



Study on the Current Situation of Big Data Ethics Deficiency and Governance Countermeasures

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Abstract. In the rapid development of information technology, the importance of big data in production and life is increasing, but the ethical problems arising from it are also increasing, and it has become a hot spot of academic research at home and abroad.

This paper summarizes the current situation of the lack of ethical research on big data in the field of economics and management by combing the relevant literature at home and abroad, aiming to draw more attention and deeper thinking from the academic community to the ethical issues of big data in the field of economics and management in the information age, in order to effectively regulate the ethical issues arising from the practice of digitization, and to normalize the road to the normative development of data.

Keywords: big data ethics; deficiencies; governance

1 Introduction

As an extremely important strategic resource in the 21st century, big data is being developed, mined and utilized with unprecedented strength and breadth, and has become the new embodiment of the comprehensive national power of all countries and the high point of competition. The United States launched the "Big Data Research and Development Program" as early as 2012, marking the formal establishment of the U.S. national strategy for big data. China's "13th Five-Year Plan" clearly puts forward the "implementation of the national big data strategy, and promote the sharing and opening of data resources", formally upgrading big data as a national strategy. The big data system is huge and complex, and the key technologies of big data processing mainly include big data collection, big data pre-processing, big data storage and management, big data analysis and mining, big data presentation and application^[1]. While big data has completely reinvented our way of life and brought great business value and life convenience to human beings, it has also given rise to new big data ethical issues such as "big data kills maturity" and "personal privacy data exposure", "information bombing", "targeted placement", "human flesh retrieval", etc^[2]. These issues are like the twin brothers of big data, which have had a huge impact on people's social life, way of thinking,

behavior and awareness, as well as the way of understanding the world. and the way of understanding the world has had a huge negative impact on people's social life, way of thinking, behavioral awareness and the way of understanding the world. As we can see, big data is like a double-edged sword, bringing benefits to individuals, society and the country, but also generating ethical issues such as data privacy, data security, data pollution, data alienation and data divide.

Big data ethics refers to the ethical guidelines that should be followed in the process of activities such as the collection, management, utilization and dissemination of big data information. Since the ethical governance of big data is a cross-cutting issue involving multiple fields and disciplines, such as big data, business ethics, law, business management, sociology, etc., the problem is difficult to solve and requires the joint participation and efforts of stakeholders such as enterprises, governments, customers and vendors.

The current research on the governance of big data ethical issues mainly analyzes the possible forms from the theoretical level, and also proposes to govern from the perspective of government regulation, industry self-regulation, and netizen literacy, but all of them share a common problem, that is, there is a big gap between the proposed measures and the specific management practices of enterprises, which is on the one hand, a strong theoretical appeal; on the other hand, it is the reality that the enterprises or industries are concerned about these ethical issues. The lack of endogenous motivation to solve them^[3] indicates that the existing studies have not explored how to enhance the attention and concern of enterprises on big data ethical issues from the actual management decisions within the enterprises. In the face of fierce market competition, enterprises are often in the middle of the trade-off between the dual logic of economic value and social value, and in order to survive, they will try every possible means to adopt various competitive strategies to maximize the development and use of big data to maximize economic benefits, thus ignoring its ethical issues, which brings a serious and realistic challenge to its governance.

Since big data is characterized by rapid iterative innovation and constant self-adaptation, the ethical risks involved will also emerge with the development of technology, so it is difficult to rely entirely on external forces, including the government and consumers, to impose constraints, which are also a kind of after-the-fact control with high costs. In contrast, the internal self-control of enterprises belongs to ex ante control, which should be a more effective way for big data ethical issues. Therefore, how to guide enterprises to pay attention to the ethical issues of big data, pay attention to the use and development of big data, and deeply embed the relevant ethical guidelines of big data into the whole process of the formulation and implementation of enterprise competition strategy has become an important issue that needs to be solved urgently.

2 Defining the ethical failures of big data

The current definition of ethical deficiencies in big data is mainly developed from the perspective of its manifestations, which are mainly reflected in the following three aspects: (1) leakage of users' personal privacy: due to the powerful functions of big data

such as fidelity recording, permanent preservation, and restorative portrait at any time and any place, the privacy information of individuals' identities, behaviors, locations, and even beliefs, perceptions, emotions, and social relations may be recorded, preserved, and presented, and the problem of information exposure will form a huge problem. Once these data can not be properly preserved, it will form a huge information exposure problem; (2) Information security problem: existing big data is difficult to ensure that the data generated by individuals, including actively generated and passively left behind, its deletion right, storage right, right to use, right to know and other security that should belong to the individual's autonomous right style, can be fully guaranteed^[4]. Some information technologies have inherent security vulnerabilities that can lead to problems such as data leakage, forgery and distortion, thus affecting information security. In addition, the misconduct and misguidance in the use of big data, such as the rights and responsibilities in the use of big data, the social responsibility of related information products, and high-tech criminal activities, are also ethical issues derived from information security issues; (3) The growing data divide: some subjects are able to better possess and utilize the big data resources, while others have difficulty in possessing and utilizing them, which creates a data divide. The data divide will create the problem of unfair distribution of information dividend, aggravating group differences and social conflicts^[5].

