



The Legal Status of Artificial Intelligence in Chinese Private Law

중국 사법상 인공지능의 법적 지위에 관한 고찰

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The Legal Status of Artificial Intelligence in Chinese Private Law*

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With the advent of Artificial Intelligence(AI), Big Data, Cloud Computing, that is call the “ABC era”, the IT industry has come in the era of Artificial Intelligence, which has become the core of the whole intelligence era. The short-term impact of Artificial Intelligence depends on

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who controls Artificial Intelligence, while the long-term impact is subject to whether Artificial Intelligence can be controlled. Therefore, the application and development of Artificial Intelligence need the definition of legal personality. First, this paper combs the reasons why natural persons and legal persons in the existing civil subject structure are granted civil subject qualifications. Secondly, combined with the characteristics of Artificial Intelligence entity, this paper is analyzed whether Artificial Intelligence should be entitled civil subject qualifications. Finally, it summarizes the new ideas about the construction of subject qualification in foreign private laws and puts forward some suggestions that are in match with the local situation of China.

I. Introduction

Sophia, a facial expression robot developed by Hanson Robotics in Hong Kong, was granted citizenship by Saudi Arabia at The Future Investment Planning Conference. Saudi Arabia become a pioneer in the world to grant robot citizenship, while Sofia turn first mechanical person into human history.

Nowadays, the development of Artificial Intelligence involves various fields of life, bringing convenience to people and some unavoidable problems. For example, the copyright issues on Artificial Intelligence production; the problem of tort caused by intelligent systems; concerning privacy protection and intelligent robots suspected of ethical discrimination, etc. Faced with these new problems, it can't give us the answer when we search for ancient codes "Although, for every mistake, the law provides a

remedy, does not apply to harm caused by things that do not have subject qualifications.” Therefore, the application and development of Artificial Intelligence need legal status to be determined. This paper makes analyze and explore are necessary.

II. The Evolution of Personality in Ancient Roman

The subjectivity of rights is the root of the concept of law. Law is the law of power, but first is the law of the subject.¹⁾ In different historical stages, not every objective entity can possess the subject qualification of private law. Looking at the evolution of the history of the legal system, the modern civil law establishes the dual subject structure, giving the subject qualification to the natural person and legal entity. Subject qualifications, but they differ in the scope of legal relationships that enjoy rights, assume obligations and responsibilities.

A. Research on the Subject Status of Natural Persons

The most striking feature of the civil law system is the formulation of statutes. One of the important tasks in the formulation of the statute law is to transform the living creatures into legal persons, thereby making the people who exist in reality and have their own characteristics appear in the way of unified standard and institutional in law. This “person” formed by legal abstraction is also called the “legal subject” in law. Whether a

1) See Huixing Liang, “General Civil Law”, Beijing: Law Press, 2007, Page 64–65.

natural person can become a legal person “is in some sense the cornerstone of all legal ideology.”²⁾ The legal personality of natural persons has different legal provisions in the process of historical change. It can be roughly divided into three stages, from the period of personality identification to the rationalization of personality and then to the generalization of personality.³⁾

1. The Roman period

As the source of the civil law system, Roman law left a rich legacy on the subject qualification system. Since the establishment of the personality system in Roman law, there has been an inextricable link between personality and identity. In Roman law, it is stipulated that only those who have the three identities of freedom, citizenship and family can have personality, that is, full subject qualification. That is to say, “identity” becomes a suitable condition for judging whether a living person has the subject qualification, which has a very unequal feudal color from a modern perspective. In the era of Roman law, the so-called subject qualification essentially refers to the legal identity system. In Roman law, there is no “personality” with the personality of modern law. The Roman law, through its identity, carries out the necessary classification of the biological people in the whole society and gives them corresponding rights and obligations, thus forming an effective organization for the whole society. From the perspective of personality, scholars summed it up as “identity personality.”⁴⁾ Therefore, the concept of “personality” in Roman law is very different from the personality in the modern sense. The person in Roman law is

2) Cotterrell, “The sociology of law: An introduction”, Huaxia Publishing House, 1989, Page 144-145.

