

# Research on Information Ethics in The Era of Big Data

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## Abstract

**In the era of big data, information ethics has also ushered in greater challenges. Through the analysis of practical examples, we can find the main dilemmas existing in information ethics in the big data era, which involve the abuse of personal information privacy, personal information pollution can not be contained, personal value loss is widespread, and personal information inequality continues to expand. By analyzing the root of the problem, it can be found that the information ethics problem will directly cause the loss of human rights and the polarization of illusion and reality, which not only affects the information security of the public but also is not conducive to the healthy development of human society and cyberspace. In order to solve the ethical dilemma in the virtual era, we must bravely carry out in-depth research and find innovative ideas. We need to constantly improve the ethics of big data to ensure that the development, use and governance of big data are in line with the principle of public good.**

## Keywords

**Big data era, Information ethics, The problem, governance.**

## 1. INTRODUCTION

The wide application and popularization of big data technology play a key role in promoting social progress and development. However, the popularity of this technology has also brought huge security risks and given rise to a series of new social-ethical issues, thus having a profound impact on people's production and life, and having a huge impact on the values of society as a whole. Based on the realistic situation, we need to be careful about the impact that the application of big data has had on human society and may have in the future. Research on information ethics in the era of big data helps us to view the development of big data technology in a more comprehensive and rational way, and explore ways to solve the drawbacks of big data technology, so as to make it better for the harmonious development of society.

## 2. MAJOR DILEMMAS OF INFORMATION ETHICS IN THE ERA OF BIG DATA

### 2.1. Information privacy want only infringed

In the era of big data, the world has become completely transparent. By analyzing simple data and implementing complex calculations, users' privacy can be disclosed[1], intentionally or not. With the continuous development of big data technology, a large amount of personal and private information, such as social media activities, health records and search history, is widely collected, analyzed and predicted through data mining technology, so that more private details of users are known, which infringes on the privacy of users' information. For example, a smart speaker manufacturer collects users' voice commands and conversation records to improve voice recognition and personalized recommendation services. However, these private conversation records have been misused, leading to infringements of users' privacy. In the era of big data, it can be said that people are living under "data surveillance" 24/7, and the modern democratic foundation of public space has disappeared under "data tyranny".[2]

## 2.2. Information pollution continues to persist

In order to gain a competitive advantage, the owners of some information resources may conduct "special" treatment on network information, resulting in different degrees of "pollution" of the original network information resources. Generally speaking, information pollution refers to the mixing of harmful, misleading or useless information elements in information activities, which has a negative impact on the information ecosystem. It mainly has the following manifestations: First, false information. Affected by many factors, information may lose its authenticity and credibility in the process of production and dissemination, resulting in the falsification of information content. For example, a social media platform has a large number of fake accounts and misleading advertisements, which make users mistakenly believe that the false information is real. Such situations are similar to "fake news" incidents, which are essentially acts of fabricating and spreading false and false information. The spread of such false information not only misleads consumers, but also poses an immeasurable threat to their life and property safety. Secondly, there is information overload. Information overload refers to the fact that in modern society, people are confronted with more information than they can process and absorb effectively. When people are faced with a large number of information sources, including the Internet, social media, news media, etc., the information rushes into their daily life and work in a rapid and complex form. This means that people face difficulties in obtaining, screening and using information. Too much information can lead to problems such as distraction, difficulty making decisions, increased cognitive load and reduced value of information. People often feel stressed and confused, unable to effectively process and utilize large amounts of information resources.; And finally, informational harassment. Informational harassment refers to the behavior of individuals or organizations that send large amounts of useless or unwanted information to others through electronic channels, causing interference and distress to the recipient. These messages are usually in the form of unsolicited advertising, spam, promotional messages, nuisance calls, text messages, etc. The purpose of message harassment is often to promote products, services or to touch on personal privacy, and is usually done in a frequent, voluminous manner. Such behavior not only disturbs the individual's daily life and work but also wastes time and energy. Information harassment can also pose a threat to an individual's mental health and personal safety. For example, scams or emails can lead to personal financial loss or personal identity theft, with immeasurable adverse effects on the user's experience of quality information resources.

