

Research on the Dilemma Privacy Invasion based on the Human in the Data Age

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Abstract: Since entering the information age, the emergence of the Internet has greatly extended human awareness and brought about a great degree of impact and influence on the material and spiritual world of mankind. What also ensues are many ethical problems in the era of big data, such as the infringement of personal privacy, data discrimination, the gradual dissolution of human individuality, the loss of human subjective values, and the manipulation of free will, etc.. A series of problems that need to be critiqued and solved. As a practical philosophy directly pointing to the self-generation and creation of individuals, how should ethics examine the impact of this new network world on human beings in the era of big data? It has become a necessity to reflect on and criticize the question of the value of human existence in the current big data environment under new tools, new technologies and new perspectives.

Keywords: Cyber Ethics; Data Ethics; Ethics; Privacy Invasion

1. Introduction

Since the birth of the computer, the world has undergone no less a transformation than the first two industrial revolutions. The computers' arithmetic power brought by silicon-based structures has continuously improved the world's productivity, and then the Internet was like a huge iron absorber, connecting billions of individual nodes in the world to a transaction network. Once a letter, separated by two places, we may need several days to get a communication, now, in the network support, the time interval of several days collapsed into an instant, and big data is the inevitable product of the development of information network technology. The term "Big Data" was first proposed by the famous American futurist Alvin Toffler in 1980 in *The Third Wave*, who praised "Big Data is the most colorful movement in the

Third Wave." Currently, we are entering the era of network big data, which is mainly characterized by deep data mining and fusion application.

When the era of big data comes, a lot of ethical problems come along with it. The gradual dissolution of human subjectivity, the infringement of data on personal privacy, the manipulation of personal free will by data, the aggravation of data discrimination on the network, the general loss of subjective value and a series of other problems have become an emerging and necessary ethical field. In order to solve the data ethical dilemmas in the era of big data, it is necessary to analyse and deconstruct the root causes of data ethical dilemmas in a multi-dimensional and multi-level analysis. The bottom layer is the moral root, which is generated by the interaction of the person as a moral subject with others. These three layers appear to be separate, but in fact they are intertwined, and in combination they give rise to a number of data ethics issues.

2. What is Big Data

Although the era of big data has come, but for what big data is still a lot of opinions, Victor Schoenberg and Kenneth Kukier's "big data era" had the first definition of big data: "big data is not an exact concept. Initially, the concept referred to the fact that the amount of information that needed to be processed was so large that it exceeded the amount of memory that a typical computer could use for data processing, so engineers had to improve the tools used to process the data." In June 2011, the renowned American consulting firm McKinsey & Company published a research report entitled "Big Data: The Next Frontier of Innovation, Competition, and Productivity". In this report, McKinsey & Company reintroduced the concept of Big Data and announced the advent of the Big Data era.

Regarding the definition of Big Data, it literally refers to digitised information that is recorded,

stored, processed and analysed in digital form. It can be various forms of digital signals including digital text, images, sound, video and other forms of digitised information. It originates from records generated by human activity and exists in a structured or unstructured form that can be processed and analysed by computers or other digital devices. Structured data refers to data stored in tabular form, such as data in databases, data in spreadsheets, etc. Unstructured data refers to data that is not clearly formatted and organised, such as text, images, audio and video. Big data plays an important role in modern society and has a far-reaching impact on various fields, and has become an indispensable resource in modern society. As a necessary element of the means of production in modern society, the existence of big data has substantially contributed to the information revolution, from which people can extract value after analysing and processing, and thus data has been called the new coal or oil. However, there are basic differences: coal and oil are completely consumed after extracting value (energy), whereas data is not completely consumed after extracting value, but can be reused countless times without being consumed or reduced; data can be shared or sold; and data can be utilised in multiple independent, or even unknown, ways.

