

A Study of Digital Labor from the Perspective of Marx's Labor Theory of Value

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ABSTRACT

With the rapid development and widespread application of digital information technology, digital labor, as a new form of labor, has increasingly emerged and penetrated into all areas of social production. From the perspective of Marx's labor theory of value, this paper systematically examines the origin, conceptual definition, basic forms, and basic dimensions of digital labor, and analyzes the phenomenon of exploitation in digital labor and its social impact in contemporary society. This paper aims to deeply understand the essential characteristics of digital labor and reveal its importance and complexity in the era of the digital economy.

KEYWORDS

Marx's labor theory of value; Digital labor; Digital activities.

1. INTRODUCTION

The twenty-first century is witnessing an unprecedented digital and informational transformation of human society. New-generation information technologies-such as the Internet of Things, cloud computing, 5G, and the 6G currently under development-together with the rapid rise of generative artificial intelligence models, are propelling humanity into the digital age. These technologies have not only profoundly changed people's way of life, but also continuously reshaped the mode of social production. The production and consumption of digital products have increasingly become crucial links in economic and social operation, and "digital labor," which creates and produces digital products, has accordingly become a concept and field of research that has attracted considerable scholarly attention. At present, domestic research in this area has already yielded fairly rich results, yet there remain notable controversies concerning fundamental issues such as the connotation and extension of digital labor, as well as its productive and unproductive character. This paper attempts to proceed from Marx's labor theory of value and to offer a comparatively systematic examination of digital labor, with a view to clarifying its essential determinations and theoretical boundaries.

2. THE ORIGIN OF DIGITAL LABOR

The term "digital labor" was first proposed by the Italian scholar Tiziana Terranova in her work *Free Labor: Producing Culture for the Digital Economy*. Terranova approached the issue mainly from the perspectives of cultural communication and biopolitics. She regarded digital labor as "immaterial labor" significantly different from traditional material labor, referring to seemingly unconscious and non-profit activities performed by users on electronic devices-such as browsing news, watching videos, and playing games-which inadvertently create value for the internet industry. According to this understanding, the site of digital labor is the internet supported by digital technology; the subjects

of labor are internet users; the objects of labor are the subjects' emotions, cognition, and experiences; and the products of labor are the contents generated by the subjects on the internet.

In *Digital Labour and Karl Marx*, published in 2014, Christian Fuchs offered a comparatively systematic account of the basic concept, dimensions, and main forms of digital labor, and attempted to analyze it by drawing on Marx's labor theory of value. In his view, digital labor is a process in which knowledge and cultural consumption are transformed into additional productive activity, but in this process laborers are exploited. For Fuchs, digital labor is alienated labor: it produces alienation between laborers and the objects, instruments, and products of labor, keeping laborers in a state of continuous exploitation. He further maintained that all activities participating in the value chain of digital information and communication technologies, or involving the manufacturing and content production associated with digital media technologies, may be classified as digital labor. In this framework, the online activities of internet users create enormous value for advertisers and internet enterprises, which analyze users' digital traces, collect personal data and information, and develop software and services better suited to user demand, thereby achieving deep exploitation of users.

Nevertheless, neither of the above definitions fully clarifies the concept of digital labor. Although Terranova reveals the value-creating potential of digital activities, her analysis remains confined within an existing theoretical framework and does not truly grasp the material determinations of labor, thus tending to universalize non-labor digital activities as labor. Fuchs, for his part, sets out from Marx's labor theory of value, but to some extent generalizes and vulgarizes Marx's concept of labor, even incorporating traditional labor such as mining and the manufacture of digital hardware into digital labor, thereby blurring the boundary between digital labor and traditional labor. It is therefore necessary to return to Marx's theory of labor itself and re-examine the connotation and limits of digital labor.

3. THE CONCEPT OF DIGITAL LABOR UNDER MARX'S LABOR THEORY OF VALUE

In response to the deficiencies discussed above, this section attempts to return to Marx's theory of labor itself and to clarify the connotation of digital labor on the basis of the general determinations of labor.