3) Yuhong Hu, “On the Development of Personality System in Legal History”, Science of Law (Journal of Northwest University of Political Science and Law), no.4, 2008, pp 40-50.

4) Yuhong Hu, “On the Development of Personality System in Legal History”. Science of Law (Journal of Northwest University of Political Science and Law), no.4, 2008, pp 40-50.

specific, and it is an identity person rather than a personality person. The reasons for this are as follows:

First, as early as in ancient Greece, Aristotle determined from the perspective of the ruler and the ruled that some people in society could only become slaves. In his view: “There is a distinction between domination and rule in the world. This is not only necessary but also beneficial. Some people are destined to be ruled when they are born, while others are destined to be rulers.”⁵⁾ Dividing rulers and being ruled in Aristotle’s concept the basis is the human “natural” physique, which has a strong class color. Therefore, which natural person can become a legal person and what kind of legal person can be a highly politicized choice and consideration by the state according to its ideology. Guided by this guiding ideology, the main role of law is social control, the strict control of the upper layer of downward flow and the lower layer of upward flow. “The law preserves the hierarchy of the society by sanctifying and preserving the hereditary privilege of the slave owner and the feudal lord.”⁶⁾ Therefore, identity becomes the most advantageous tool for maintaining the privilege of the hierarchy, which firmly held in the hands of the ruler, creating the rule of Rome. The social hierarchy required by Pome rule and identity is used to determine the subject qualification and legal ability of the individual in the various interest groups.

Second, systematization is the tradition of the entire continental legal system, and such systematic thinking began in the era of Roman law. Gaius has described this in Law Ladder: The life of the whole law is like

5) Aristotle, “The Politics of Aristotle”, Beijing: The Commercial Press, 1965, Page 1-4.

6) Wenxian Zhang, “From the duty-based to the right-based is the law of the development of law”, Social Science Front, no.3, 1990, pp 135-144. Print.

the same dance drama, and the legal life is presented in a “dramatic way, involving actors and sports on the stage.” Based on the analysis of such natural phenomena, he puts forward that “all legal life is related to people, or related to animals, or related to litigation.” ⁷⁾Gaius’s famous triad system theory of people, things, and litigation. First of all, Roman law divides people into two types, free man and slave, through the grant of liberty. Second, use the citizenship to distinguish between Roman citizens and Gentiles. Finally, the empowerment of legal subjects is influenced by the empowerment of family rights. Each member of the family group has different rights depending on their identities, thus forming a group legal body represented by the father. Roman law gives different rights to different identity holders. It is a concentrated expression of systematic legislative thinking to classify people in society through the differences in identity formed by blood, social, and political factors.

Third, the self-sufficient natural economy was the mainstream economic way of society at the time. The natural economy is an economic form that directly obtains the means of subsistence from nature and directly meets the needs of the workers themselves and their relatives. This economic model requires family cooperation, which is different from the modern society in terms of individual units. In ancient times, the family continued to develop on a family basis. The identity system is the defense of this closed economy model. As Karl Heinrich Marx said, “They can’t represent themselves. They must be represented by others. Their representatives must be high authority standing on them and protect them from other classes.” ⁸⁾In the legal relationship, when an individual exercise right and duty, definitely subjected to the family or kinship. They position are

7) Gaius, “Institutes”, Beijing: China University of Political Science and Law Press, 2008, Page 52.

8) Karl Marx, “Anthology of Marx and Engels”, Beijing: People’s Publishing House, 1995, Page 693.

comply with his identity in the group.

