

# Directions for Improving and Expanding Marxist Philosophy in the Age of Big Data

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**Abstract:** As technology continues to advance, the era of big data has officially arrived. This era is characterized by an explosion in the amount of data, extremely fast data access, and an increasing variety of data. The impact of the big data era is far-reaching, not only changing all aspects of people's lives, but also affecting the way of operation and thinking at all levels of society. For Marxist philosophy, it also needs to be improved and expanded in the era of big data to meet the requirements of the new era. This paper will systematically analyze this from three dimensions: data and historical materialism, artificial intelligence and Marxist philosophy, data ethics and socialist core values.

**Keywords:** Big Data Era; Marxist Philosophy.

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## 1. Introduction

### 1.1. Context of the Times

The era of big data refers to the era in which people are able to collect and process large amounts of data with the support of network technology. The background of this era is the rapid development of information technology and the rapid growth of large-scale data. In the past, people could only process a small amount of data due to the high cost of data collection and the difficulty in processing data. However, with the rise of the Internet and the popularization of smartphones, people continue to generate large amounts of data. At the same time, data storage and processing technologies have been significantly improved. The development of these technologies and tools has pushed the arrival of the big data era, providing people with more data resources and enabling them to better understand and solve problems. In addition, big data is driving change and progress in various fields such as business, politics, and society. Therefore, the era of big data is considered an important stage in the progress of information technology and human society. The arrival of big data is a brand new trend that emerged with the development of information technology.

The concept of big data includes not only the volume of data, but also the diversity of data, the velocity of data and the value of data. Characterized by high efficiency, scalability, openness, security, and flexibility, big data technology is of great significance to a wide range of industries, including businesses, governments, and individuals. The arrival of big data has already had a profound impact on the existing economic, social and cultural aspects. In the economic aspect, big data technology has helped enterprises improve their productivity, innovation and competitiveness; in the social aspect, big data technology has provided governments with more accurate management and decision-making support; and in the cultural aspect, big data technology has also brought about an impact on people's lifestyles, values and ways of thinking. With the continuous development and popularization of big data technology, the application scope of big data will become more and

more extensive. It is expected that in the next few years, big data technology will play an increasingly important role in finance, healthcare, transportation, security and other fields, promoting the transformation and upgrading of these industries.

### 1.2. Policy Context

Governments have begun to recognize the importance and value of big data and have taken a series of measures to improve the development and application of big data. For example, the United States Government has proposed the Big Data Research and Development Program, which aims to promote the research and development of big data-related technologies and provide more data resources and technical support for government and business. The European Union has also put forward the Digital Agenda for Europe, which includes policies and measures to promote the development and application of big data. In China, the government has issued the National Strategy for Big Data Development, which clearly defines the strategic position and important role of big data in the country's economic and social development, and puts forward a series of policies and initiatives to promote the development and application of big data, and to promote the transformation and upgrading of China's economy. In short, the continuous development and improvement of the policy background has provided a strong guarantee and support for the arrival of the big data era.

### 1.3. Literature Review

Searching in China Knowledge Network with the keyword "Marxist philosophy in the era of big data", a total of 24 academic journals and 26 dissertations (including 21 master's theses and 5 doctoral dissertations) were retrieved. According to the references available so far, there have been some studies on the development of Marxism in the era of big data, but most of them are about the development of a philosophical principle and point of view, for example, Research on Ideological and Political Education Linkage Mechanism in Colleges and Universities in the Era of Big Data [1] Research on the Construction of Intelligent Party Building System in Colleges and Universities in the Era of Big Data [2] Research on the Loss of and Reinventing of the Subjectivity of Human

Beings in the Era of Big Data [3] etc. There is no overall analysis of Marxism in the era of big data. There is no discourse on the perfection and development of Marxist philosophy as a whole, and it lacks integration. Fan Lijuan analyzes the challenges to Marxist philosophy in the era of big data and further elaborates on them from the perspectives of ontology and epistemology and proposes innovative methods in "A Preliminary Exploration of the Innovation of Marxist Philosophy in the Era of Big Data" [4]. Yan Yi analyzes the development of Marxist philosophy in the context of big data from the perspective of big data affecting the dissemination of Marxist theory, its impact on social development, and providing conditions for the transformation of the government in "Exploration of the Impact of Big Data in the Perspective of Marxist Philosophy" [5]. Focusing on the perspective of cognition, Tang Fuyue analyzes where Marxist philosophy should go in the era of big data from the subject, object and test standard of cognition in the article "Study on the Promotion of Big Data on Cognition ---- Based on the Perspective of Marxist Philosophy".