Digital labor is a new form of labor generated by the deep integration of digital, networked, and intelligent technologies with human labor. Although its objects, means, results, and even the entire labor process differ significantly from traditional forms of labor, digital labor does not go beyond the explanatory scope of Marx's labor theory; it remains a form of labor under commodity society. The "digital" in digital labor is merely a digital determination of labor, and in the final analysis it is still labor. As labor, it must possess the general determinations of labor revealed by Marx.

3.1 Purposiveness

In Marx's view, labor is the material activity through which human beings actively know and transform the world. The primary determination of labor is its active purposiveness. Marx defines labor as material productive activity that expresses the human essence and possesses a free and conscious purpose; human beings labor with a purpose. As Marx points out: "At the end of the labor process, a result emerges that already existed in the imagination of the laborer at the beginning of the process, that is, it already existed ideally." [1] This purposiveness developed gradually with the emergence of labor in the process of human formation; once human beings were able to labor, they increasingly distinguished themselves from other animals and gradually generated their own species-essence. As the ideal result that exists before the labor process unfolds, purpose guides and determines the direction of the labor process and ultimately manifests itself directly as the result of labor. At the same time, human beings produce themselves in labor, that is, they maintain their own survival and

life through labor. Labor therefore becomes an activity peculiar to human beings, because active purposiveness belongs exclusively to them. Even current AI models capable of brain-like computation can operate only after being implanted with basic programs and instructions, and human beings can stop or alter their operations at any time; thus the activity of such intelligent agents cannot be called labor.

Moreover, not every activity that consumes physical strength or time constitutes labor. Animals also engage in activities such as hunting, eating, walking, and communicating. Likewise, people's random browsing, commenting, interacting, and consuming in cyberspace cannot be indiscriminately regarded as labor. In terms of purposiveness, the daily activities of ordinary internet users-such as browsing webpages, watching short videos, viewing films, and shopping online-are recreational and consumptive behaviors that lack a conscious productive purpose and do not tend toward any definite product or result. Without digital laborers who extract, edit, and process the relevant information, the data left by these activities would scarcely acquire economic significance, and therefore these activities cannot constitute labor.

3.2 Materiality

The subject, object, means, result, and even the space of labor are all material and cannot exist apart from matter. As Marx says: "Without nature, without the sensuous external world, the worker can create nothing." [2] In the digital age, does the new "labor" still possess this character? In what does it differ from traditional labor? Any view that discusses labor apart from its material foundation is untenable. At the same time, however, one cannot classify all labor related to digitalization indiscriminately as digital labor, for this would lead to the mistaken view that "all labor is digital labor."

3.3 Productiveness

Proceeding from the material determination of labor, "labor is, in the first place, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature." [3] Therefore, the labor process is itself a process of production, a process of creating use value and value. From the social-form determination of labor, only that labor is productive labor which preserves and increases the value of objectified labor that stands opposed to labor capacity. From this twofold dimension, the productive character of labor can be clearly grasped, thereby distinguishing productive digital labor from non-labor digital recreational activities and excluding so-called "playbour" from digital labor.

The productiveness of digital labor is embodied above all in its products: laborers create or edit information to form "information products" or "data products," thereby producing spiritual wealth. In the digital information age, the object of digital labor becomes "intangible" raw material such as information or data; the means of digital labor become digital technologies and digital platforms; the forms of labor consist in the creation, collection, coding, storage, and valorization of data information, such as software development and operation, web design, novel writing, short video creation, film and television editing, product evaluation, and livestream commerce; and the products are digital goods and digital services. The sources of information here are mainly of two kinds. The first is information data from nature: digital laborers convert such data into digital information by scanning and extraction, transplant it into the digital world, and then form digital products through subsequent processing; for example, the domestic AAA game *Black Myth: Wukong* was produced by collecting a large amount of real-scene information. The second is the information traces left by users when using the internet, such as personal identity information, preferences, and the materials they provide. Platforms collect this kind of information and process it through big data technology, turning it into an important factor of production.

Although digital labor differs in form from traditional labor, its essence has not changed, and it remains productive labor. The currently widespread practice of livestream commerce is a typical example of productive labor. However, if the recreational and consumptive activities of ordinary internet users-such as browsing webpages, watching short videos, viewing films, and shopping online-were all included in labor, the boundary of labor would disappear and the essence of labor would dissolve along with it.