Fourth, the identity system is a clever use of legislative technology. The reason why the Roman legislators set up various identities and use them as a basis for distributing interests or non-interests is because resources are scarce. In the case that they cannot be fully supplied to all, the legislators have to use their means of identity to guarantee themselves. People who think that they are useful are assigned, and identity is a symbol that characterizes this right of priority. To this end, the opportunity for those who are considered useless to be distributed is sacrificed. The loss of such opportunity is manifested by not giving or depriving the identity.⁹⁾ The level of productivity at that time led to the phenomenon that if all people were given legal personality, it would lead to insufficient social wealth. In this case, people are divided into different classes, and the legislators form the separation of biological and legal persons through the legislative technique by using identity as a tool. The term legal personality comes from the Latin *persona*. But in Roman law, people often use the word “*Caput*” to mean legal personality. The original meaning of the word is the head, used by Roman jurists and magistrates to refer to personality, meaning that personality is as important as the head to people. It can be seen that “*Caput*” means an identity and ability.

In addition, the society before the 18th century, gender, professional groups, the community of religion, the need for military expansion and other factors also have a certain impact on the formation of private law subject qualifications.

9) Guodong Xu, “Searching for the Lost Personality—From Rome, Germany, Countries of Latin Law Family, the Soviet, Russia Till China”, *Science of Law (Journal of Northwest University of Political Science and Law)*, no.6, 2014, pp 71–79.

2. Rational people of period

In the 70s, the concept of identity is contracted. The civil subject was liberated from the bondage of identity. The famous Japanese scholar Hoshino admitted in his book *People in Private Law* that all people's legal personality is completely equal, and thus the legal personality that is affirmed is a legislator who can freely become a private law relationship related to himself by his own meaning. But it does not consider the abstract person of the difference in the power of knowledge, society and economy, and behind it is the person who is strong and intelligent in terms of reason and meaning. In this period, the presence or absence of personality is not based on people themselves, such as identity, rank, status, and so on. As the Italian scholar Alexander Passerin d'Entreves pointed out: "In the concept of natural law, there has always been a tendency of rationalism. Natural law has always been regarded as the dignity and ability of human beings."¹⁰⁾ The "personality" of legal status includes extremely rich content. It not only expresses the legal qualifications of natural persons, but more importantly, it contains basic ethical values such as freedom, security and human dignity. During this period, the most typical representative of the abstract equality that embodied this subject in modern private law was the French Civil Code. The French Civil Code changed the standard that a biological person became a legal person through a certain identity in ancient Rome. At this time, the eligibility criteria for judging whether a person has a subjective qualification in private law is determined by the "rationality" of the person. The reason for this change is that, on the one hand, after the Enlightenment, under the influence of the doctrine of natural law, the law

10) Alexander Passerin d'Entreves, "Nature Law: An Introduction to legal Philosophy", New Star Press, 1984, Page 46.

began to use “rationality” to design personality, which is the value basis for the establishment of the civil subject status of natural persons. For example, in the Personality System, the *French Civil Code* adopts the undifferentiated ‘human reason’ advocated by the natural law as the basis for obtaining the personality of the law. It means that the freedom and dignity of people derived from reason can only be the premise that a person acquires a legal personality cannot be something that a person who is ‘outside the person’ can have. Therefore, in the eyes of the French, the basis of human freedom and dignity can only be found in natural law: in the attributes of the ‘natural’ person, and the real law has no right to stipulate it.¹¹⁾ Natural human rights: it is not stipulated in real law, but exists in natural law. On the other hand, with the development of the economy and the expansion of the social division of labor, the existence and role of individuals have gradually emerged. The increase in trading property, the frequent and complicated trading relationship make it possible for any two “economic people” to trade, and the tradition of having all the representatives of the father can no longer satisfy the large number of transactions. In such a historical period, only those who are intelligent and intelligent can be given the qualifications of the subject to ensure the survival of society and individuals and promote economic development. Therefore, the legislative logic of the subject matter of the French Civil Code is: it is a biological person to be a legal person for the legal person must have “rationality”. Although the modern civil law has made great progress compared with the identity system in the Roman period, it insists on the abstract legislative principle in the confirmation of the qualification of the private law subject. However, in the actual legal life, the use of “rationality” as a measure of personality still excludes many people in the

11) JunJu Ma, “Personality Right Theoretical Basis and Its Legislative Style”, *Chinese Journal of Law*, no. 6, 2014, pp. 46–57.

society from legal subjects, such as women, minors, and servants without property.¹²⁾ Later, with the continuous growth of the emerging bourgeoisie, the personality system was gradually developed into the universal period by the influence of Kant's "ethical" people.