## 2. Data and Historical Materialism

Historical materialism is an important theory in Marxist philosophy, which believes that history is determined by the economic base. In the era of big data, the change of economic base is also accompanied by the growth and utilization of data. Some scholars have put forward the concept of "data capitalism", arguing that data has become a new means of production, which also brings a new economic base. At the same time, the use of data also affects the development of society and the course of history to some extent. Therefore, historical materialism needs to further explore the role of data in history. For Marxist philosophy, Marxism has always emphasized the importance of practice. And in the era of big data, this view is even more important. Because data in the age of big data is very rich, the importance of practice has become more prominent. Practice allows people to better understand and utilize big data, so that they can more effectively promote social progress and scientific and technological development. Therefore, Marxist philosophy needs to pay more attention to practice in order to better adapt to the requirements of this era.

In addition, Marxist philosophy also needs to strengthen its ability to analyze and judge information and knowledge in order to better assess and utilize big data. Information and knowledge are extremely valuable resources, but at the same time they need to be analyzed and judged to ensure their authenticity and reliability. The big data information age is based on two foundations: the Internet and the mobile Internet. The two are both parallel and intertwined. The data of a single cell phone implies the individual's values, psychological preferences, consumption habits, and social relationships. In turn, a group's purpose, market positioning, profitability, value orientation, and even strategic choices can be seen in front of the big data. Further, the strategic choices, industrial status, ideological orientation, human resource reserves, political and economic potential of larger regions and even small and medium-sized countries are also visible in front of big data. The data on the cell phones of a huge number of users and their online data are gathered into a huge amount of big data, which connects individuals, groups, larger spatial regions and even small and medium-sized countries, and even the whole earth. Big data not only provides the most basic material cause, but also provides the form cause, power cause

and purpose cause. Embedded behind big data are the cause and effect relationships between data and the social relationships between individuals, groups, and larger spatial regions. The interaction between data and data is essentially the interaction of social relations and the reconstruction of social order. What is to be tested is the level of information technology capabilities between algorithms and arithmetic power that depend on the data. Big data has penetrated all fields of countries around the world today, from the construction of smart cities, energy supply channels, to health care prevention, finance to the construction of the border, or even the country's political civilization, economic layout, cultural construction, etc. without exception, are inseparable from the decision-making guidance of big data. Big data has changed the behavior of individuals, the way of resource allocation in the market, the internal structure of organizations, and the mutual relationship and interaction mode between the national government and the people. [6] Marxist philosophy needs to strengthen its theoretical research and methodological exploration in this area in order to provide stronger support and guidance for the scientific and technological development and economic growth of society.

## 3. Artificial Intelligence and Marxist Philosophy

Artificial intelligence is one of the key application areas in the era of big data. Some scholars believe that AI can play a role as a productive force in the economic, political and cultural fields. This also makes it necessary for Marxist philosophy to consider the role of AI in production and rethink the Marxist question of human nature and freedom on this basis. Gao Jianping, Qi Zhiyuan in "Big Data and the Reconstruction of Contemporary Social Order - Prospecting Big Data Based on Historical Materialism Vision" [7] pointed out that data applications will be combined with artificial intelligence. The basis of artificial intelligence is arithmetic power, algorithm and data. Arithmetic power refers to the computing power of computers, algorithms originate from the arithmetic methods of data science, and data originate from the data terminals of the objective world. The so-called artificial intelligence is to analyze the logical relations of data with sufficient arithmetic power and algorithms, and to simulate and replace the thinking process of the human brain with computer programs. It also means that the arithmetic power of AI focuses on formalizable and representable data, while the non-formalizable and representable objective reality remains the domain of human thinking. Although artificial intelligence cannot completely replace the thinking process of the human brain, it can expand human thinking ability, allow the rapid development of productive forces, liberate human beings from physical labor and part of mental labor, and provide technological support for the realization of free and comprehensive development of human beings. According to the idea of free and comprehensive development of human beings, the "human-centered" ethical code of AI and its practice welcome AI with ethical capability. The question of whether AI has the ethical ability to recognize good and evil is one of the ultimate goals of AI development, AI ethics and governance. [8]

At the same time in the rapid development of data, artificial intelligence gradually "forced to be able to the conditions, people began to think about the existence of artificial intelligence and human and ethical issues, began to worry

about the threat of artificial intelligence to the status of man, ChatGPT 4.0 ability to cause a global uproar, Marxism must be in the ethical perspective and historical materialism in the field of this Marxism must be new elaboration and future development trend judgment in the perspective of ethics and historical materialism.