3.4 Creativity

Marx points out that labor is active, creative activity. Quantitatively, labor ultimately manifests itself in the growth of material and spiritual wealth; qualitatively, it manifests itself in the enhancement of the laborer's capacities, the renewal of the elements of labor, and even innovative changes in the mode of labor. Recreational digital activities merely generate incidental information unintentionally, whereas digital labor is the activity in which laboring subjects employ digital technologies on digital platforms to process intangible, virtual raw data and thereby produce data goods and data services. Precisely because of this specificity, digital labor places especially high demands on creativity. Mere pasting, copying, or plagiarizing without original content cannot constitute labor; similarly, the computations performed by large artificial intelligence models cannot be regarded as labor, because they are not purposeful creative activity on the part of human beings. Owing to the advanced character of such production, its returns are often higher than those of most traditional labor. Yet precisely because it creates virtual products, if it fails, the labor invested in the earlier stages may come to nothing. Therefore, although labor has developed from producing tangible products with tangible means to producing intangible products with intangible means, the essence of digital labor has not changed: it remains purposeful, productive, and creative human activity.

The above general characteristics of labor revealed by Marx point the way for us to understand digital labor and draw a clear boundary between labor and non-labor. On the basis of these characteristics, digital labor can be defined as the activity in which people purposefully employ digital devices and platforms to carry out productive activity and thereby produce digital goods or digital services.

4. THE BASIC FORMS OF DIGITAL LABOR AND THEIR BOUNDARIES

Academic discussions of the forms of digital labor have mainly addressed the following types. On the basis of the definition of digital labor established above, some of these forms belong to typical digital labor, while others are non-labor digital activities or traditional labor mediated by platforms, and should therefore be distinguished from one another.

4.1 Professional Labor in the Internet Industry

This type of labor refers to work performed by professionals who are highly familiar with computer programs and application software. Their work mainly includes software development, design, program writing, website development and maintenance, and other technical tasks. They primarily produce digital goods or provide digital services for users, and constitute the most typical and central form of digital labor.

4.2A Critical Examination of Unpaid Digital “Labor”

Some scholars describe the online activities of users-such as browsing websites, watching videos, participating in social media interactions, writing comments, and sharing content-as “unpaid digital labor,” arguing that these activities create profit value for digital media companies without corresponding remuneration. In their view, such activities possess characteristics of autonomy, exploitation, and the potential of subjects as a countervailing force. User activity, they contend,

provides platforms with valuable data and user feedback, which in turn promote content optimization, advertising placement, and adjustments in market strategy, thereby generating significant commercial value.

However, from the standpoint of Marx's labor theory of value, it is questionable to characterize such activities as labor. The existence of exploitation does not by itself imply that the exploited party's activity constitutes labor; likewise, not every activity that consumes time and energy constitutes labor. These online activities lack conscious productive purpose, do not possess a productive character, and do not generate creative products. In essence, they are recreational activities. If they were included in the category of labor, the boundary between labor and non-labor would be blurred, leading to the overgeneralization that "everything is labor." Such activities should therefore be excluded from digital labor.

4.3 Audience Labor

"Audience labor" is a special form of digital labor. It emphasizes that users, while receiving and consuming digital content, also engage in purposeful and creative content production. Unlike the unpaid digital activities discussed above, this type of labor mainly takes the form of video creation, editing, and livestreaming, such as game streamers, shop-exploring streamers, and sharing-oriented streamers in fields like food, fashion, product evaluation, and film editing. Through videos or livestreams, they provide users with knowledge, experience, advice, or entertainment products. Because these activities possess a clear productive purpose and creative outcomes, they belong to digital labor.

4.4 Platform Labor and Its Distinctions

Platform labor is a new labor form that has emerged in the digital age, involving various occupational roles based on internet platforms. It is necessary to distinguish between two situations.

First, digital labor on platforms, such as livestream commerce hosts and content creators, directly engages in the production of digital goods or digital services and thus belongs to digital labor.