3. The Kant's Theory in Modern

Modern civil law abandoned the formalism of modern civil law and then transformed it into substantive justice, which makes the universalization process of personality realize, and ethical personality replaces rational people become the basis of modern natural person legal personality. With the continuous development of society, the legal personality of modern civil law has gradually expanded its ethical connotation and become a means of standardizing the subject qualification at the technical level. Women, minors, and domestic servants who have not been granted qualifications in modern civil law have also been given equal status. One of the important reasons for the transformation of this subject qualification from a strong and intelligent person to a weak and stupid person in private law is that the ethical basis of the civil law subject established by modern civil law is the moral philosophy of Kantism. In Kant's "Ethischer Persona Lismus" philosophy, man is rational, not only has the ability to recognize and perceive the world's things and their laws, but also has the ability to recognize moral requirements and act according to moral requirements. human beings are the purpose of their own, and cannot be used merely as a means. Human dignity stems from human reason, as Kant said: "The same thing with price can replace it with another equivalent; and beyond all prices, that is, it is impossible to have something equivalent, it has its

12) Yuhong Hu, "On the Development of Personality System in Legal History", Science of Law (Journal of Northwest University of Political Science and Law), no.4, 2008, pp 40-50.

dignity. Therefore, irrational things only have a relative value and can only be regarded as objects; and rational beings are called human beings, because human beings are the purpose of their own, and cannot be used merely as a means.”¹³⁾ Under the definition, a natural person is defined as an “ethical” existence. On this basis, due to the further abstraction of the concept of personality, Kant proposed that other subjects can also become legal subjects, laying a theoretical foundation for the emergence of the legal person system.

B. Research on The Subject Status of Corporate Personality

The emergence of the legal person system was not accomplished overnight. on the one hand, the Roman theory of personality separation for the establishment of the legal system created conditions. But the separation of human and personality theory, will not directly lead to the formation of corporate personality. ¹⁴⁾This explains why the French Civil Code does not have the concept of “group personality”, but for the first time in history, the German Civil Code of 1896 expressly stipulates the legal person system. on the other hand, there are five reasons for the emergence of corporate system:

First, the abstract legislative principle of personality makes the inanimate social existence possible as civil subject. In the modern contract world, human being is an abstract existence, with its inherent, economic, political, and intellectual differences being eliminated. In civil law, the civil subject is defined as “person”, which is an abstract and general concept of

13) Karl Larenz, “General German Civil Law”, Beijing: Law Press, 2003, Page 46-47.

14) Tian Yin, “The Theoretical and Legislative Study of the General Principles of the Civil Code”, Beijing: Law Press, 2010, Page 342.

person, which neglects the differences between men and women; old and young; political status and economic power; laborers and consumers; the types and sizes of enterprises as legal persons. Under this abstract personality, natural persons and legal persons have only symbolic meaning, without any essential difference. ¹⁵⁾The personality basis of natural persons is the natural person who is the existence of life, while the foundation of group personality is the entity which can be the unified attribution of power and obligation in the commercial economic life, the organic aggregation of people and property. ¹⁶⁾This can only cause the scope of rights of the legal person and that of the natural person in exercising specific rights to be inconsistent with each other, i.e. the legal person prefers property rights rather than opposing the qualification of the legal person. As Karl Larenz said: “the legal person” itself is the “form of the concept of human”, it is not as plump as ethical people, with “power” can act. Therefore, “the organization of people” can obtain the subject status in law. Of course, the legal person is not a natural organism, not their own consciousness, nor the meaning of the physiological sense, but only a kind of law to the social product of a fictitious. Because of this, Karl Larenz also believed that compared with natural persons, the legal capacity of legal persons is inadequate, legal persons do not enjoy a lot of rights only for natural persons. ¹⁷⁾