3. The Emergence of Data Ethics

Big data is an inevitable product of the development of Internet information technology, but also a new stage in the process of information technology. Currently, we are entering the era of big data, which is mainly characterised by the deep mining and fusion application of data. The arrival of the era of big data marks a profound revolution, data are involved in the form of production factors in the production, it is inexhaustible, and in the continuous cycle of interaction, creating incalculable value, which is the "third wave" of the development of information technology[1-3]. In the "third wave" of the development of information technology, all kinds of complex phenomena are presented in the form of an explosion of large amounts of data, which intuitively and efficiently expands the scope of human experience and greatly extends the details of all kinds of scientific cognition, and has had a significant impact on contemporary science, philosophy and life. "Science begins with data" is no longer just a simple slogan, and

its related research has become a new mode of knowledge production that reveals the laws of science. Big data is so important in our time, not only because of its expression of the modern level of science and technology to provide a lot of convenience for life, qualitatively changing the economic and cultural life of the norm, but also because "everything can be data", so that human beings over thousands of years of habitual mode of information interaction has been "modern centreless" deviation. This mode of presenting information has caused strong fluctuations in the moral world. The birth of this new logical channel undoubtedly contributes to the dynamism, relativity and objectivity of ideological identity and social norms, so that the era of big data has produced the obscuring of moral "deontology" and the failure of "consequentialism". Big Data has brought new developments to traditional science and ethics, which have led to the formation of data ethics. The emergence of data ethics stems from concerns about data privacy and security, as well as concerns about the possible negative impacts of data use. In the digital age, data is becoming easier to access, store, process and transmit, but at the same time it is facing more risks and challenges. Issues such as data leakage, misuse and improper use have caused widespread concern and worry, which has given rise to the need for data ethics.

In addition, with the continuous development and application of high technologies such as artificial intelligence, big data and the Internet of Things, the scale and complexity of data are increasing, which makes consideration of data ethics even more urgent and necessary. Data ethics arose as a response to this trend, aiming to ensure that the privacy and rights of individuals are respected in the processing and use of data, while promoting the sustainable, just and responsible use of data.

4. The Human Dilemma in the Age of Data

Big data technology is a new information technology revolution that has brought about significant changes in data collection, data storage, data management and utilisation, and thus in the way the world exists and the way people produce and live. As some scholars have said, "Just as a microscope allows us to observe the esoteric microcosm, and a telescope allows us to understand the vastness of the universe, big data technology is changing our habits and ways

of knowing the world." However, big data technology, like any other technology, is a double-edged sword that brings benefits to human society while creating more serious information ethical dilemmas.

4.1 Individual Privacy is Violated Recklessly

Using big data technology, the curtain of ignorance is lifted, the world is made transparent, and people become transparent subjects. By analysing data and implementing algorithmic operations, personal privacy may be exposed intentionally or unintentionally, and the loss of personal privacy can easily occur in the era of big data. First, the use of data surveillance violates personal privacy. In the era of big data, people live under "data surveillance" all the time, and the privacy of modern citizens in the public space is completely destroyed under the "tyranny of data". Under the comprehensive surveillance of big data, people's privacy is more and more vulnerable to invasion. In the case of "face recognition loopholes" exposed by CCTV's "3-15" gala in 2021, a number of companies collected a large amount of customer facial data through the installation of face recognition cameras without the knowledge of consumers, and analysed and compared the data to determine consumers' consumption behaviours and characteristics, which led to the destruction of their privacy. These face recognition cameras are widely used in major shopping malls, and under the guise of "monitoring", they recklessly violate consumer privacy and security, making it difficult to prevent the leakage of personal information. Second, the use of data algorithms to mine personal privacy and make use of it. With the development of big data technology, a large amount of personal data, such as health information, shopping records, travel records, etc., have been widely collected and analysed through data mining technology, which in turn can be used to learn more personal privacy information. For example, when conducting transactions and registering, individuals are required to provide private information, and some of the personal privacy such as credit card information, identity card numbers, telephone numbers, residential addresses, etc. are collected and utilised by enterprises and public institutions, and the latter, after acquiring the information, abuse the user's privacy, directly or indirectly, without obtaining the person's informed and

voluntary consent, and the occurrence of this situation is particularly prominent in the commercial field. In order to achieve precision marketing and pursue greater business benefits, companies use data technology to mine an individual's data footprint, including search content, browsing history, shopping history, and even the contents of items that were added but not purchased. By analysing data generated from a range of user behaviours such as searching, browsing and purchasing, it is possible to predict users' shopping preferences as a means of delivering filtered advertisements efficiently and accurately. Data is arbitrarily collected and used by a third party without an individual's knowledge, which directly infringes on an individual's data privacy[4-7].