Second, traditional labor mediated by platforms, such as ride-hailing drivers and food delivery workers. Although these workers receive information and provide services through digital platforms, their labor process remains essentially traditional in form and should not be simply classified as digital labor. Nevertheless, such labor is also deeply organized and managed by digital platforms. From the perspective of Marx's labor theory of value, it reveals the new relationship between laborers and capital in the digital economy, as well as the profound impact of digital technology on the forms and relations of labor.

Through these distinctions, the basic forms and boundaries of digital labor can be grasped more clearly, thereby avoiding conceptual overgeneralization and confusion.

5. THE BASIC DIMENSIONS OF DIGITAL LABOR

The basic dimensions of digital labor mainly include the subject of labor, the commodity, value and use value, exploitation, and ideology. Scholars have studied digital labor from various perspectives, and most of these studies are supported by Marx's historical materialism and theory of surplus value. Based on the definition of digital labor established earlier, this section further examines these dimensions.

5.1 The Subject of Digital Labor

Since digital labor is labor qualified by the prefix “digital,” the determination of its subject must first satisfy the general determinations of labor revealed by Marx, and second possess the specific characteristic of being “digital.” It is necessary neither to confuse subjects engaged in non-labor digital activities with digital laborers, nor to include laborers who are not directly engaged in digital production. For example, workers involved in the production of digital equipment who do not perform digital processing (mainly hardware manufacturing), as well as food delivery riders and ride-hailing drivers who receive information through digital devices but whose labor process remains traditional in form, should not simply be classified as subjects of digital labor.

The genuine subjects of digital labor should be laborers directly engaged in the processing of data information and the production of digital content. They mainly fall into two categories. The first consists of platform-side laborers engaged in digital information processing, such as developers, operators, and maintainers of software or platforms, that is, internet professionals. The second consists of user-side laborers who purposefully create digital information, such as livestream commerce hosts, game streamers, and various bloggers engaged in original content production. These two groups perform different functions in the digital economy and together constitute the basic structure of digital labor.

5.2 The Commodity

The products of digital labor are mainly intangible digital goods or digital services. On the part of platform-side laborers, their digital labor mainly produces digital goods or provides digital services through their products, such as software systems in smart devices, games, and data information services. On the part of user-side laborers, their commodities are the digital products they purposefully create, such as various original creative videos, novels, and film-edited works, as well as the related services they provide, such as livestream commerce and game strategy sharing.

It is worth further discussing whether laborers themselves or their personalities can become commodities, given that commodities are essentially the products of the objectification of laborers. In the platform economy, some practitioners, in order to gain traffic and tips, exhibit a tendency toward self-commodification. For example, some streamers use their physical appearance, private emotions, or personality traits as means of attracting users, and some even adopt extreme forms of self-display. This kind of self-commodification essentially takes the laborer’s own person, rather than the products of labor, as its object, and thus deviates from the objectifying essence of labor. Marx profoundly revealed the alienating consequences of objectified labor under certain conditions: “The more the worker appropriates the external world, sensuous nature, through his labor, the more he deprives himself of the means of life in two respects... this external world increasingly ceases to provide him with direct means of life.”[4] When laborers completely manage themselves as commodities, their bodies and personalities—elements that should belong to themselves—may become alien forces external to and controlling them. This is a form of alienation that deserves vigilance in digital labor.

5.3 Value and Use Value

In Marx’s labor theory of value, value and use value are determinations on two different levels. Use value is the property of a thing that satisfies human needs, and it is the material bearer of exchange value; value is the abstract human labor congealed in commodities. A thing can be a use value without being a value, but nothing can be a value without being a use value. Labor creates both use value and value, but use value is not created solely by labor; natural things themselves also possess use value, such as land, minerals, and other natural resources. Moreover, non-labor processes may also produce

information with use value, for example, the data information generated by users' recreational activities online.

In the digital age, the means of production consist mainly of data information. However, the sources of data information are not limited to digital labor itself; information generated by users in non-labor digital activities may also be utilized by platforms as means of production. In traditional production, operators usually need to pay rent or resource usage fees to resource owners in order to obtain the right to use natural resources such as land and minerals. In digital production, however, platforms often do not purchase the right to use users' information, but directly appropriate and utilize the data information generated by users without compensation. This uncompensated appropriation of user data differs from the exploitation of surplus value from wage laborers; it is closer to a dispossessory appropriation of resources. It should be noted that the nature of this appropriation ought to be distinguished from the exploitation of digital laborers, so as to avoid an unlimited generalization of the concept of exploitation.