Secondly, the other is that the law endows the group with personality in order to solve the problem of unclear distribution of responsibility in social economic disputes. Therefore, the legislator uses independent consciousness

15) Roff Knieper, “Law and History: On the Formation and Change of the German Civil Code”, Beijing: Law Press, 2003, Page 42.

16) Tian Yin, “The Theoretical and Legislative Study of the General Principles of the Civil Code”, Beijing: Law Press, 2010, Page 343.

17) Karl Larenz, “General German Civil Law”, Beijing: Law Press, 2003, Page 57-181.

and independent property to define its scope in the design of legal person system. The law endows the legal person with independent property with group personality and makes it an independent carrier of rights and obligations in civil law, that is, the transaction subject. It is this effect of restricting liability by making property independent that constitutes the essential motive for the establishment of a legal person.¹⁸⁾ A group is first of all a collection of people, and only when the will of each member forms a common will, and the common will organically forms a group will, and when “the independent nature of the group, although all of its members are changed, does not affect its independent existence, then it forms a substantial group”.¹⁹⁾

Third, the legal personality of legal person is the value judgment of the legislator according to the degree of social economic development. The primary objective of any legal system is the allocation of legal rights and responsibilities among persons. If something is not a person, the legal system does not care about it unless it affects the legal rights and responsibilities of the person. Medieval Europe is still a feudal society characterized by self-sufficient natural economy, and the legal personality conferred by the group as the main body of economic activities is worthless. During the last 25 years of the 19th century, the main body of the legal person did not really develop, its main form is the human organization, the qualified legal person organization is not yet plump, and the scale and strength are not worthy of being called. Only in the last 25 years of the 19th century did corporate organizations enter a period of rapid growth. Therefore, it can be said that before the end of the 19th

18) Dieter Medicus, “General Survey of German Civil Law”, Beijing: Law Press, 2000, Page 815.

19) Ping Jiang, “On Legal Person System”, Beijing: China University of Political Science and Law Press, 1998, Page 7.

century to the beginning of the 20th century, the corporate body has not yet occupied the center of social life, nor formed the main form of social existence. Although the organization of legal persons had been developed by the enactment of the German Civil Code, the German Civil Code still adhered to the liberal and enlightened model of society, and to the isolated and individualistic design of human beings that shed the historical characteristics and conditions of the individual.²⁰⁾ In the 20th century, the rapid development of science and technology revolution, social and economic life has changed, the way of production and the way of life of human beings have been completely changed. Compared with ancient society, modern human entered from agricultural society to industrial society, and economic mode changed from natural economy to commodity economy. With the promulgation of the Civil Code of Germany in 1900, this marks the final establishment of the legal person system. Therefore, the group personality is the product of social and economic development needs, but the economic needs themselves cannot directly produce the legal person system. As a system, it can only be produced in the choice of legislators: value judgment.

Fourth, Germany created the concept of “capacity for rights”, to achieve the transformation of concrete personality to abstract personality in the legislative technical level. The need of economic development makes it necessary to mold the group into a carrier of rights and obligations with independent property and responsibility, but to make the group into a subject of rights and obligations like a natural person, it needs to resort to sufficient theoretical ideas and clever application of legal techniques. So, in order to make the group “like natural person” become the burden of civil

20) Roff Knieper, “Law and History: On the Formation and Change of the German Civil Code”, Beijing: Law Press, 2003, Page 42.

rights and obligations, the Germans with the help of the personality theory of Roman law, completed this task of the most imaginative and highly technical creativity in German civil law theory and legislation.²¹⁾ Therefore, the Germans inspired by the identity system of ancient Rome, created the concept of “capacity for rights”. The purpose of the Germans to revive the old theory of personality is not to put on the mask of identity for equal persons, but to put on the face of some “fit to be the subject of the transaction” and to distinguish it from other groups, which are the social organizations known as legal persons.²²⁾ In German Civil Code, the logic of natural person becoming civil subject is “Economic Person – Legal Capacity – Legal Person”, and the logic of legal person becoming civil subject is “Group – Legal Capacity – Legal Person”, which makes it possible for the legal person to enjoy the interests of personality in some aspects.