4.2 Loss of Subject Value

The misuse of data after the violation of personal privacy, but also caused the loss of human subject value. Subject value theorists believe that the creation of value depends on the value of the subject, that is, depends on the person, the value belongs to the person, the value of the person lies in the realisation of the self, will create their own as a real person.

With the development of big data technology, people under the data perspective are often not regarded as complete individuals, and are no longer social beings composed of physiological signs, emotional character, knowledge and literacy, but are data beings who quantify and analyse their desires, emotions and actions. The human being gradually evolves from an autonomous and active subject to an information human being constructed by data, thus entering a state of alienation, which is called "the alienation of human being in data algorithm" in applied ethics, "treating human being as a data information node". After entering the state of alienation, human beings have become tools to cater for data, and the value of human subjectivity has been gradually lost, and the status of subjectivity has been seriously challenged. As a true and free moral subject, the individual freedom and dignity of human beings as well as their individuality are gradually being violated, and the value of being a human being has been gradually eliminated.

In the era of big data, the value of data has been paid more attention than ever before, and it is closely related to people's material world and spiritual and cultural life. People's reliance on

data has led to the alienation of data algorithms, and people as subjects have lost their mastery and control over data. In this situation, human beings gradually lose themselves, lose their personal subjectivity, and are willing to be dominated and enslaved by data. The crisis of loss of subject value has become more serious and widespread. In recent years, new media, mainly WeChat, microblogging, webcasting, short video platforms, etc., have emerged and become an important part of people's lives, and all kinds of new media platforms have their own data algorithms, which can analyse the user's usual browsing content preferences to calculate and recommend the video or content that the user is interested in, and strengthen the user's stickiness, which makes the user excessively reliant on the content of the software, and many people feel disconnected from the world once they leave the Internet. Once they leave the network, they feel cut off from the world, and their hearts are empty, confused and panicked. Another example is on the network, the openness of cyberspace allows anyone to disseminate information in an anonymous capacity, different subjects due to different cultural backgrounds, ideological concepts and values, resulting in multiple values intertwined and collision in the virtual cyberspace, leading to confusion in the pursuit of value and self-loss.

4.3 AI Face-swapping

In the era of big data, there is an increase in the use of citizens' personal information to make profits illegally. For example, the use of AI technology to tamper with the image of human faces or video characters face, resulting in the proliferation of false videos, the real world and the virtual image of the border has become blurred. The boundary between real and virtual images is becoming increasingly blurred under the impact of AI face-swapping technology, and the traditional cognitive impression of "hearing is not believing, seeing is not believing" has been shattered. Whether it is a static image or a dynamic video, it can be easily tampered with, making it more difficult to discern information and obscuring the "truth" in the eyes of the public. Faces become symbols that can be replaced, synthesised, abused and spoofed, leading to the proliferation of fake videos and highly deceptive information content, which makes it difficult for people to distinguish between the real and the virtual, and ultimately

lose themselves in the interaction between the real and the virtual.

Leakage of facial biological information, threatening personal privacy. In the digital information age, "face swiping" has become an indispensable means of electronic payment and identity authentication, and the biological information contained in the human face is more important than money or ID cards. In order to maximise the commercial value of personal data, operators are expanding their communication power and devouring people's privacy with the help of smart technologies.

At the same time, the increased ability of the public to communicate on their own, their obsession with social self-exposure, and their prying into the privacy of others are increasing the risk of privacy infringement. The protective barriers of privacy and security are gradually being dissolved, facilitating certain people to illegally steal facial biodata uploaded by users, commit video fraud, fake speeches by public figures, and incite bad emotions.

Reducing the credibility of public information and increasing the difficulty of social governance. The deep falsification of AI will weaken the public's trust in video footage, thus reducing the credibility of public information. Once this technology is used to manipulate public opinion, it will bring great risks to society and politics, and increase the difficulty of social governance.