5.4 Exploitation

The phenomenon of exploitation in digital labor needs to be analyzed at two levels.

On the one hand, digital laborers, as wage laborers, have their surplus value appropriated by platforms or related enterprises without compensation. Through algorithmic management, performance control, and platform rules, platforms extend the actual labor time of digital laborers and increase their labor intensity, while using their data advantages and monopoly position to compress laborers' bargaining space. This form of exploitation is more concealed in form, but in essence it still conforms to the law of surplus value revealed by Marx.

On the other hand, the uncompensated appropriation of ordinary users' data information by platforms, although not exploitation of wage labor, constitutes a new form of resource dispossession. The data generated by users in activities such as browsing and interacting are collected, processed, and transformed by platforms into elements of capital valorization, while users do not receive corresponding compensation. This phenomenon should be understood as the private appropriation of public data resources by capital under digital conditions, rather than exploitation of wage labor in the traditional sense.

Distinguishing between these two levels helps to avoid the overgeneralization of the concept of exploitation and to grasp more accurately the specificity of digital labor.

5.5 Ideology

Ideology in digital networks is not an independent existence detached from the material world. In the final analysis, network society is constituted by people from the real material world, and thus the ideology of cyberspace is on the whole consistent with that of real society. However, because of the openness and anonymity of cyberspace, the ideology in networks may also differ from that in real society to a certain extent.

Under the conditions of digital production, the influence of platform algorithms on social consciousness deserves attention. Digital production is to a large extent oriented toward users' psychology and behavioral data. While algorithmic recommendation meets users' needs, it may also, to a certain extent, amplify certain irrational or negative social emotions. Especially for minors whose minds are not yet mature, excessive exposure to low-quality and homogeneous content may have an adverse effect on their cognitive development. Relevant studies show that adolescent mental health issues in China require serious attention, and the internet information environment is one factor that cannot be ignored. Therefore, it is necessary to strengthen the construction of online content, guide platform enterprises to assume social responsibility, and promote the formation of a positive and healthy internet culture.

At the same time, internet platforms influence users' consumption concepts and value orientations through algorithmic recommendation and other means. This influence is dual in nature: on the one hand, algorithmic recommendation can provide users with convenient information services and disseminate positive cultural content; on the other hand, if effective guidance and regulation are lacking, it may lead to the spread of consumerism, hedonism, and other values, and may even create "information cocoons" that restrict users' horizons and choices. Some streamers or bloggers with large followings may, in pursuit of commercial interests, spread false information or make misleading recommendations, thereby exerting a negative influence on users, especially adolescents. Therefore, it is necessary to further improve cyberspace governance and promote the formation of a sound digital ecology, so that the development of digital labor can better serve the all-round development of human beings and the flourishing of socialist culture.

6. EXPLOITATION AND DISPOSSESSION IN DIGITAL LABOR

As clarified earlier, many online recreational activities do not belong to digital labor. Nevertheless, scholars have paid considerable attention to the interest relations involved in such non-labor digital activities, especially the distribution of benefits between users and platforms, as well as particular phenomena in online entertainment livestreaming. Although these issues do not entirely fall within the category of digital labor, discussing them helps us to understand the logic of capital under digital conditions more comprehensively.

6.1 Exploitation and Dispossession in Digital Activities

6.1.1 Unpaid Digital "Labor" and the Dispossession of Data Resources

The phenomenon that some scholars call "unpaid digital labor" requires critical examination. Platforms do obtain economic benefits from users' online activities, but these activities themselves do not constitute labor. Therefore, the benefits obtained by platforms do not derive from the exploitation of users' labor, but from the uncompensated appropriation and utilization of users' data resources. The nature of this appropriation differs from the exploitation of wage labor; it is closer to a dispossessory appropriation of resources.

