

LITERATURE SURVEY

EFFECTS OF PROS AND CONS OF APPLYING BIG DATA ANALYTICS TO CONSUMERS RESPONSES IN AN E-COMMERCE CONTEXT

ABSTRACT

The era of Big Data analytics has begun in most industries within developed countries.

This new analytics tool has raised motivation for experts and researchers to study its impacts to

business values and challenges. However, studies which help to understand customers' views and

their behavior towards the applications of Big Data analytics are lacking. This research aims to explore

and determine the pros and cons of applying Big Data analytics that affects customers' responses

in an e-commerce environment. Data analyses were conducted in a sample of 273 respondents

from Vietnam. The findings found that information search, recommendation system, dynamic

pricing, and customer services had significant positive effects on customers' response

KEY WORD

e-commerce

Big Data analytics

positive and negative factors

customers' responses

INTRODUCTION

With increasing advancement of Internet technology, increasing amounts of data are streaming into contemporary organizations. Data are getting bigger and more complicated due to the continuous generation of data from many devices and sources such as mobile phones, personal computers, government records, healthcare records, and social media. An International Data Cooperation report estimated that the world would generate 1.8 zettabytes of data (1.8×10^{21} bytes) by 2011 [1]. By 2020, this figure will grow up to over 35 zettabytes. The Big Data era has arrived. Why are researchers and practitioners interested in understanding the impacts of Big Data analytics?

One of the most conspicuous examples of Big Data for health care is Google Flu Trend (GFT). In 2009, Google used Big Data to analyze and predict trends in influenza, a spread of H1N1 flu virus. The trend which Google has drawn from the search keywords related to the H1N1 has been proven to be very close to the results from flu independent warning system Sentinel GP and Health Statistics launched. The GFT program was designed to provide real-time monitoring of flu cases around the world based on Google searches that match terms for flu related activity

Each industry moves a step closer to understanding the world of Big Data from how it is being applied in solving problems. Most industries are still estimating whether there is value in implementing big data, while some other industries have already applied Big Data analytics. Applications of Big Data were shown in top ten industries such as banking and securities, communications, media and entertainment, healthcare providers, healthcare providers, education, manufacturing and natural resources, government, insurance, retail and wholesale trade, transportation, energy and utilities

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

Big Data and Its Characteristics

Big Data is a collection of massive and complex datasets and data volume that includes huge quantities of data, data management capabilities, social media analytics, and real-time data. Big Data can come from structured and unstructured data with five V as distinct characteristics (Volume, Velocity, Value, Variety and Veracity) [12].

While customers can tell what they think, researchers can tell what the customers actually

e. Data on actual consumer behavior and experiences are now available to be measured and analyzed. Big Data analytics was used and developed in order to understand more of the customer's behavior. However, using big data in doing business especially e-commerce has advantages and disadvantage as well

POSITIVE FACTOR OF APPLYING BIG DATA ANALYTICS

Positive factor of applying Big Data analytics application includes offering information search, recommendation system, dynamic pricing and customer service to interact with the community member. By collecting different data in Big Data era such as geographic distribution, emotional tendencies, customer behavior on shopping as well as social connection, hobbies, companies can achieve demand orientation preference orientation, relationship orientation, and other ways to satisfy customer

HYPOTHESIS

Positive factor of applying Big Data analytics is positively associated with customers' responses

INFORMATION SEARCH

Emotionally driven consumers are easy to induce their purchase desire and demand by network information. The speed and convenience of gathering online information is one of the perceived values for customers when they shop online. A website using Big Data analytics tool can filter and browse a large number of data to customer information. Text miner technology is used to solve within the web and text search and note the relevance of history with libraries, catalogs, and coincidences.

RECOMMENDATION SYSTEM

Recommendation systems are operated by famous sites such as Amazon, eBay, Netflix, Monster, and other Retail stores where everything is recommended. This involves a relationship between e-vendors and buyers whereby the buyers provide their information such as hobbies and preferences, while the e-vendors offer a recommendation fitting their needs, thus benefiting both. Details are given on basic principles behind recommendation systems

NEGATIVE FACTOR OF APPLYING BIG DATA ANALYTICS

Besides the benefits of applying BDA bringing customer values, applying BDA may give customers some negative effects. Detailed descriptions are presented in the following subsections

PRIVACY AND DATA SECURITY

The privacy of Big Data is another huge concern and one that increases in the context of Big Data.

Due to the distinctive characteristics of Big Data in the e-commerce environment, it can relate to privacy and security concern. The high volume and concentration of data makes a more appealing target for hackers. Additionally, higher data volume increases the probability that the data files and documents may contain inherently valuable and sensitive information. Data for the purpose of Big Data analytics are thus a potential goldmine for cyber criminals [33].

RESEARCH METHODOLOGY

. Data Collection Procedure

The study was conducted in the computer center of Thai Nguyen University, Vietnam for the

purpose of understanding the research and minimizing interference during the survey participation.

The respondents were asked to navigate to the Amazon website (www.amazon.com) which is one

of the famous websites using Big Data analytics application. This action is required to be performed

at least two times on computer, going through the procedure of buying one of two products on the

website, but not actually purchasing the item.

Measurement

The questionnaire used in this research was designed according to related literature, creating new

measurement, and survey users' and experts' opinions. After a draft was completed, a pilot test was

performed on experts and users familiar with e-commerce in order to ensure the content validity of the

survey.

LIMITATION AND FUTURE RESEARCH

The limitation and future research of this study are mainly in three points. First, the sample of this study is limited in potential customers, so future studies may include samples from a diverse demographic population. We further recognized that sample respondents were Vietnamese and would be a limitation to the study. However, the contribution of this study is worthy and applicable for developing countries such as Vietnam. Further studies may take a cross-culture comparison between different countries. Secondly, the present study used user's views of their response as a dependent variable. Even though users' view is frequently used as a surrogate measure of behavior, it does not accurately predict actual buying situation. Thus, the results found in the present study should be understood and practiced with caution.

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Conflicts of interest

The authors declare no conflict of interest.