With the advent of the big data era, the overall scale of personal information has risen exponentially, and its potential value in the economy, society and other fields has been further discovered, and the way of using personal information has also expanded from a single simple use to in-depth excavation and three-dimensional analysis, so the illegal use of citizens' personal information will produce greater harm compared with the pre-big data era, and the infringement of its legal interests is rising sharply. For example, in order to produce the aforementioned "AI face-swapping" type of obscene video, the perpetrator illegally used a huge number of photos, and through the analysis and processing of the obscene video directly on the replacement of the face, its personal information of the victim as well as the infringement of the reputation of the traditional means can not be compared, so it should be included in the scope of the criminal law system. In addition, illegal access to and illegal

provision of other people's information is only an abstract danger to the interests of the law, and the illegal use of personal information as a violation of citizens' criminal process of the destination, and finally the danger of the concrete, and therefore the infringement of the citizens more direct and serious, light to make clear the importance of the crime should be dealt with.

Secondly, the behaviour of illegal use of citizens' personal information has independence, illegal acquisition, illegal provision of behaviour and the downstream

The behaviour of illegal use of citizens' personal information is gradually typified. Although it is still impossible to define the term "illegal use" accurately and thoroughly, with the emergence of a large number of relevant cases, its behaviour has begun to be gradually typified or even stereotyped. For example, some scholars have summarised it into three forms: (1) the use of obtained identifiable personal information of citizens to commit fraud and other crimes; (2) the use of obtained identifiable personal information of citizens for commercial sales and advertising without the permission of the recipient; (3) the use of obtained private personal information of citizens to commit extortion and other criminal activities. The aforementioned use of other people's photos to produce "AI face-swapping" type of obscene video behaviour can be attributed to the first category. Therefore, through the typological interpretation of the "illegal use" of the connotation and extension of the basic clear, will be stipulated into the criminal law is not contrary to the principle of the law of crime and punishment of the substantive side of the clarity of the requirements. Fourthly, in the era of big data, it is less difficult to obtain evidence of the illegal use of citizens' personal information, and its inclusion in the scope of criminal law is in line with the requirement of cheapness.

5. Technological Roots of Ethical Data Issues

Data is first and foremost presented as a technological object. According to Heidegger "it is possible to focus many existing explanations of technology on the following two basic ideas: first, that technology is a means to an end; second, that technology is human action." The former is called the instrumental technological prescription and the latter the anthropological technological prescription. Technology as a

means to an end is dependent on action, and big data likewise emerges as a means that needs to satisfy human ends, except that this presentation carries with it many new features. The creation of data technology and its interaction with human nature presents a world of change with many paradoxical features.

According to the French sociologist Ellul, in the twentieth century the "technological phenomenon" has become the most important phenomenon in the world. The most important technological phenomenon after the middle of the 20th century is the network, the emergence of the network indicates that the society is experiencing the revolution of the digital age, and all aspects of human society are being affected by the information technology revolution represented by the network. After the network, the emergence of big data has made the digital existence of human beings possible, and the diverse and numerous data constitute the life world of people's digital existence. Negroponte even used rhetorical metaphors such as "the tsar abdicates, the individual rises" to illustrate the importance of the emergence of digital existence. However, as a modern technology, big data technology is a double-edged sword that has both good and negative effects on society.

The negative effects of big data technology are one of the technological roots of data ethics issues. Big data technology has two sides, when it promotes the development and progress of society, it also produces negative effects to society due to its inherent defects. On the one hand, big data technology has the quality of invisibility, the information actors by hiding their real identities, in an anonymous way active in the public data space, in the absence of regulation, it is easy to ignore the ethical norms of the public data space, so as to go to steal other people's data, which gives rise to personal privacy leakage and other data ethical problems. Secondly, while big data technology promotes the rapid processing of a large amount of data and information, it also increases the risk of personal privacy information being exploited, and enterprises can easily obtain users' private information and exploit or sell users' data. Thirdly, the increasing function of big data technology in screening data, which can automatically separate usable data from useless data, is used as a labelling function in the digital existence of human beings, and can label individuals with data, resulting in extremely

serious data discrimination[8].

