Marketing and psychological analysis based on big data perspective

Yixuan Li

School of International Education, Hebei University of Technology, Tianjin, 300132, China

Huiyatonghe@gmail.com

Abstract. In the contemporary world, as technology keeps advancing, there exists a trend that big data is becoming increasingly prevalent. Under the current circumstance, the influence of big data can be easily found in various aspects, thus, leading the public to a more convenient and efficient society. There is a rising number of firms and universities that utilize such techniques in the process of monitoring. This paper draws particular attention to the advantages and challenges of big data in the perspective of marketing regarding data regulatory transparency and market sales together with the psychology of consumers and undergraduates so as to stress the importance and drawbacks of big data by reviewing prevenient studies. This research has concluded that big data reveal its benefits and shortcomings from the perspective of marketing, and transparency control could be a very useful point to build customers' trust in the future. Also, consumers' and college students' psychology also require big data and also the control after using them.

Keywords: Big Data, Marketing, Psychology, Transparency.

1. Introduction

Big data, as the name suggests, means the amount of data involved is so large that it cannot simply be captured, managed, processed or organized in a reasonable amount of time through mainstream software tools in order to help make more precise decisions. There exist three criteria called three V's when considering big data: volume, velocity and variety. While in this day and age, more and more data has been used in marketing and psychology to enhance the accuracy of product push and even regulation. Though it might seem that there exists a great amount of benefits when it comes to the utilization of big data, some researchers argue that there are still challenges emerging and there is still a lot of research needs to be done with respect to data transparency [1]. Such contradiction will be discussed in the subsequent sections of the paper.

The purpose of the paper is to analyse the achievements and obstacles that big data has encountered. Since marketing and psychology are two essential factors that individuals can hardly avoid in their daily lives, and thus, the insights the paper will build on particularly focus on the inevitable parts of society. In this paper, the importance of big data and challenges of applying it in marketing has been discussed, like how it will affect the principles and behaviors of the market and regulation. Moreover, psychological relating issues have been researched concerning consumers and college students. The paper summarizes the key matters now face and the reasons behind them, which illustrates how and why unjustified

regulations have been made due to the lack of trust between regulators and those who are being regulated. This paper can help more companies able to figure out the gaps between transparency and privacy management.

2. Marketing in the age of big data

2.1. Advantages of big data in marketing application

Marketing refers to activities an enterprise undertakes to promote the buying or selling of a product or service. The process itself includes advertising, selling, and delivering products to consumers or other businesses. Some marketing is done by subsidiaries on behalf of the whole company [2]. Applying big data in marketing has been an inevitable trend since several years ago accompanied by the growth of the Internet. Under the current circumstances, the skill is already booming. The approach that uses big data as a tool to discover the preferences of potential customers is called precision marketing. According to Xukai Liang and Zhengchang Wen, precision marketing can optimize customer relationships, and improve the praise rate [3]. Companies are able to adapt and adopt online commodities and the shopping demands of a visitor to expand the scale of potential buyers. Meanwhile, companies can gather the personal information of the user group and design new functions and products to satisfy the diverse needs of the actual customers. Another crucial advantage is that predicts the shopping needs of consumers. In the era of big data, enterprises will analyse consumers' demands according to the web pages they browse and the articles they read. According to a recent study based on the investigation of 446 WeChat Moments users, consumers' advertisement click-through intention rose as the result of employing a higher extent of product involvement, brand familiarity, visual attractiveness and information quality to them [4]. Thus, it can be seen that altering the push content on the basis of users' potential feedback and clicks via precise marketing methods can greatly improve the accuracy of advertisement delivery.

2.2. Challenges of applying big data to marketing application

Though it may seem that big data benefits marketing a lot, people can not ignore the downside of the usage of big data. Technology is a double-edged sword, after all. The following sections under this heading will discuss the problems that marketing now faces in the two aspects: consumers' data privacy and marketing management respectively.