In Marx's view, labor is the only source of value, but the value referred to here is the value of commodities, not use value. As Marx points out in the Critique of the Gotha Programme: "Labor is not the source of all wealth. Nature is just as much the source of use values (and it is surely of such that material wealth consists!) as labor, which itself is only the manifestation of a force of nature, human labor power." [5] Use value can exist prior to labor, and natural things themselves possess use value; commodity value, by contrast, must be created by congealed abstract human labor. In commodity society, the use value and exchange value of labor products are separated: the sensuous usefulness of the product is obscured, and exchange value becomes the dominant form.

In the sphere of material production, nature is the most fundamental source of use value; in the sphere of digital production, data information is likewise the most fundamental source of use value. The information generated by users in the course of recreational activities itself possesses use value and can provide important support for platforms' production and operation. Taking e-commerce platforms as an example: by analyzing users' browsing preferences and consumption records, platforms can predict demand in a given region and stock goods in advance, thereby saving logistics costs and improving delivery efficiency; at the same time, platforms make targeted recommendations based on user preferences and raise transaction conversion rates. In this process, the information generated by users is used as a means of production, but the platforms do not pay corresponding remuneration to the creators of that information.

It should be noted that although this kind of data information is an important factor of production, it is not a product congealed with human labor. Therefore, platforms' appropriation of user information

cannot be directly equated with the exploitation of labor. Its character is more similar to the uncompensated or low-cost acquisition of natural resources in traditional production. In traditional production, natural resources such as land and minerals, though not congealed with labor, usually require operators to pay usage fees to resource owners; in digital production, user information belongs to individuals, yet platforms often use it without adequate compensation. This uncompensated appropriation of user data resources should be regarded as a new form of dispossession rather than exploitation of surplus value.

Furthermore, the rights and obligations between platforms and users need to be clarified. Platforms themselves have a commercial service character: they provide users with online space and related services, and thereby obtain advertising revenue, transaction commissions, and other benefits. Whether the data generated by users while using platform services naturally belong to the platform is a question that requires further regulation. Online space resources can be analogized to natural conditions: they are built and maintained by platforms, and it is to some extent reasonable for platforms to place advertisements in such spaces. However, the information generated by users in their private spaces and accounts should be defined as belonging to users themselves. At present, there is no clear payment or compensation mechanism for platforms' use of such information, and this is precisely an area in which the resource-appropriation relationship under digital conditions urgently needs to be regulated.

6.1.2 Self-Alienation in Entertainment Livestreaming

Entertainment livestreaming is one of the more active fields in the platform economy. According to the 2023 China Online Performance (Livestreaming and Short Video) Industry Development Report (2023–2024), the number of livestreaming accounts in China has reached 180 million (non-duplicated data across multiple platforms), with users aged 18–24 and 25–30 together accounting for more than half, and the scale of livestreaming users reaching 816 million, including 200 million users of reality-show livestreaming. This indicates that the livestreaming industry already exerts considerable social influence. At the same time, in 2024, the Ministry of Human Resources and Social Security and other departments included new occupations such as online streamer in the national occupational classification system, reflecting the normative guidance of new digital business forms.

Livestreaming activities based on digital platforms can constitute digital labor if they possess a clear productive purpose and creative content. However, some entertainment livestreams, whose main forms are chatting, displaying personal appearance, or recounting personal experiences, lack substantive creative and productive attributes and should not be classified as labor. The reason such livestreams can obtain relatively high incomes is not that they create corresponding commodity value, but that they use the streamer's own physical appearance, private emotions, or personality traits as capital to attract users' tips. This kind of activity, which takes the self as its object, is not the objectification of labor, but the self-commodification of the person.

Marx revealed the possibility that objectified labor may turn into alienation under certain conditions: "The externalization of the worker in his product means not only that his labor becomes an object, an external existence, but that it exists outside him, independently of him and alien to him, and begins to confront him as an autonomous power."^[6] When streamers use their bodies, emotions, or personalities as bargaining chips in their operations, their own selves may gradually be alienated into an external force that controls them. This self-commodification not only damages the development of the practitioners themselves, but may also have a negative impact on the online cultural ecology. Therefore, it is necessary to guide the healthy development of the livestreaming industry through industry norms and content governance, so as to prevent the spread of self-alienation.

