



# Intellectual Property Protection Management Platform of Digital Resources Based on Artificial Intelligence

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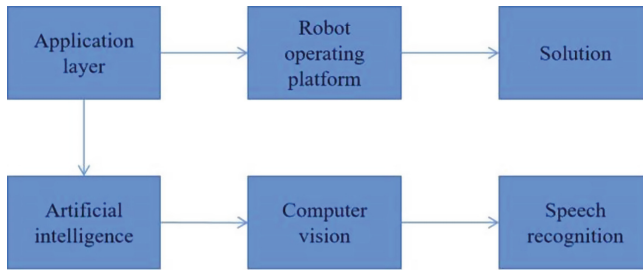
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**Abstract.** In order to understand the legal protection of intellectual property rights, a research on intellectual property protection management platform of digital resources based on artificial intelligence is put forward. Firstly, with the help of digital resources of artificial intelligence, this paper determines the core elements of the concept of artificial intelligence. Secondly, it explains the objectivity and reality of the challenge of artificial intelligence to the legal protection of intellectual property rights, and discusses the challenge of artificial intelligence to the subject, content, legal behavior and legal evaluation of intellectual property rights. Finally, the effective measures of legal protection challenges of intellectual property brought by artificial intelligence are analyzed. Therefore, on the basis of careful analysis and research, this paper formulates scientific and reasonable countermeasures, so that artificial intelligence technology can comprehensively promote the efficiency of social production development.

**Keywords:** artificial intelligence · Digital resources · intellectual property

## 1 Introduction

Under the background of the sustainable development of science and technology, artificial intelligence has gradually emerged and developed. In fact, it has been widely used and practiced within the scope of society, and achieved good application results. In some fields, artificial intelligence has gradually replaced human hands, which can not only improve the efficiency of social construction and development, but also give full play to the role of high-tech and realize the goal of automation and intelligent development. However, the digital development stage of artificial intelligence also brings some challenges to the legal protection of intellectual property rights, so it is necessary to systematically analyze and study the types of challenges faced, and take corresponding measures to ensure intellectual property rights, thus boosting the level of social development to be continuously improved. As shown in Fig. 1:



**Fig. 1.** Digital resources of artificial intelligence

## 2 The Core Elements of Artificial Intelligence in the Context of Intellectual Property Law

In the context of law, the discussion on the core elements of the concept of artificial intelligence is essentially equivalent to the discussion on the related issues of artificial intelligence related to law. As far as this theory is concerned, it is necessary to show the significance and value of the social relationship (the object of legal protection) adjusted by the conceptual elements of artificial intelligence and the intellectual property law system [1, 2].

First of all, artificial intelligence has the function of replacing human brain. No matter what the means of artificial intelligence is, or what the “physical body” it plays, substitutability should be one of its core elements. Substitution means freedom of will and independent thinking, not an extension of human tools. Accordingly, we can clearly distinguish artificial intelligence from machine automation. As for the degree of substitution, it depends on the development of artificial intelligence technology and human’s deliberate pre-design, but this is not contradictory, because as far as the legal subject’s capacity is concerned, the legislative level is also divided into people with no capacity, people with limited capacity and people with full capacity, and the strength of capacity is not the basis for denying the qualification of legal subject. Thus, artificial intelligence can become the subject of legal adjustment of intellectual property law. Secondly, the level of intelligence must match its behavior, which has the significance of legal adjustment. Finally, artificial intelligence can recognize, understand and control its behavior. The ability to know, understand and control one’s own behavior is the basis of assuming behavioral responsibility. Without this element, just as the behavioral responsibility of a person without behavioral ability should be borne by a guardian, the intellectual creation behavior of artificial intelligence will lose the significance of the adjustment of intellectual property law. Legally speaking, there is no right without obligation, and the ability of responsibility is the core support of the depth and breadth of legal relations involved in artificial intelligence [3].

For artificial intelligence, there are three core issues related to the protection of intellectual property law, namely, legal subject qualification, behavior ability and responsibility ability. This is not only the core element of the concept of artificial intelligence, but also the key issue to be paid attention to in dealing with challenges in legal adjustment [4, 5].

### **3 The Challenge of Artificial Intelligence to the Legal Protection of Intellectual Property Rights**

#### **3.1 Challenges to the Legal Subject Setting of Intellectual Property Rights**

The provisions on legal subjects in intellectual property laws basically follow the relevant provisions on civil subjects in the Civil Code, that is, natural persons, legal persons and unincorporated organizations. It can be seen that the Civil Code does not regard human's natural attributes as an inevitable condition for defining civil subjects. For artificial intelligence, it becomes a legal subject, and then participates in the creation, change and elimination of legal relationships among intellectual property rights, which is completely feasible in the legal level. First of all, the philosophical theories about human nature mainly include: Creator Theory, Natural Character Theory and Social Relationship Theory. In any case, independent free will is its most important symbol. Secondly, the legal objects of intellectual property law are basically similar to those of civil law, and they are all created by law, such as fictional subject legal persons and unincorporated organizations. Therefore, the subject of law is not based on the natural character of human beings. Independent intention to express is the premise for the legal subject to establish, change and cancel the legal relationship. However, as far as the current technical level is concerned, artificial intelligence does not have the ability to independently express the intentions of natural persons for the time being, but it does not rule out the possibility that artificial intelligence technology can develop to have independent emotional output in the future. As shown in Table 1.