## 2.3. Value loss is widespread

In the face of the impact of big data technology and information explosion, the value loss problem of individuals or social groups causing confusion or loss of direction for their own values and core principles is becoming more and more prominent. First, multiple values are rampant. The openness of information space entitles agents to conduct information behavior in it as virtual identities. However, under the cover of virtual identity, due to the differences in cultural backgrounds, ideas and values of different subjects, the collision of multiple values in virtual information space is more intense and may produce unpredictable communication impact, which further leads to the confusion of people's value pursuit and the lack of clear direction. The impact of such chaos is not only the confusion and perplexity at the individual level, but also involves the disintegration and reconstruction of social consensus. In the vast arena of information space, people often fall into the boundary ambiguity of ideology and the relativism of values, and it is difficult to determine the correct moral code and code of conduct. Therefore, we urgently need to deeply think and reflect on this phenomenon, in order to find a way to rebuild the order and re-establish the value orientation, so as to guide people to pursue and shape their own values more clearly and meaningfully in the information space. Second, people's dependence on information leads to information dissimilation. In information

alienation, affected by interference factors such as tampering, manipulation and misdirection of information, information cannot be truly and accurately conveyed and understood, resulting in misleading, confusing and false effects. The essence of information is distorted, resulting in a contradictory and unequal relationship between producers and consumers of information. The advent of the era of big data further intensifies the problem of information alienation. A large amount of data and information is pouring into people's lives, which has a profound impact on individuals and society. It is difficult for people to stay away from the information, and the ability of individual independent thinking and judgment is gradually lost. Information alienation makes people lose their own control and subjectivity, and become passive receivers and slaves of information. For example, many people rely too much on interactive ways such as likes, comments and sharing on social media, and constantly chase virtual social honors in order to obtain others' recognition and attention. They will spend a lot of time and energy in the online world, while neglecting real-life interpersonal and social interactions. This kind of over-infatuation with social media makes individuals gradually lose their ability to think and judge independently, and become slaves to information.

#### **2.4. Information inequality continues to expand**

Information injustice refers to the unequal allocation, possession and use of information resources by different information subjects, leading to more inequalities such as information hegemony and information monopoly [3]. As one of the core issues of ethics research, justice has always been the basic value pursued by human beings since ancient times. In the era of big data, it is necessary for information ethics to ensure that people can share and use information resources fairly and equally, and resolutely oppose the monopoly and exclusivity of information resources. However, with the rapid development of big data technology and the wide application of artificial intelligence devices, the problem of information injustice is expanding day by day, and there is a serious conflict with the ethical norms of justice and equality. On an international scale, the problem stems from the information asymmetry caused by the huge differences between developed and developing countries in the degree of informatization and economic strength. From the domestic perspective, the information imbalance caused by unbalanced and inadequate regional development is the embodiment of information injustice. The information gap is one of the prominent manifestations of information injustice. Hu Angang believes that the "information gap is also an economic gap, which is the development and continuation of economic inequality and wealth gap in the information age" [4]. At present, Chinese society is in a new stage of development, but the imbalance and inequity in the allocation of information resources caused by the imbalance of economic development still exist. There are still significant gaps in economic development between the eastern and western regions, between urban and rural areas, and between coastal and inland areas, especially in the coverage and penetration rate of digital infrastructure and network resources. This has led to the problem of widening information inequality.

### **3. THE CAUSES OF INFORMATION ETHICS DILEMMA IN THE ERA OF BIG DATA**

The value position of technology is not neutral, because the impact of technology has measurable benefits at the ethical level. However, the evaluation of such benefits depends on the individual's conscious awareness of the ethical consequences, which is then determined by his or her ideas. People's awareness of the moral and ethical issues of technology application plays an important role in evaluating the benefits of technology. Therefore, the judgment of technology value is not only the characteristics of technology itself, but also involves the choice of people's own ethical consciousness and value concepts.