Finally, the legal personality of groups is the most imaginative and technical creation in the theoretical research and institutional design of civil law.²³⁾ From the logic that the legal person can be the main body of the law, we can conclude that the person in the biological sense is not necessarily the person in the legal sense, so the person in the legal sense may not be the person in the biological sense. The subject-matter category cannot, either, be definitively defined in any case by the fixed inclusion of any constituent element. This provides theoretical support for artificial intelligence entities to become legal subjects.

21) Tian Yin, “The Theoretical and Legislative Study of the General Principles of the Civil Code”, Beijing: Law Press, 2010, Page 193.

22) Tian Yin, “On Legal Personality Right”, Chinese Journal of Law, 2004, P51.

23) Tian Yin, “The Theoretical and Legislative Study of the General Principles of the Civil Code”, Beijing: Law Press, 2010, Page 341.

C. Common Factors for Granting Legal Subject Qualifications

The evolutionary history of legal subject has proved the elasticity of legal personality in the scope of coverage and the separability of legal personality from its related subject.²⁴⁾ In other words, the criterion of judging the qualification of legal subject is the question of when or whether an entity can be recognized as a legal subject. Through the above analysis of natural persons and legal persons in different historical periods of the formation of the legal status of the main analysis. The author thinks that the common consideration factors of the existence of legal personality in the society, and summarizes the following aspects to provide the evidence for demonstrating the legal status of AI.

1. Internal factors: Independence of a Specific Social Existence

Whether a specific society can exist in the social and economic life at that time in the name of independence or civil activities, that is, whether it has an independent consciousness. On the one hand, from the angle of essence, from the identity system in Roman age to the theory of rational man in modern times, the nature of natural person is the starting point of discussion. In ancient Roman period, the nature of natural person derived from its identity. Biological human beings were divided into independent free people and controlled slaves by identity system. Only a free man with independence can be qualified as the subject of the legal relationship, and slaves are regarded as the private property of the master, without independence. In modern and contemporary civil law, natural person is defined as natural attribute because of the profound influence of the thought of natural human rights. That is, the so-called natural person, is a

24) Peter French, "The Corporation as a Moral Person", *American Philosophical Quarterly*, 1979, p207.

biological sense, is based on the birth of civil subject qualification, is the existence of the characteristics of life, each person in the law is an independent individual to enjoy the right to fulfill obligations. In this case, the identity system will also die out of history stage. This means that a legal theory is an abstraction and generalization of the legal phenomenon of a certain entity, and an abstraction and generalization of all the legal phenomena of the entity. When the concept cannot be abstracted and generalized from all the substantive legal phenomena, such concept should be revised. And the internal standard of this revision is whether the essence of the existence of a particular society contains the independence. Taking the change of corporate theory as an example, the corporate system originates from the corporate personality system of Roman law and the corporate system of Germanic law. In the 12th century, jurists put forward the concept of legal person: “legal person is the collection of the majority of people in the name of group”, which forms the basis of traditional legal person theory.²⁵⁾ In the 19th century, the modern corporation system emerged as a new type of legal person system, and the natural nature of association became the essential characteristic of the corporation. But in this century, the appearance of one-man company really has a strong impact on the traditional theory of corporate personality. Although it is not controversial to regard a company as a legal person, the theory of legal person will change with the change of the essence of the company. The term “corporate group” refers to a particular form of organization, characterized by a high degree of independence of the organization itself relative to its members.²⁶⁾ The confirmation of the independent personality of the company is actually the confirmation of the group personality, in order to turn the will of many shareholders into the

25) Yichen Li, “Introduction to Germanic Law”, Beijing: Law Press, 1944, Page 29.