It can be seen that the current understanding of big data itself is still relatively limited, and the research on the manifestations of ethical deficiencies in big data is also relatively narrow and superficial, still mainly staying in the front-end of big data, including the collection and storage, without in-depth analysis from the whole process of the use and development of big data, for example, whether some algorithmic development violates the principle of fairness; and whether the final presentation of the data leads to teenagers' addiction, and so on. Therefore, the research on the ethical issues of big data should be more systematic, matching the rapid turnover and development of big data, and constantly discovering new ethical issues.

3 Causes of ethical failures in big data

Existing research mainly analyzes the causes of big data ethical problems from four aspects, namely, the characteristics of big data itself, enterprise cognition, industry norms, and external regulation: firstly, from the level of the characteristics of big data itself, some scholars believe that big data itself has a negative effect^[6], and it will block the character of some subjects in the process of comprehensive digitization of all kinds of subjects, which will lead to cognitive bias and the formation of "technological alienation". The formation of "technological alienation". As the basis of big data, the inherent characteristics of the Internet determines the anonymity and freedom of users, people can vent their pressure and emotions in cyberspace, but do not have to worry about being exposed in real life, while the emergence of a variety of social media platforms is to allow people to talk to each other and increase the opportunity to vent, which objectively creates the ethical problems of big data, called the "subject identity mutation". "mutation of subject identity"^[7]. In addition, the low ethical quality of individual

users also contributes to the misuse of big data, which may be used to infringe on people's privacy and security, such as human flesh search and other behaviors.

However, there are also scholars who disagree with this, arguing that big data itself is neutral, not good or bad, and especially ethically neutral, emphasizing that it is the use of subject factors that is the root cause ^[8]. The emergence of ethical problems of big data is mainly caused by the subject factor, which is a bias in the process of human use. It can be seen that since big data is not yet mature and is still in the stage of explosive development, it is inevitable that there are various risks as a result, which is closely related to the characteristics of big data itself and its current stage of development, which also indicates that ethical research on big data needs to pay close attention to the progress of big data itself, and its ethical guidelines may also have some uniqueness.

Secondly, at the level of enterprise perception, existing research firstly focuses on the data inequity problem that may exist for enterprises as the owners of big data ^[9]. Due to technical and other hard reasons, big data is usually only in the hands of a few enterprises and organizations such as the government, which leads to "data dictatorship" or "data monopoly" over the general public and creates a "data divide"; secondly, enterprises are overly pursuing commercial interests in the process of using big data. "Secondly, in the process of utilizing big data, enterprises excessively pursue commercial profits at and disregard the interests of others in the pursuit of profits ^[10]. Big data enterprises often take advantage of legal loopholes to pursue profits in their own interests, ignoring the data rights of ordinary people ^[11-12]. The conflict of interests is the deep root of the ethical problems of big data. In the process of using big data, organizations and users at different levels aim to maximize their own interests, which may infringe on the interests of other stakeholders ^[13]. All of these studies indicate that it is the serious lack of corporate cognition, market competition pressure, and monopoly position that are the subjective causes of the ethical problems of big data. Therefore, in-depth qualitative and quantitative studies within enterprises are needed to dissect the specific formation process and determinants.

Again from the industry big data ethics level. Big data ethical norms are not uniform and sound, the collection, storage, management and use of big data have not yet formed a set of perfect and unified ethical guidelines within the big data industry, so big data enterprises often identify personal privacy, information security and user rights according to their own standards, and the existence of such multiple standards will inevitably generate conflicts and raise ethical issues, making big data behavior in a state of dereliction without norms to base on ^[14]. Therefore, the ambiguity and imperfection of the ethical code of big data has become an urgent problem that needs to be solved, which is also the direction of the development of big data ethics research.

Finally, from the external government and social regulation level. Most scholars in China look at the social background of the emergence of big data ethical issues from a macro perspective, starting with the current unsound legal mechanism and ineffective regulation of big data, including the lack of clarity of the regulatory responsible institutions, the lack of strict regulatory measures and the low level of punishment ^[15]. At the same time, as an emerging technology, the security loopholes of big data itself, and its rapid development can easily lead to the lag of the law, which greatly increases the difficulty of supervision and makes it impossible to implement the relevant laws. In

addition, the lack of social supervision mechanism is also one of the reasons for the ethical problems of big data. Due to the rapid development of big data and its applications, no corresponding social supervision mechanism has been established, the behavior of big data enterprises lack of third-party supervision, and social utilitarianism prevails. Under the prevalence of utilitarianism, people are keen to discuss the commercial value of big data, but lack of exploration of the humanistic spirit embedded in big data, which also objectively contributes to the ethical problems of big data and ignores the potential negative effects of big data.