### 3.1. The source of subject

The rebellion of value rationality refers to the value judgment and evaluation of the behavior by the actor, and the rationality of the behavior from the perspective of specific value concepts, including social fairness, justice, loyalty and honor. The rebellion of value rationality is manifested as the rejection of moral value rules and the abuse of individual rights and freedoms. The rebellion of value rationality in the environment of big data is mainly reflected in three aspects. First, the agent rejects the value standard. In the big data environment, individuals can gain unprecedented freedom brought about by technological advances, use virtual digital identities to express emotions in the online world and pursue pleasure in the data space. However, due to the constraints of relevant values, individuals' desires are limited, which leads to the rebellion and rejection of these values by actors, and ultimately leads to the gradual decline of value rationality in big data environment. Secondly, the actors have insufficient awareness of privacy and risk. Actors are keen to share digital identity information involving personal privacy on the Internet, but they do not realize that it may be collected by enterprises and have an impact on normal life, which is like planting a "time bomb" around them. In addition, when the privacy of actors is violated, they often do not know how to judge whether they have been infringed or not and how to protect their legitimate rights and interests, and lack vigilance and awareness of self-privacy protection. Finally, the moral quality of the actors is low. In reality, individualism, hedonism and extreme utilitarians tend to ignore value norms and bring bad behaviors into virtual networks, resulting in "white pollution" caused by the abuse of big data. If left unchecked, privacy violations will continue and lead to violations of laws and regulations.

### 3.2. Objective causes

Technical rationality plays an important role in modern industrial civilization. As an activity system of purpose rationality, it promotes the progress of human society. However, with the continuous development and alienation of science and technology, technical rationality has also become a restricting force, which has brought many ethical challenges. Big data technology is in its development stage, and its future development trend is uncertain. The publicity of technical rationality is the objective cause of big data ethical problems. First of all, the diversity and complexity of big data information enrich people's vision, but the lack of adequate supervision and identification procedures leads to confusion of the information environment, reduces people's ability to control information, and makes them become slaves to information. Secondly, the difference in big data technology itself leads to "data dictatorship" and "data gap" in the data field. In addition, people's over-reliance on big data leads to "data-only", ignoring the nature of things and causing ethical problems. Big data is a "double-edged sword", which facilitates people's life and production, but is also used by criminals, leading to privacy disclosure and wealth pursuit. Therefore, we need to strengthen the supervision and identification of big data, and improve the reliability and standardization of data sources. At the same time, we need to avoid "data dictatorship" and "data gap" and guard against the impact of "data-only". In this way, it will promote the potential of big data, promote social progress and ensure its ethically sustainable development.

### 3.3. The social environment

As an emerging product of the development of Internet technology, big data is in a stage of vigorous development. However, the traditional legal system and ethical norms applicable to Internet technology have been unable to fully adapt to the needs of the era of big data. This leads to legal anomie and ethical lag, which further magnifies the alienating consequences of big data. The main reason lies in the lag and imperfection of legal systems and mechanisms, which provides soil for the emergence of new ethical problems. First of all, at present, for problems in the field of big data, the law can only carry out remedial work after the fact. At the same time,