26) Dieter Medicus, “General Survey of German Civil Law”, Beijing: Law Press, 2000, Page 818.

will of the company. ²⁷⁾Based on independence, this theory of corporate essence can show the commonness of different corporate entities, omit the individual attributes of each corporate phenomenon, and can reach agreement with natural person characteristics. Therefore, independence is the basic prerequisite for the existence of legal entity.

2. External factors: the choice of value of the legislator

The subject is the social existence taking part in the social relations. However, because of the special value orientation of a country's law and the limitation of community resource, law only defines one part of the social existence as legal subject. ²⁸⁾Which social existence can be recognized by the law depends on the following three aspects:

Firstly, the need of social economic development is the basis of giving the existence of a specific society with the qualification of legal subject. In economy, the root of economics can be traced back to the slavery economic system of ancient Greece, and agriculture is the only pillar industry of ancient social economic development. ²⁹⁾Because the means of creating wealth were very limited at that time, this created a unique social environment for the development and derivation of slavery. After human society entered into industrial civilization, the means and ways of creating social wealth have changed and become richer and richer, thus promoting the economic system to change. Under this background, the emergence of the new transaction subjects leads to the emergence of the legal person system. Whether the legal personality system of natural person changes

27) Ciyun Zhu, "The Impact of One-Person Companies on Traditional Company Law", Chinese Legal Science, 2002, P11.

28) QiPing Tan, "On the Legal Status of Unincorporated Organizations", Journal of Yunnan University(Law Edition), 2004, P59-64.

29) Xenophon of Athens, "Economics on Athens' Income", Beijing: The Commercial Press, 2014.

from identity person to ethics person, or the limited liability system of legal person system extends from stock limited liability company to limited liability company, and then to one-person company. These are all based on the needs of economic development and the inevitable result of adapting to social and economic development.

Secondly, in politics, the legal system is the embodiment of national will. Savigny has pointed out that the legal “person” of the extended family admission tickets is in the hands of the government authorities.³⁰⁾ This kind of legal confirmation is the legal condition which the individual or the organization must possess as the civil subject. It embodies the intervention of the ruling class’s will to the real economic life. The State confirms, protects, restricts and prohibits social relations and punishes illegal acts by means of legislation, so as to maintain public order and consolidate State governance.³¹⁾

Finally, in the aspect of legislation technology, the legislative technology that separates the concept of person and personality provides technical support for the expansion of the legal subject. Modern civil law takes the theory of legal personality as the basis of defining civil subject qualification. And the use of legal personality abstract legislative means, to achieve “social people” and “legal people” separated from each other of the legal effect. This technique not only established the openness of the extension of legal personality, but also created the abstraction of the connotation of legal personality. In the history of legal system, although the theory about the nature of legal person has not been finalized for a

30) H.F.Jolowocz, “Roman foundations of modern law”, Clarendon Press, 1957, Page 131.

31) QiPing Tan, “On the Legal Status of Unincorporated Organizations”, Journal of Yunnan University(Law Edition), 2004, P59-64.

long time, there have been legal fiction theory、legal symbolist theory、legal realist theory, etc. But this does not hinder the establishment of the legal status of the civil subject of legal person, it should be attributed to the author of the German Civil Code, based on the rational form of the law of the extreme abstract legislative skills, just provide a strong technical support for the system of legal person.³²⁾ The author believes that this will play an active role in promoting the establishment of legal qualifications for AI.