6.1.3 Exploitation in Digital Labor

Scholars have discussed the exploitation of digital labor mainly in terms of three types: data exploitation, algorithmic exploitation, and platform exploitation. It should be noted that among these

types, some involve the exploitation of surplus value from digital laborers, while others concern the dispossessory appropriation of user data resources, and the two should be distinguished.

6.1.4 Data Exploitation

Data is the core asset of the digital economy. By collecting and analyzing user data, internet enterprises can understand user needs more precisely, optimize products and services, and enhance market competitiveness. However, the process of data collection and analysis is often accompanied by infringement of user privacy and neglect of data rights. Users provide personal data to platforms under conditions of information asymmetry or passive consent; platforms then use these data to obtain commercial benefits, and may even use the data for third-party cooperation without users' full informed consent. This mode of data possession and utilization may not only harm users' legitimate rights and interests, but may also widen the digital divide between different groups.

It should be pointed out that although user data are not products of labor, as important raw materials of digital production their use should be based on fairer, more transparent, and more standardized foundations. Improving systems for data rights confirmation, data transactions, and data protection is an important task for safeguarding social equity in the digital age.

6.1.5 Algorithmic Exploitation

Algorithms are among the core technologies of internet platforms. By analyzing and predicting user behavior, algorithms can enable targeted recommendations and personalized services. However, algorithms may also be used to intensify control over digital laborers and users. With respect to digital laborers, platforms use algorithmic dispatch, performance rankings, and dynamic pricing to raise labor intensity, extend actual labor time, and compress laborers' bargaining space over working conditions. With respect to users, while providing convenience, algorithmic recommendation may harm user interests through induced consumption, excessive advertising, and low-quality content recommendation, and may even create "information cocoons" that restrict users' informational horizons and autonomous choice. Therefore, the design and use of algorithms need to be brought under necessary ethical norms and legal supervision, so as to prevent them from becoming concealed instruments of exploitation.

6.1.6 Platform Exploitation

Internet platforms play a key organizational and intermediary role in digital labor. By providing technology, services, and market resources, they connect dispersed laborers and consumers, and they have positive significance in promoting efficiency and diversifying employment forms. At the same time, however, platforms may also use their rule-making power and market dominance to exercise excessive control over laborers and extract value from them. For example, ride-hailing platforms control drivers' workload and income through algorithmic dispatch and price adjustment; food delivery platforms influence delivery workers' labor income by setting delivery times and lowering delivery fees. If such control is not regulated, it will continually squeeze the living and development space of laborers.

Therefore, the critique of platform exploitation is not a negation of the platform economy itself, but rather an attempt to promote the establishment of a fairer and more rational platform governance mechanism. Under socialist conditions, the platform economy should be guided toward sound development by improving labor laws and regulations, strengthening the social responsibility of platform enterprises, and safeguarding the rights and interests of workers in new forms of employment, so that the dividends of digital technology can better benefit all people.

7. THE SOCIAL IMPACT OF DIGITAL LABOR

7.1 The Positive Significance of Digital Labor

On the basis of historical materialism, Marx put forward communist society as a higher stage of human development and identified the development of the productive forces as the fundamental driving force of social progress. In the contemporary era, digital labor, as an important manifestation of advanced productive forces, has objectively promoted the development of the social productive forces and created conditions for further social progress. From the perspective of the development of the productive forces, the answer is broadly affirmative.

Digital labor has markedly improved the circulation efficiency of both material and spiritual products and saved substantial transportation and storage costs. Taking livestream commerce as an example, a single livestream can achieve in a relatively short time a sales volume that would previously have required months or even longer, moving goods directly from producers to consumers and eliminating many intermediate links, thereby reducing circulation costs. At the same time, digital platforms provide new channels for the promotion of local culture and tourism resources. Some cities and scenic areas have gained greater visibility and appeal through online communication, which has both enriched people's cultural life and injected new impetus into local economic development.