Data-only theory is the second technical root of the data ethics problem. In the era of big data, data has risen to the height of ontology, words can be a kind of data, behaviours can also be transformed into data, and even people as subjects can become data, "everything can be transformed into a form of data", and the realization that everything can be datamaterialised is the ultimate goal of big data technology. "The material world is also a data world, and the dataisation of everything in the world has become the ultimate pursuit of big data". Therefore, the era of big data means that everything in the world can be data, big data can quantify everything, and the whole world will be presented as data information. But when the whole world is presented as data information, it means that the world is homogenised. In the whole world, thousands of things will be data, through the data to understand and transform, there is no essential difference between things, the only difference is the data complexity of the differences, which will be the result of the homogenisation of the world. This has to make us think deeply about how the subjectivity of human beings can be expressed. Human beings are also a more complex set of data in the homogenised world, and other things are no longer essentially different, which has lost the value of the human subject.

Since all things in the world, including human beings, are data, then as long as we master the overall data, we will be able to understand the world and then transform the world, which means that anyone must use data to speak. Without data, there is a lack of credibility and feasibility. If we rely too much on data, then it is inevitable to form a new kind of bias - only data theory, that is, using data to measure everything, judge everything. If data is taken as a belief, as a criterion for judging and measuring everything, then it is data-onlyism, also known as "big dataism". This is what can happen when data is used to quantify everything.

The emergence of data-onlyism goes against the original intention of the technological change of big data to quantify things and data-enable the world. The original intention of data-enabling the world was to provide us with a new perspective on reality, so as to better achieve the goal of understanding and transforming the world. However, the reality has turned out to be contrary to the initial conception eventually

going to the opposite extreme, which brings new and uncertain data ethics issues to the society. Data-only theory means that one can only ever see the quantitative differences in the material world in data, and cannot truly recognise the essential differences between thousands of things. Imagine if a government organisation, a business unit or a group of organisations, etc., makes a decision based solely on data and ignores the more essential truths behind the data, then the decision will not be for everyone, nor will it serve the essential things. By extension, it will not be possible to truly realise fairness and justice in society as a whole, and our existence will not be truly happy, nor will people be able to achieve complete self-development and freedom.

6. The Roots of Data Ethics Problems' Interests

The interest of data itself and its uneven distribution is one of the roots of data ethics problems. The occurrence of data ethics problems is not unrelated to the fact that everyone covets data benefits. Big data means huge interests, and the huge interests hidden in the data are unpredictable: firstly, the surface interests of big data are huge; secondly, big data can be reused many times, and the algorithms can be used to dig out the potential interests; lastly, big data can be renewed by itself, so as to produce new available interests. It is precisely because big data contains such huge benefits that everyone wants to tap into it to find the benefits they need. The emergence of big data has led to the lack of corresponding legal regulation and the lack of necessary social constraints, so that groups, organisations and enterprises can recklessly mine and steal other people's private information, leading to the problem of ethical disorder of data more likely to occur. For example, face information data belongs to biometric data, which is also personal sensitive data, and the collection of personal information data should obtain the authorisation and consent of the individual subject. However, in the streets and alleys and public spaces, personal face information data is collected and used without the knowledge and authorisation of the individual subject. At present, face recognition technology is widely used in many domestic scenarios, such as Alipay face payment, enterprise face punch card, biological information data leakage has become a daily

affair[8].