#### **4. Data Ethics and Socialist Core Values**

The collection, utilization and dissemination of data also involve moral and ethical issues. Marxist philosophy emphasizes socialist core values and needs to focus on social benefits and public interests on the premise of safeguarding data security and individual rights. Therefore, Marxist philosophy needs to focus on the interrelationship between data ethics and socialist core values to promote the rational utilization of data to serve social development and people's well-being. Data ethics refers to the moral norms and rules observed in data acquisition, management, analysis and application.

Emphasis on data privacy and human rights. Data privacy and personal information security are issues that need to be emphasized in the era of big data. Marxist philosophy emphasizes the freedom and equality of human beings, so it also needs to pay attention to the issue of personal privacy and data security. With data being collected and utilized on a large scale, how to protect personal privacy and rights is a challenge that Marxist philosophy needs to face. At the same time, Marxist philosophy also needs to think about how to make data work in social development while protecting individual privacy and rights. In addition, Marxist philosophy also needs to strengthen its ability to analyze and judge information and knowledge in order to better assess and utilize big data. In the era of big data, information and knowledge are extremely valuable resources, but at the same time they need to be analyzed and judged to ensure their authenticity and reliability. Marxist philosophy needs to strengthen its theoretical research and methodological exploration in this regard in order to provide stronger support and guidance for the scientific and technological development and economic growth of society. In addition, the era of big data also calls for Marxist philosophy to pay more attention to the issues of human freedom and equality. In the era of big data, the high degree of exposure of personal information and the high degree of precision in data analysis may lead to greater risks to human privacy and freedom. Marxist philosophy needs to pay more attention to the issues of human freedom and equality to ensure that humans can still enjoy freedom and dignity in the era of big data.

Marxist philosophy needs to think about rights and justice in the age of big data. In the era of big data, data has become the basis of power and interests. For the acquisition, processing and use of data, the issues of rights and justice are involved. Marxist philosophy should pay attention to the changes in social class and power structure in the era of big data, and explore how to safeguard civil rights and social justice.

In the information age, data ethics has become an indispensable part of social life. For the improvement and expansion of Marxist philosophy, the concerns of data ethics are mainly as follows:

(1) Benefit and justice: Benefit and justice in data analysis are important elements of data ethics. In Marxist philosophy,

effectiveness and justice are an inseparable whole, so data analysis must focus on both effectiveness and justice.

(2) Protection of individual privacy: Individual privacy is an important component of data ethics. In the process of data analysis, the principle of personal privacy protection must be strictly adhered to in order to protect the rights of individuals.

(3) Data security: Data security is a core element of data ethics. Marxist philosophy emphasizes the security of data, and therefore strict measures must be taken to ensure the security of data in the process of data analysis.

To summarize, Marxist philosophy needs to actively respond to and face the challenges in the era of big data, and promote the updating and development of philosophical theories with a more comprehensive vision and in-depth thinking. At the same time, in the wide application of big data, it is also necessary to strengthen the attention and protection of rights and justice, so that the application of big data can be more beneficial to the development of human society.

Socialist core values are the basic value orientation of socialism with Chinese characteristics. This value embodies the essential characteristics of socialism with Chinese characteristics and has important ideological and practical significance. The influence of socialist core values is also obvious in the process of the improvement and expansion of Marxist philosophy. Specifically, the influence of socialist core values on Marxist philosophy is mainly manifested in the following aspects:

(1) Docking of Value Orientation and Reality: Socialist core values emphasize the docking of value orientation and reality, and the mutual promotion of theory and practice, which is in line with the ideological essence of Marxist philosophy. Therefore, the importance of value orientation and reality docking should be further emphasized in Marxist philosophy.

(2) The concept of people's supremacy: One of the basic principles of socialist core values is people's supremacy, which is closely related to Marxist philosophy's emphasis on the status and role of the working people. Therefore, in Marxist philosophy, more attention should also be paid to the concept of people's supremacy and to respecting and protecting the legitimate rights and interests of the people.

(3) Cultural self-confidence and national spirit: cultural self-confidence and national spirit of socialist core values are important components of socialism with Chinese characteristics. The importance of cultural self-confidence and national spirit should also be further emphasized in Marxist philosophy to promote the development of socialism with Chinese characteristics.

In summary, data ethics and socialist core values play an important role in the improvement and expansion of Marxist philosophy. In the theoretical system of Marxist philosophy, it is necessary to emphasize and continue to deepen the research and application of data ethics and socialist core values to meet the development needs of the new era. At the same time, it is necessary to continuously strengthen the education and propaganda of ethics and values, guide people to establish correct socialist core values and ethical concepts, and enhance moral qualities and good behavior. In this way, we can better promote the development of the socialist cause and make greater contributions to the realization of the Chinese dream of the great rejuvenation of the Chinese nation.

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