2.2.1. Challenges to the consumers' data privacy. In the big data paradigm, those conventional privacy agreements and clauses may not seem to be that useful, as the searching data and browsed pages are being collected and used in an unprecedented way. It is unimaginable how the privacy of consumers and users is being breached and even shared without being noticed by individuals. Such unethical behaviors' eventual goal is usually targeting and tracking customers and are allowed by advances in applying big data for uncovering previous personal data [5]. European Data Protection Supervisor put forward an argument that the fundamental rights to privacy and to the protection of personal private data have become more and more essential for the conservation of human dignity than ever before [6]. Human dignity is closely related to privacy and it is inviolable for human beings. However, the acquisition of consumers' preferences and personal information has teetered on the edge of the violation and even stepped into the invasion part sometimes. Big data makes the tracking of users' browsing history and online movement easier and less expensive to obtain and analyze.

Since the user group of the Internet is quite massive, big data has posed a great threat to this large amount of people. A person's online habits can easily reveal aspects of his or her personality, such as whether he or she is extroverted and the daily habits of an individual. It is not hard to imagine that the same information could be very easily used against people [7]. It is true that some advanced software components do not treat privacy seriously when using big data and its storage. Since the field is developing incredibly rapid and it is almost invisible in actual daily life, banning or controlling by applying current laws and regulations might seem unrealistic when it comes to the use of big data and

personal detailed information. One of the most applicable solutions might be showing transparency, as it can raise consumers' awareness of privacy and security when purchasing items online at the same time. Online firms especially, are responsible for minutely explaining the security control and how the data will be managed and protected.

2.2.2. Challenges for marketing management. Similar things happen in terms of marketing management. The superabundant blowout of data and information might not be such a good thing. Due to the fact that the approach used to deal with and analyse them. It is indeed convenient for companies or sellers to figure out the predilection of consumers. Nevertheless, there are hidden problems behind these foreseeable curtains. For instance, some, or a lot of data being collected are nothing more than useless information without reference value. Any misuse of these data will lead to unimaginable consequences. One of the main factors is that the current development of big data technology is not mature enough to track and acquire dynamic user data [8]. This will easily cause the deficiency of effective data to state the exact or relevant fields that the users really adored because the data can change all the time. Once it is changed, the results of the previous analysis have to be modified as well. Some kinds of data do not have that much value to be stored in the database, such as the browsing page history and sections the cursor or mouse stayed. These values are less useful as they change all the time.

Another troublesome issue is that the matching degree of advertising content is not that appropriate or unbefitting for users. The proliferation of advertisements has been a great trouble for cellphone users. In normal daily lives, every time open an application or a website, there are almost always advertisements waiting ahead. This greatly reduces the satisfaction and experience of users and will cause a soar of audience rejection from them. Big data is not the only bridge that connects users and merchants, but also research. Proper delivery of data that meets the targeted user group's requirement is the most significant thing that companies need to keep in mind. When an advertisement diverges from the pragmatic commodity the consumer wants, the effectiveness of these pushes will dramatically decrease because of the discomfort of the users when they have to tolerate some sections that block their screens.

3. Psychological analysis in the age of big data

3.1. Analysis of consumer psychology in the era of big data
Psychology in this day and age has been strengthening its importance to all people. Hence, it is essential to understand consumer psychology when shopkeepers trying to promote their sales. As it is suggested in a research done by CAIHUA Z. and TONGXIN T., consumers' trust in the commercial functions of social media has risen in the big data era [9]. This is true to some extent since pioneering business models have appeared via social media. One of the main reasons for this is that users nowadays are actually approving such format and their state of mind is being opened gradually. As it is discussed in the foregoing section, precision marketing has to be accurate enough to attract consumers. Thus, human-centric turns out to be a good way to accomplish the goal, which means combining the prediction of consumers' psychological traits (variability across consumers) and their psychological states (variability within consumers over time) [10]. Such a method analyze unique condition one at a time in order to offer more niche choices. As a result, consumers' personalized needs have been taken care of and processed, creating a bidirectional effect for both companies and consumers.

