

A Survey in The Application of Big Data Analytics in Web Personalization concerning E-commerce

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Abstract—This document will explore the different approaches, challenges, ethical concerns and overall consumer safety regarding web personalization by using big data analytics (BDA). Additionally, the perspective will reflect the consumer and business side of using Big Data Analytics.

Keywords

Big Data Analytics, E-commerce, Web Personalization

I. INTRODUCTION

The rise of E-commerce has shifted the typical approach businesses communicate with their consumers. In the past businesses conducted market research, surveys and business plans to ensure a secure and appropriate approach before entering a new area. This process can be slow, expensive and could potentially not be rewarding. E-commerce however, will virtually let a business reach to millions and millions of consumers around the world but, nevertheless consumers still crave a personal touch when shopping. Thus, an explosive interest in big data has occurred in recent years. 91% of fortune 1000 companies are investing in BDA projects [1]. Businesses utilize use BDA to predict consumer behavior and tailor a unique experience by using structured data such as name, age, address and gender. Occasionally, businesses will also rely on unstructured data consisting of likes, tweets and comments [1]. There are of course those who do not feel comfortable letting a company predict their behavior and let alone be capable of deciphering their unique taste.

This has created a paradox amongst the consumers and businesses. The data collected 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 [2]. Nonetheless, companies are aware of the impact of letting criminals make their way with this sensitive data. Thus, companies have also relied on different techniques in BDA to predict fraudulent activity and security breaches. Some of these examples have been rule based system modules, machine learning fraud detection and decision tree to name a few [3]. In contrast, consumers also can understand themselves under BDA. In the past business assumed that all consumers were always rational in their purchases, so they will always purchase the product which brings the higher satisfaction. Presently, after a financial crisis that spread all over the world led consumers to think twice before buying a product. Consumers were buying less products meaning their behavior tend towards a defensive one [2]. At its current stage BDA in E-commerce is constantly evolving to ensure safety, tailored experience and plenty of options to satisfy their needs.

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