and empower customers. As such, the extant literature identifies BDA as the platform for “growth of employment, increased productivity, and increased consumer surplus”. Due to the high impact in e-commerce, notably in generating business value, BDA has recently become the focus of academic and industry investigation.

The aims of this paper are:

- To identify definitional perspectives of big data analytics
- To distinguish the characteristics of big data within e-commerce
- To explore the types of big data within e-commerce
- To illustrate the business value of big data in e-commerce
- To provide guidelines for tackling the challenges of big data application within ecommerce.

DISTINCTIVE CHARACTERISTICS IN

GLOBAL SALES DATA

The e-commerce landscape today is bubbling up with numerous big data that are being used to solve business problems. According to Kauffman et al., the use of big data is skyrocketing in e-commerce “due [to] the social networking, the internet, mobile telephony and all kinds of new technologies that create and capture data”. With the help of cost-effective storage and processing capacity, and cutting-edge analytical tools, big data now enable ecommerce firms to reduce costs and generate benefits without any difficulty. However, analytics that capture big data is different from traditional data in many respects. Specifically, owing to the elements of their unique nature, big data can be easily distinguished from the traditional form of data used in analytics. The next module discusses these elements in turn, along with their implications for e-commerce.

Voluminous - These mass quantities of data that ecommerce firms are trying to harness to improve their decision-making process are defined as voluminous.

Variety - The word ‘variety’ denotes the fact that big data originate from numerous sources which can be structured, semi-structured or unstructured.

Velocity -Velocity refers to the frequency of data generation and/or the frequency of data delivery.

ELEMENTS USED IN GLOBAL

DATA ANALYTICS

BUSINESS ACTIVITY DATA

Business activity data evolve as a result of exchanges between the customer and company over time. These data are structured in nature and originate from many sources ranging from customer relationship programs.

DYNAMIC PRICING

In today's extremely competitive market environment, customers are considered 'king'. Therefore, to attract new customers, e-commerce firms must be active and vibrant while setting a competitive price. Amazon.com's dynamic pricing system monitors competing prices and alerts Amazon every 15 seconds, which has resulted in a 35% increase in all sales.

CUSTOMER SERVICE

Another key area in which e-commerce firms can use big data is customer service. Customer grievances communicated by means of contact forms in online stores together with tweeting enable e-commerce firms to make customers feel valued when they call the service center resulting in prompt service delivery

SUPPLY CHAIN VISIBILITY

When customers place an order on an online platform, it is logical for them to expect that companies would provide the service of tracking the order while the goods are still in transit. Kopp (2013) explained that customers expect key

information, such as the exact availability, current status, and location of their orders.

PREDICTIVE ANALYTICS

Predictive analytics refers to the identification of events before they take place through the use of big data. Predictive analytics helps firms to prepare their revenue budgets. The preparation of these budgets assists ecommerce firms to recognize future sales patterns from past sales data. E-commerce firms increasingly extract business value from BDA insights either to solve business problems or make decisions. This new development in the realm of data driven e-commerce triggers development of new theories in the context of tangible (e.g., productivity improvement) and intangible (e.g., strategic business understanding) business value using people, process and technology. Therefore, predictive analytics helps firms to prepare their revenue budgets. The preparation of these budgets assists e-commerce firms to recognize future sales patterns from past sales data (e.g., yearly or quarterly). This, in turn, helps firms to better forecast and determine inventory requirements, thus leading to the avoidance of product stockouts and lost customers.

DISCUSSION AND RESEARCH

While the use of big data tends to add value for business throughout the entire value chain, there are a few challenges that organizations should confront and resolve before pay-offs from big data will flow into their business. Indeed, any innovative way of performing jobs always brings challenges: big data is no exception to this reality. Many researchers have argued that, while big data have great potential to improve business performance/add value, decision makers need to address various business challenges in order to reap the benefits. The current study highlights some of these challenges with theoretical and practical implications, thus laying the ground for potential research on BDA in the e-commerce landscape.

One of the biggest challenges in the big data environment is that it does not give clear direction on how to reach business targets by aligning with the existing organizational culture and capabilities. In this regard, it has been highlighted that the key challenge for managers is to make big data trustworthy and understandable to frontline employees, with the example that frontline employees are typically reluctant to use big data as they either did not trust a big data-based model or did not have the capabilities to understand how it worked. Therefore, in the process of gaining greater acceptance by employees and other end-users, managers should present big data in an understandable format such as through a dashboard, reports or a visualization system. Indeed, an innovative capability always leads toward sustained long-term advantages and superior firm performance through the characteristics of rarity, appropriability, non-reproducibility, and non-substitutability.

CONCLUSION

Big data analytics (BDA) has emerged as the new frontier of innovation and competition in the wide spectrum of the e-commerce landscape due to the challenges and opportunities created by the information revolution. Big data analytics (BDA) increasingly provides value to e-commerce firms by using the dynamics of people, processes, and technologies to transform data into insights for robust decision making and solutions to business problems. This is a holistic process which deals with data, sources, skills, and systems in order to create a competitive advantage. Leading e-commerce firms such as Google, Amazon, and Facebook have already embraced BDA and experienced enormous growth. The BDA application will maximize business value through facilitating the pervasive usage and speedy delivery of insights across organizations.

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