3.2. Analysis of college students' psychology in the era of big data
As for college students, with the exposure to information explosion, they tend to face much more pressure coming from many directions. Some severe ones may even cause suicide. The knowledge acquired from big data technology will create an illusory veil to deceive youngsters and make them feel that they do know the actual world remarkably well. In this case, students from universities are in an awkward position: their maturity and intellect are not enough to support them to handle the social situations and problems that happened or to achieve their dreams. Such kind of imbalance in capability

is one of the root causes of their alienation and depression. Some researchers argue that big data can be used as a means of healing the mind, however, their suggestions lack actual instructions and guidance, which is why the progressive technologies regarding psychology are hard to put to use in real life[11]. In this case, universities share the responsibility of their strengths to cooperate and spare effort to conquer the mental problems of their own students. This kind of combination will naturally produce a win-win result.

4. Conclusion

In view of the contemporary big data era, the paper focused on the benefits big data brings to the public in the aspect of marketing and its challenging points. Also, the paper discusses the psychological concerns and some measures to take to settle these issues. The answers to these concerning points could be ultimately attributed to the correct use of big data when gathering personal information and storing it. Companies need to take care of the consumers' personal information and universities should work together to help solve the psychological problems of their in-school learners. This paper could improve the remedies relating to the issues discussed in the previous sections, adding more statistics of research to render the conclusions to be more convictive. In the future, researchers could pay more attention to users' privacy and approach to this main matter when utilizing newly developed techniques like big data. After all, the information era has already arrived and private details need to be more concerned.

References

[1]   DIAKOPOULOS, N., 2016. Accountability in algorithmic decision making. Communications of the ACM. 59(2), pp. 56–62. https://doi.org/ 10.1145/2844110.

[2]   TWIN, A., 2023. Marketing in Business: Strategies and Types Explained. Investopedia. https://www.investopedia.com/terms/m/ marketing.asp

[3]   XUKAI, L. & ZHENGCHANG, W., 2023. Research on network marketing strategy based on big data precision marketing. Modern Business Magazine. https://www.xdsyzzs.com/shichangyingxiao/7906.html

[4]   CHUANPENG, Y., ZHENGANG, Z., CHUNPEI, L. & YENCHUN, J., W. 2020. Can data-driven precision marketing promote user ad clicks? Evidence from advertising in WeChat moments. Industrial Marketing Management. https://doi.org/10.1016/j.indmarman.2019.05.001.

[5]   BORMIDA, M. D., 2021. The Big Data World: Benefits, Threats and Ethical Challenges. Ethical Issues in Covert, Security and Surveillance Research. Emerald Publishing Limited..https://doi.org/10.1108/s2398-601820210000008007

[6]   European Data Protection Supervisor, Opinion 4/2015. 2015. Towards a new digital ethics. Data, dignity and technology. https://edps.europa.eu/sites/edp/files/publication/15-09-11_data_ethics_en.pdf

[7]   RYOO, J., 2016. Big data security problems threaten consumers' privacy. The Conversation. https://theconversation.com/big-data -security-problems-threaten-consumers-privacy-54798

[8]   TING, S., 2020. Based on the analysis of the problems existing in the accurate delivery of Internet advertising under the background of big data. FX361.com. https://www.fx361.com/page/2020/0816/6956984.shtml

[9]   CAIHUA, Z., TONGXIN, T., 2020. The Impact of Big Data Analysis on Consumer Behavior. Journal of Physics Conference Series. 1544(1). https://doi.org/10.1088/1742-6596/1544/1/012165

[10] MATZ, S. C., NETZER, O., 2017. Using Big Data as a window into consumers' psychology. Current Opinion in Behavioral Sciences. 18, pp. 7-12. https://doi.org/10.1016/j.cobeha.2017.05.009

[11] XIAO, L., 2022. Analysis of College Students' Psychological Education Management in Public Emergencies Based on Big Data. Journal of Environmental and Public Health. 2022(2), pp 1-10. 10.1155/2022/2654437