Since there are big data interests, there must be stakeholders, and big data stakeholders mainly include big data producers, big data recorders and big data consumers. Big data producers refer to the social individuals whose data are collected, who are engaged in the production of big data by consciously or unconsciously outputting their own data in the course of their self-production work and ordinary life. Big data recorders mainly refer to enterprises or individuals who collect big data produced by producers in accordance with the purpose and through data algorithms, and store the relevant data after collecting them. A Big Data consumer is a person who uses the Big Data stored by the collector for a certain purpose, uses the data to generate benefits, and thus realises the enormous value of Big Data. The stakeholders of big data are not the same person or the same group, naturally, the interests of the data will be contradictory, and it is inevitable that there will be conflicts of interest or disputes between the stakeholders of the data. Conflict of interest is a contradiction that arises in the process of possession and distribution of interests between different interest individuals, different interest groups, or between interest individuals and interest groups. Conflicts of interest between big data stakeholders also belong to the process of possession and distribution of benefits, and the uneven distribution of benefits leads to the emergence and intensification of such conflicts. Even nowadays, big data technology is still an emerging information technology, and it is difficult for any individual or group to truly realise and fully master big data technology. This is especially true for Big Data producers, who may not have mastered any Big Data technology at all, but simply have their personal data collected, yet are fully involved in the development and realisation of the benefits of the data. Big data producers have little or no involvement in the process of appropriation and distribution of data benefits. Instead, they are more likely to suffer harm in the process of developing and realising the benefits of big data, and it is only after they have suffered harm that big data producers can demand compensation through various means. For big data recorders and big data consumers, if they are in the same interest group, conflicts of interest may not arise. Assuming that they are not the same interest group, the process of possession and distribution

of benefits will inevitably lead to uneven distribution of conflicts. And it is precisely because of the reusability and self-renewal of the interest characteristics of big data and the nature of the development of secondary interests, how to distribute the secondary and tertiary interests after the achievement of the primary interest objectives of the data has become the root cause of the conflict of interest between the big data recorders and consumers. Therefore, due to the different division of labour and status differences, big data stakeholders are bound to be in a conflict of interest, the root cause of which is the inherent characteristics of the data interests themselves and the difficulty of achieving the appropriate distribution of data interests in proportion to the way, big data recorders and big data consumers are difficult to maintain a balanced distribution of data interests, and the big data producers are the party that outputs the data, and the harm suffered and benefits gained are not equal. The producers of big data are the ones who output the data, and the harm they suffer and the benefits they get are not equal[9-10].

7. Moral Roots of Data Ethics Problems

The moral deficiency of the active subject is the moral root of the data ethics dilemma. After entering the era of big data, people are consciously or unconsciously producing self-data information, which makes the amount of data information available to people increase in an uncountable way. Due to the proliferation and spread of data, people can get the data and information they want in a portable and fast way, and they do not need to take responsibility while acquiring the data. People's previous moral ethics can no longer adapt to the massive amount of data information in the era of big data, rights and responsibilities are not in a state of relative equality, in the implementation of the right to self-access to data at the same time did not assume the responsibility to ensure data security, is very easy to cause ethical misconduct, the lack of morality of the subject of the activity has led to the emergence of the data ethics problems gradually.

The subject of the activity is the main body of the data activity and the subject of the data ethical norms, as the main body of the data activity, the moral deficiency of the human, the rights and responsibilities are not strong consciousness is the intrinsic cause of the data

ethical dilemma. First of all, the openness and sharing of cyberspace cause some individuals or groups with insufficient moral and ethical knowledge and utilitarianism to collect other people's data and process and sell them for their own benefits, which violates the ethical norms of data ethics. As mentioned earlier, some mobile phone software often makes a play on the informed consent clause, and if users do not agree to the clause, they cannot use the software functions, and some of the clauses are about the necessity of the software to collect the user's data and exemption of consent, coupled with the fact that the user may not choose to read the clauses word by word before logging into the software, which makes it more convenient for the software to collect the user's data. Secondly, the weak sense of self-protection of data subjects is one of the reasons for the emergence of data ethics issues. Big data technology has two sides, the profit-seeking mentality of human beings and the interest nature of data itself, which requires data activity subjects to establish the awareness of self data protection. Users are not aware of self-protection in the process of data activities. For example, entering websites without protocol protection, leaking personal privacy on the Internet at will, and opening the background of mobile phone software to read and collect data for the sake of seeking convenience will all lead to the frequent occurrence of data ethical problems; finally, the alienation and weakening of the subject of human in data activities is another important reason leading to the frequent occurrence of data ethical problems. People are the subjects of data activities, and only people can give value attributes to data technology. However, with the development of the Internet and big data technology, data has brought unprecedented impact on human development and social change, leading to the dependence and blind obedience of people as the subject of data, and being dominated and enslaved by data. Especially in the era of big data, people are not dealing with data all the time, in the two-way interaction between data and human nature, as a dynamic, subjective human subject consciousness is gradually weakened by the algorithmic data as a certain information node, to become a data collection, algorithmic computation of the data people.