From the perspective of human development, digital labor has to a certain extent provided laborers with more flexible forms of employment and greater autonomy. According to relevant reports, the scale of practitioners in new forms of employment such as online streaming has continued to expand, with a considerable proportion being young people. For some practitioners, this mode of work not only yields the income necessary for survival and development, but also allows, within a certain range, the combination of work content and personal interest. This flexibility may, to some extent, help laborers shift from passive livelihood-seeking toward active development. Of course, this does not mean that digital labor has already realized the free and all-round development of human beings, but it does objectively provide some laborers with more diverse possibilities for development. This is a positive aspect of the development of digital productive forces and is broadly consistent with the direction of social progress.

7.2 Problems Brought by Digital Labor

While acknowledging its positive significance, we should also clearly recognize a series of social problems brought by digital labor.

7.2.1 Impact on Labor Relations

Digital labor has broken down the temporal, spatial, and organizational boundaries of traditional labor relations and created more flexible and diverse forms of labor. On the one hand, digital labor provides laborers with more job opportunities and room for choice; on the other hand, it also intensifies the instability and uncertainty of labor relations. Some digital laborers face problems such as unstable employment, volatile incomes, and inadequate protection of labor rights. At the same time, digital labor has given rise to new occupational identities such as online streamers and self-media practitioners, which pose new challenges to the definitions and classifications of labor relations built on traditional industrialization and urgently require responses at both the theoretical and institutional levels.

7.2.2 Impact on the Social Structure

Digital labor may contribute to the diffusion of resources and opportunities to some extent, but it may also aggravate the differentiation of the social structure. On the one hand, the development of digital technology has provided new opportunities for some groups to realize personal value and accumulate wealth through internet platforms; on the other hand, the existence of digital and information divides

may exclude some groups from participating in the development of the digital economy, thereby intensifying social inequality. Moreover, the deep involvement of capital in the labor process through digital platforms has to some degree strengthened its control over some laborers and may widen income and development gaps between different groups. It is therefore necessary to improve institutions to prevent the dividends of digital technology from being monopolized by a few subjects and to promote the inclusive development of the digital economy.

7.2.3 Impact on Ideology and the Cultural Ecology

Digital labor and digital platforms have exerted a profound influence on the ideological field. Through algorithmic recommendation and personalized services, internet platforms continuously shape and influence users' ways of receiving information and their value orientations. In this process, positive and healthy cultural content can be disseminated more widely, but there are also tendencies worthy of vigilance: some content producers, in pursuit of commercial interests, cater to vulgar tastes, disseminate low-quality content, and even spread false information, which may adversely affect the formation of values among users, especially adolescents. For example, some current online short dramas rely mainly on emotional stimulation, with serious homogenization of content and insufficient rational depth and aesthetic value. If this phenomenon persists over the long term, it may have a negative impact on adolescents' cognitive development and value formation. Therefore, strengthening the construction of online content and promoting a positive, healthy, and uplifting digital cultural ecology are important tasks of ideological work in the digital age. This requires platform enterprises to earnestly assume social responsibility, government departments to strengthen supervision and guidance, and all sectors of society to participate together.

8. CONCLUSION AND PROSPECTS

This paper has conducted a comparatively systematic study of digital labor from the perspective of Marx's labor theory of value. By analyzing the origin, conceptual definition, basic forms, basic dimensions, and the phenomena of exploitation and dispossession within digital labor, this paper has revealed the importance and complexity of digital labor in contemporary society. Digital labor both reflects the new direction of the development of the productive forces and, under the influence of the logic of capital, exhibits new tendencies toward alienation and differentiation. Therefore, digital labor should not be judged in abstraction from social relations of production; rather, it should be understood from the perspective of the dialectical unity of the productive forces and the relations of production.

Under contemporary conditions, the development of digital labor should adhere to a people-centered value orientation. While giving full play to the empowering role of digital technology, great attention should be paid to the protection of digital laborers' rights and the normative governance of the digital ecology. It is necessary to further improve labor laws and regulations to meet the demands of new forms of employment, to perfect data property rights and data protection systems in order to safeguard users' legitimate rights and interests, and to strengthen the social responsibility of platform enterprises so as to promote the formation of a fairer, more rational, and more inclusive digital labor ecology. Through these efforts, digital labor can truly become a constructive force for promoting the all-round development of human beings and social progress.

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