there is a vague boundary between law and ethics, which makes it difficult to identify the responsibility after the occurrence of big data problems, leading to difficulties. The lack of a legal system makes the actors lack constraints, which undermines social justice and moral norms. In addition, the imperfect social supervision mechanism is also an important factor. Due to the rapid rise of big data, the social supervision mechanism has not been established and improved in a timely manner, and there are problems such as unclear supervision responsibilities, imperfect systems and insufficient punishment. This indirectly leads to the lack of effective supervision of big data actors, which in turn leads to ethical problems. The lag and non-uniformity of ethical norms is an important issue. In the face of the problem of data alienation caused by big data, there is no unified and perfect ethical principle yet, and it is difficult for existing ethical norms to get timely legal support, so it is difficult to promote ethical norms. Due to the openness and sharing of information in the era of big data, there are differences in the international community on big data ethics and moral norms, and no consensus has been reached on unified norms. This will trigger more social conflicts and lead to the emergence of new ethical issues. As Tang Kailin points out, big data behavior is currently in a state of "anomia", and "the imperfection of moral principles... Leaving big data behavior in a state of anomie that has no normative basis "[5].

## **4. ETHICAL REGULATION OF INFORMATION ISSUES IN THE ERA OF BIG DATA**

### **4.1. The core of ethical regulation: rights and obligations**

Good governance means that the measures taken by the governing body should be able to achieve the administrative ethical goals, or at least the correct means conducive to achieving the administrative ethical goals. Ethics is the study of reasoning and rational activities in pursuit of some kind of good. The good pursued by practice, production, and study is concrete, and good artistic activity achieves this good, that is, ethical virtue, so that man can obtain practical good. As an ethical virtue, public goodness can make the social governance realize the good, and has a dominant role in dealing with the relationship between the good of ends and the good of means. Data controllers, processors and subjects have rights and obligations, and the correct handling of rights and obligations in the big data dilemma is the core of ethical regulation. On the one hand, the right to privacy is a right enjoyed by citizens and protected by law, and users have the right to privacy. As the data controller, the protection system should be established from the perspective of personality. As citizens, they should not only pay attention to the exercise of their own rights, but also be aware of the possible impact of their actions on others and society. Citizens should take the initiative to fulfill their duties and responsibilities, including: abiding by the value code in cyberspace; citizens should understand and abide by the moral, legal and normative code in cyberspace; respecting the rights and privacy of others; and promoting order and harmony in cyberspace; Enhance the awareness of personal privacy and risk awareness, citizens should strengthen the awareness of personal privacy protection, pay attention to the security and privacy of personal information, but also to understand the network risk, and take appropriate measures to protect their own security; To contribute to the realization of public good, citizens should not only pay attention to their personal rights and interests, but also actively participate in social and public affairs, and contribute to the development and progress of society, so as to realize public good and common interests. In big data governance, data controllers should promptly limit behaviors that may have a negative impact on society and others in order to safeguard public interests and social order. At the same time, the governing body should also take into account the interests of the minority and ensure equality and justice of citizens' rights. In addition, strengthening the construction of related hardware and software, such as privacy protection technology and security measures, can help

realize the public good of data governance and ensure that individual rights and the interests of society as a whole are balanced and protected. On the other hand, in the era of big data, the government, as one of the big data subjects, not only enjoys the rights, but also shoulders the corresponding obligations, that is, to protect the rights of users (data subjects). Governments use big data technology to improve administrative efficiency and scientific decision-making, while avoiding putting data in the supreme position. The main body of governance should adhere to the principle that "public power comes from the people and should also be used for the people", respect citizens' rights, and achieve efficient decision-making based on information transparency. When citizens' rights are controlled, restricted or infringed upon by big data, governance subjects should first undertake the obligation to grant data subjects control and autonomy, and provide users with channels for data control and autonomous decision-making. Therefore, in order to deal with the value rebellion behavior of citizens, we need to strengthen the moral education of big data ethics. This includes the following aspects: raising awareness of privacy protection: educating individuals and society on the importance of privacy protection, emphasizing the respect and protection of personal privacy, so that people understand that privacy is one of the basic human rights; Emphasizing freedom of expression and individual autonomy: advocating and respecting everyone's freedom of expression and autonomy, and ensuring that individuals can freely express their opinions and choices in the big data environment; Promoting the fair distribution of data resources: emphasizing the fair distribution and use of data resources, preventing abuse and unequal access to data, and ensuring the public interest and social well-being of data resources; Emphasize the importance of technology ethics: educate individuals and society to understand and understand technology ethics, guide people to follow moral principles in technology application, and serve technology objects to achieve public good and social well-being. Through these moral education measures, citizens' understanding and awareness of big data ethics can be improved, and individuals can be encouraged to behave more responsibly in the big data environment, respect the privacy of others, and better balance individual rights and public interests. This will help solve big data ethics dilemmas and promote the sustainable development of big data technology and social progress.