8. Countermeasures and Governance in the

Face of Data Ethics Issues

8.1 Define the Basic Principles of Data Ethics

As the cornerstone of medical ethics, the Belmont Report puts forward three basic ethical principles, namely: respect for human dignity, goodwill, and justice. These three basic ethical principles can also inspire data ethics and be applied to governance measures: respect for others, aiming at goodness, and acting justly. First of all, respect for others represents respect for private data, which requires that the collection and use of data resources must be informed in advance to respect the right to informed consent and the right to make independent choices and decisions, but this type of notification is not in the form of a software clause that cannot be used if there is no consent, but rather, it is necessary to decide what data can be collected, and to what extent, with the consent and choice of the person who has collected the data. needs to be agreed and decided by the person. Secondly, aiming for the good is based on the principle of non-harm, with Gert suggesting that 'moral rules do not direct us to promote the good, but to avoid the evil.' It is thus not accidental that all moral rules are injunctions or can be expressed as injunctions." These injunctions boil down to the principle of do no harm. It requires that the development and use of big data technologies must be conducive to people's survival and development, and that data technologies should not cause harm to people. Finally, acting impartially derives from an important ethical conceptual moral norm - "justice". As an ethical norm, "fairness" is rooted in the recognition of a fundamental treatment in interpersonal relationships that is consistent with people's normal moral intuitions and psychological expectations. According to the requirements of the ethical norm of justice, the status and interests of each individual are of equal importance, and thus unjustified differentiation is not permitted. In the era of big data, any individual and his or her related data are of equal status, and the principle of justice must be followed when acquiring data and distributing benefits: what you do to others, others do to you, and others are a mirror of the self.

8.2 Promote the Development of Technological Innovation for Big Data Privacy Protection

The solution to the data ethics problem also needs to strengthen the development of data privacy protection technology innovation, with the help of technical means to solve the data ethics problem. On the one hand, the development of Internet technology should be vigorously, increase the support for the research and development of data security protection technology, especially the innovative development of cutting-edge core technology. On the other hand, enterprises should innovate and upgrade firewall technology, data encryption and protection technology and other information security technologies to ensure the security of each link to adapt to the needs of modern society for data security. Through the technical level to promote the innovation and development of data privacy protection technology, to prevent and control the theft of data privacy behaviour, reduce the risk of data privacy leakage. For example, the data generated by network platforms such as Jitterbug, WeChat and microblogging contain a large amount of private user data, and innovative data protection technology is needed to encrypt and protect user footprints, search information, and user-related data to reduce the risk of data leakage and prevent data leakage. Continuously promoting the innovation and development of big data privacy protection technology can effectively control the emergence of big data ethical issues[11].

8.3 Social Regulation and Individual Freedom Moderation

Playing a leading role in social regulation, establishing a data ethics security risk assessment system and a response mechanism, at the same time, vigorously popularising the knowledge of data ethics in the whole society, strengthening data security publicity and education, so as to make the society form a collective consciousness of protecting self data security. On the one hand, it strengthens the public's guidance on self-data protection, lets individuals know more about data protection, raises public awareness of privacy protection, and guards against the unknown risk of privacy leakage. On the other hand, freedom, as a basic need of human beings, is an intrinsic value deeply engraved in the depth of human nature. In today's big data era, the subject's freedom of will is being infringed upon and confined due to

the personal portraits caused by strict monitoring and privacy leakage, and the freedom demanded by individual rights and the regulation required by social security are not irreconcilable contradictions. In society, although any individual enjoys the universally necessary and absolute freedom of will and freedom of choice, it is necessary to be in a society with rules to talk about freedom, not unlimited and unconditional freedom. Therefore, under the premise of maintaining social security management, give the public a moderate freedom, how to grasp this moderate principle, balancing the weight of social regulation and individual freedom is the focus of attention must be.

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