Therefore, some scholars suggest that artificial intelligence can be based on the theory of creating a legal person and granting "artificial intelligence legal person", and even implement similar management systems such as registration and filing for artificial intelligence. It can be seen that the challenge of artificial intelligence to the relevant provisions of the legal subject in the intellectual property protection law is real, and to some extent, the challenge has been brought to the legislature after repeated tests and debates in philosophy, ethics and biology, which has become an important challenge to the traditional jurisprudence of intellectual property rights by artificial intelligence [6].

#### **3.2 The Challenge of Legal Liability Evaluation**

There are differences in the intelligence level of artificial intelligence, which brings great challenges to the evaluation of related legal responsibilities. First of all, the responsibility must be evaluated in layers, that is, it is necessary to distinguish three levels of responsibility evaluation system: strong intelligence, ordinary intelligence and mentally retarded ability. It should be noted that the premise of this distinction is to accurately divide the functions of the three levels, which in itself is a very difficult problem, often involving more technical standards and functional testing links. Secondly, the responsibility content is difficult to determine. Based on the different application fields of artificial intelligence, its function often overlaps and interacts with many factors such as information technology and computer technology. In fact, artificial intelligence plays an auxiliary tool role in creation. Some scholars believe that its behavior responsibility should be attributed to product quality responsibility, which inevitably contradicts the

**Table 1.** Challenges of artificial intelligence to legal protection of intellectual property rights

The challenge of artificial intelligence to the legal protection of intellectual property rights		
Subject setting	represent	feasibility
Creative behavior	meaning	Possibility of invention
Legal responsibility evaluation	explain	make amends to

independent free will in the core elements of artificial intelligence. In other words, the content of product quality responsibility is quite different from the content of behavior responsibility set in the protection of intellectual property law, just like a person who commits theft and eventually assumes the criminal responsibility of intentional homicide. Finally, the fulfillment of responsibility faces practical problems. The responsibilities set by the protection of intellectual property law include stopping the infringement, apologizing and compensating for losses. When it comes to the monetary payment of loss compensation, the performance of the responsibilities involved will face the problem of non-performance. Further thinking, we find that artificial intelligence will also encounter such difficult problems in intellectual property crimes.

#### 4 Effective Measures to Deal with the Challenges of Intellectual Property Legal Protection Brought by Artificial Intelligence Digital Resources

As shown in Table 2, with the continuous popularization and development of artificial intelligence technology, the functions of artificial intelligence technology are gradually enriched, which will bring certain challenges to the legal protection of artificial intelligence digital intellectual property rights. Therefore, it is necessary to conduct detailed analysis and research, fully clarify the subject system related to intellectual property rights, the subject value of artificial intelligence technology and the protection mechanism of intellectual property rights, so as to effectively deal with the challenges of intellectual property protection brought by artificial intelligence. To sum up, the following measures can be taken:

(1) Further improve the subject system related to intellectual property protection.

Under the background of entering the intelligent era, we must first recognize the identity of the robot creative subject, and then conduct in-depth analysis and research on artificial intelligence creation to ensure the formation of a brand-new ideological cognition. At the same time, his creative behavior is fully understood and recognized by virtual personality, so at this stage, the copyright subject of the works created by artificial intelligence can be determined in the form of virtual personality, and the issue of intellectual property ownership related to artificial intelligence creation can be solved according to relevant legal procedures. In a word, it is necessary to establish a more perfect system for establishing the subject of intellectual property rights and make scientific judgments on the subject of works created by artificial intelligence, so as to effectively meet the challenges faced in the legal protection stage of intellectual property rights and

vigorously promote the development and innovation of artificial intelligence technology in China [7].

(2) Fully affirmed the main value of artificial intelligence technology.

In order to fully meet the challenge of intellectual property legal protection brought by artificial intelligence, it is necessary to fully affirm the main value of artificial intelligence technology. Today, with the continuous development of artificial intelligence technology, it has a certain impact on people's lifestyle. At the same time, robots with artificial intelligence technology as the core can also carry out deep thinking and research, which makes robots have certain personality attributes, so affirming the main value of robots is an effective measure, which can help protect intellectual property rights. First of all, it needs to be clear that artificial intelligence can improve the efficiency of work, at the same time, it can also ensure the quality of work, and it also has the function of invention and creation. Although the laws related to intellectual property rights in China can't recognize artificial intelligence at present, it is still necessary to break its limitations at this stage, affirm the main value of artificial intelligence technology, and fully affirm the works created by artificial intelligence technology, so as to effectively solve the difficulties faced in this work, and at the same time, promote the innovative development of intellectual property-related laws and provide legal protection for the vigorous development of artificial intelligence technology in China[8].