4 Research on governance responses to the lack of ethics in big data

In view of the reasons for the emergence of big data ethical issues, there are some existing ideas and suggestions for governance, which mainly include: improving information security and reducing the risk of privacy leakage through the upgrading and improvement of big data itself^[16]; training employees of enterprises in big data privacy ethics; advocating the industry's self-regulatory mechanism and establishing a social supervision model through the establishment of third-party regulatory bodies such as ethics committees; improving the cyber literacy of citizens, and educating netizens about big data ethics. education on big data ethics^[17].

The current research on the lack of governance of big data ethics is still in the theoretical stage, and the proposed governance methods have not been studied in depth in terms of practicability and operability, and have not been based on the current cognitive level and actual situation of various stakeholders, which is an important reason for the serious disconnect between the current theoretical research and practice. Therefore, it will be a good research trend to study the governance of ethical deficiencies in big data from the perspective of different stakeholders, such as enterprises, users, and the government, so as to promote the theoretical research and better realize the combination of theory and practice, and in the future, we can pay attention to issues related to the ethics of big data from the following aspects.

First, improve the conceptual system of big data ethics. The conceptual system of big data ethics is the logical starting point, and moreover the theoretical basis, for the study of big data ethics and its governance. However, existing research exists without clearly distinguishing the relationship between big data ethics and information ethics, computer ethics and other concepts, which makes it difficult to form a comprehensive cognitive system of big data ethics^[18]. In addition, the specific division and definition of the constituent dimensions of big data ethics are not clear, which to a certain extent hinders the comprehensive identification of the potential problems of big data ethics and affects the deepening of the application of big data. Thus, future research should focus on improving the conceptual system of big data ethics as the basis for establishing theories related to big data ethics and analyzing big data ethical issues^[19].

Second, build a model of big data ethical issues based on practice. Many existing literatures are more theoretical, but corresponding to the business enterprise circle that should be practicing big data ethical norms, these theoretical researches have limited

influence and have not sunk into every link and process of production practice^[20]. Existing studies have the following shortcomings: insufficient analysis of other ethical issues in big data applications; lack of analysis of specific performance scenarios of data ethical issues in big data applications. The big data ethical issues in each link of big data application in different scenarios will produce differences. Thus, future research can summarize the different scenarios of big data application links and construct a scenario-based model of big data ethical issues. The basic elements and characteristics of different big data application scenarios can be condensed, and a data ethics model can be built on this basis to dig deeper into the root causes of big data ethical problems in order to carry out the governance of big data ethical problems.

Third, to build a governance system for big data ethical issues. The research on the governance of big data ethical issues mainly involves the internal industry level and the external government and society. However, the current governance of big data ethical issues is not comprehensive enough, such as the establishment of a big data ethical assessment mechanism, the establishment of a big data ethical review organization, and the setting of big data ethical standards can be an effective governance of big data ethical issues. In addition, the existing governance of big data ethical issues is slightly decentralized and insufficiently systematic, which is not conducive to the adoption and implementation by relevant subjects. Therefore, future research should focus on the construction of a governance system for big data ethical issues, so as to facilitate the subjects in the application of big data to practice the governance measures for big data ethical issues in a targeted manner. To this end, future research can consider constructing a governance system for big data ethical issues from different subjects (government, organizations, society, and the public), different links (the life cycle of big data applications), different perspectives (legal, technological, and cultural, etc.), and different levels (principles, standards, policies/guidelines, and laws/systems/mechanisms), so as to provide all-around guidance for the governance of ethical issues related to big data.

Fourth, improve research methods. Big data technology has contributed to the rise of data-intensive scientific research paradigm, which can reasonably introduce big data quantitative research methods to advance the academic application of big data technology in big data ethics research. The digitization of human social activities has created conditions for the formation and application of big data methods, but most of the current research on big data ethics is still mainly qualitative research, and future research can combine quantitative methods in data science and big data technology, reasonably collect and utilize ethically relevant data from the subjects of interest in big data, and scientifically analyze big data ethical issues through quantitative research methods of big data.

The ethics of big data is an open topic, and its development is also a dynamic process. The relevant research is still in the development stage, and there are still many topics to be deepened and researched. In the foreseeable future, with the deepening digitization of the business sector, the field of big data ethics will continue to broaden and the degree of research will deepen.

5 Conclusion

As big data continues to shape the digital economy and redefine economic and social systems, its ethical implications have become a critical issue of concern in the field of economics and management. This study reviewed the current research landscape on big data ethics deficiencies, summarized the main manifestations of ethical failures—including data misuse, privacy infringement, algorithmic discrimination, and transparency deficits—and analyzed their underlying causes such as legal loopholes, weak corporate accountability, and insufficient ethical awareness.

The findings suggest that effective governance of big data ethics requires a multi-dimensional approach. This includes strengthening regulatory frameworks, enhancing corporate data responsibility, improving algorithmic transparency, and fostering ethical awareness across stakeholders. Moreover, interdisciplinary collaboration and international dialogue are essential to building a more robust ethical governance system that balances innovation with social justice and public trust.

Moving forward, addressing big data ethics should not be treated as an auxiliary concern, but rather as a fundamental component of sustainable digital development. Only through proactive governance can we ensure that the power of big data serves the public good while minimizing its potential harms.

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