#### **4.2. The key to data governance: the means of technical objects are good**

The realization of the public good requires us to maintain moderation and legitimacy in dealing with the relationship between ends and means. As the goal is to guide the moral content in the process of good governance, the public good takes the idea of pursuing good as the core. In the context of big data, with the emergence of technical rationality, the diversity, difference and double-edged sword effect of big data information become prominent, which provides possibilities for solving data ethics problems. However, the true realization of public good requires us to pay attention to the importance of means good, in order to properly handle and balance various interests and values, so as to establish a fair and sustainable big data governance framework. The application of big data is to achieve the overall interest and public good, and to promote social equity and human happiness. However, we must be clear that big data itself is not the ultimate goal of governance, but a means to an end and good governance. From this perspective, big data is a "means good" and "external good" to achieve public good. [6]Some big data technologies go beyond the scope of "means good", resulting in the absence of public good and weakening the rationality of big data technology. Therefore, based on the pursuit of public good, big data technology needs to realize a two-way authorization mechanism: on the one hand, data should be given to the Internet, and data technology should be used to improve data management ability; On the other hand, data should be given to users to achieve personal self-control by improving data literacy. Only in this way can the rationality of big data technology be ensured and its development be in line with the public interest. In the era of big

data, the user, as the subject of data, enjoys the right of supervision, therefore, data management must be established on the basis of the system, in accordance with laws, regulations and standards for effective and standardized management of data. By protecting data privacy and security, mining the value of data at the same time, improving the security of big data, ensuring the health and purity of the big data environment, in order to realize the free and harmonious relationship between people and technology.

#### **4.3. The protection of institutional ethics: moral responsibility**

Institutions and ethics operate in different ways in terms of norms of conduct. Institutions restrict behavior mainly through external rules and coercive force, ensure social order and the rule of law, have clear powers and responsibilities and consequences, and focus on external norms of behavior. Ethics focuses on an individual's internal moral judgment and values, emphasizes individual responsibility and conscience, guides behavior through internal moral norms, and focuses on internal norms of behavior. Although institutions and ethics function in different ways, they are both based on social consensus and have the same purpose orientation. Without an identity based on value consensus, a mutually beneficial community of interests and collective action cannot be formed. Therefore, the purpose of both institutional norms and ethical norms is to ensure the legitimacy of behavior. In the practice of a code of conduct, institution and ethics are interrelated and support each other. Moral responsibility, as the spirit of the social contract of institutional ethics, provides a double guarantee in solving the ethical problems of big data. The system provides authoritative judgment for the legitimacy of the subject's behavior, so that the moral responsibility behavior can be ruled by law, and is the final guarantee for maintaining the order of cyberspace. Ethics entrusts the system with a core of value, stimulates the moral behavior of the subject, and helps the advantages of the system to play.

At present, our country is faced with a serious challenge of big data information ethics. While making use of big data, we urgently need to discuss the possible ethical risks and make it an important topic of academic research. As Jeff Bezos has said: "Big data is not an answer, it's a tool, and we need to ask the right questions." At present, we are faced with a huge amount of data and information resources, but the key lies in how we use and interpret this data. Big data is not the ultimate solution in itself, but a tool to provide insight and guidance. Therefore, we must ask the right questions and apply big data in an intelligent way to achieve meaningful and reliable results.

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