(3) Comprehensively improve the protection system of intellectual property rights.

Under the background of the vigorous development of artificial intelligence technology, it is necessary to fully consider the essential connotation of artificial intelligence technology and build a perfect intellectual property protection system, so as to give full play to the value of artificial intelligence technology and make artificial intelligence technology comprehensively optimize the efficiency of social construction and development. First of all, we need to fully affirm the value of artificial intelligence technology and protect it within the scope of intellectual property rights; Secondly, in-depth study of legal knowledge and common sense related to intellectual property rights, so as to effectively protect artificial intelligence; Finally, at this stage, it is necessary to protect the technical patents of artificial intelligence, establish protection measures through the data algorithm mechanism, improve the protection system of intellectual property rights, and realize effective protection of intellectual property rights of artificial intelligence. In addition, we should also devote ourselves to learning from the research experience of senior practitioners in the industry and relevant cases of intellectual property protection of artificial intelligence, so as to build an effective intellectual property protection system, truly promote the development of intellectual property protection system with artificial intelligence technology, and at the same time make artificial intelligence technology gradually develop and grow [9, 10].

**Table 2.** Effective measures for legal protection challenges of intellectual property rights

Infringement object content Easy to identify	effective measure	Compared with the internal operation mechanism, the technical features are more preferably external and visible.
Direct establishment of infringement	effective measure	Considering the principle of full coverage, avoid limiting unnecessary technical features. Rational use of the concept of superordinate to avoid the need of equal infringement of rights
Support higher compensation	effective measure	Protect both components and complete equipment at the same time.

## 5 Conclusion

The era of artificial intelligence has come, and with the development of technology, the products of artificial intelligence are no different from the results of human intellectual activities. When our discourse system based on the existing legal principles and rules of intellectual property rights can't cope with the challenges it brings, the first discussion in theory will become the key to break through the bottleneck of artificial intelligence intellectual property law protection in the future. Facing the challenge, we think we should grasp two aspects: on the one hand, under the framework of the existing interpretation system of intellectual property law, we should give full play to the function of legal interpretation and accommodate and digest some problems; On the other hand, strengthening the theoretical research at the legislative level will provide a solid theoretical basis for future relevant legislation.

## References

1. Bates, D. W. , Syrowatka, A. , Jackson, G. P. , Rhee, K. , & Alfayez, A. . (2022). Call for better systems and data to support artificial intelligence for pandemic response. *BMJ Health And Care Informatics*, 29(1), 2302-15.
2. Ong, J. , Selvam, A. , & Chhablani, J. . (2021). Artificial intelligence in ophthalmology: optimization of machine learning for ophthalmic care and research. *Clinical and Experimental Ophthalmology*, 49(5), 413-415.
3. Bradshaw, T. J. , Boellaard, R. , Dutta, J. , Jha, A. K. , Jacobs, P. , & Li, Q. , et al. (2022). Nuclear medicine and artificial intelligence: best practices for algorithm development. *The Journal of Nuclear Medicine*, 15(4), 63.
4. Bukret, W. E. . (2021). A novel artificial intelligence–assisted risk assessment model for preventing complications in esthetic surgery. *Plastic and Reconstructive Surgery - Global Open*, 9(7), e3698-.
5. Swpu, P. . (2021). Recent progress and new developments of applications of artificial intelligence (ai), knowledge-based systems (kbs), and machine learning (ml) in the petroleum industry. *Petroleum*, 6(4), 319-320.

6. Liu, Y. . (2021). Artificial intelligence-assisted endoscopic detection of esophageal neoplasia in early stage: the next step?. *World journal of gastroenterology*, 27(14), 1392-1405.
7. Kwon, T. W. , Sang, P. L. , Kim, D. , Jang, J. , & Kim, K. G. . (2021). Diagnostic performance of artificial intelligence model for pneumonia from chest radiography. *PLoS ONE*, 16(4), e0249399.
8. Dewitte, S. , Cornelis, J. P. , R Müller, & Munteanu, A. . (2021). Artificial intelligence revolutionises weather forecast, climate monitoring and decadal prediction. *Remote Sensing*, 13(16), 3209.
9. Oluwaseyi, O. A. . (2021). Technology and social cohesion: deploying artificial intelligence in mediating herder-farmer conflicts in nigeria. *Filosofia Theoretica Journal of African Philosophy Culture and Religions*, 9(3), 15-32.
10. Choi, E. , Kim, D. , Lee, J. Y. , & Park, H. K. . (2021). Artificial intelligence in detecting temporomandibular joint osteoarthritis on orthopantomogram. *Scientific Reports*, 11(1), 1-7.

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