Ⅲ. Overview of Artificial Intelligence

In recent years, the discussion of AI is in full swing in the legal circles of various countries. Discussion about the status of artificial intelligence entities as legal subjects with the proposal put forward by Bill Gates on February 17, 2017 to impose taxes on robots, ³³⁾there will be another upsurge of disputes over legal personality regarding AI. So, 2017 is known as the first year of artificial intelligence applications. Reportedly, Japan is preparing legislation to guarantee copyrighted works of artificial intelligence to prevent copying in robot creation. The South Korean government has drafted the Ethics Charter for Robots, which aims to create an ethical guide to the roles and functions of robots; and the European Union Legal Affairs Commission has proposed a motion to give robots legal subject status.

32) Tian Yin, "On Legal Personality Right", Chinese Journal of Law, 2004, P51. Print.

33) Kevin Delaney, "The robot that takes your job should pay taxes".

A. Artificial Intelligence Concepts and Classification

The term “artificial intelligence” was original coined by Dartmouth Conference in 1956. Then in 1959, a robot named Madeleine solved a thorny problem with its extraordinary intelligence — echoing on a phone line, the first application of AI in the workplace. It is understandable that artificial intelligence was invented in order to make it competent for some tasks that need human intelligence to be completed in order to achieve the goal of liberating human productivity. McCarthy, one of the founders of the Dartmouth Conference, proposed defining the concept of artificial intelligence on the basis of human intelligence.³⁴⁾ At present, the machine learning technology, which combines all kinds of algorithms, plays a key role in the development of artificial intelligence. It is a new technical science to research and develop the theory, method, technology and application system of human intelligence for simulation, extension and extension. Currently, artificial intelligence is divided into three areas: robotics, natural language, and ES, a branch of computer science that aims to make computers more “intelligent”. Along with the continuous development of AI technology, AI may be divided into three types according to the dynamic relationship between human intelligence and artificial intelligence: Artificial Narrow Intelligence, Artificial General Intelligence and Artificial Super Intelligence.

1. Artificial Narrow Intelligence

Artificial Narrow Intelligence refers to an AI that has a specific function through shallow learning. Alpha Go, for example, is far less intelligent than the average person, although its intelligence is superior but limited to

34) Stuart Russell, “Artificial Intelligence—A Modern Approach (Second Edition)”, Beijing: QingHua University Press, 2013.

certain areas. This type of AI is also known as Weak AI or Functional AI. This type of AI entity exists only for the purpose of achieving a specific function in an excellent or even amazing way. This kind of shallow learning technology of Artificial Narrow Intelligence makes it impossible for it to have the ability to transfer learning across fields and disciplines. In today's era, Artificial Narrow Intelligence has been all over our work and life in various fields, so that we enjoy the convenience of the intelligent era.

2. Artificial General Intelligence

It has the same level of wisdom as human beings.³⁵⁾As a result of being able to do deep learning based on massive data, strong artificial intelligence may understand phenomena involving multi-domain knowledge and answer cross-domain questions. What's more, Artificial General Intelligence will be able to integrate knowledge and information into a comprehensive consideration, and make different types of knowledge interact with each other through its own algorithm.

3. Artificial Super Intelligence

The stage of artificial intelligence has crossed the "singularity" predicted by futurist Ray Kurzweil, surpassing the human brain's Artificial Intelligence in all areas of cognition, scientific innovation, social skills, etc.³⁶⁾

Actually, although all of our applications on AI in practice is still in a

35) Linda Gottfredson, "Intelligence and Social Inequality: Why the Biological Link", University of Delaware Newark, 2010.

36) Nick Bostrom, "Super Intelligence: Paths, Dangers, Strategies", Oxford: United Kingdom Oxford University Press, 2014.

period of Weak AI, Artificial General Intelligence is still in the initial stage of development. There are two voices in the face of the rapid growth of artificial intelligence: the “threat of artificial intelligence”, represented by Google ex-CEO Eric Schmidt. People tend to have faith in the future of artificial intelligence. For example, Alphabet chairman Erik Schmidt said that Elon Musk commented at the 2018 Viva Tech conference in Paris, France: “Musk’s concerns about AI are wrong.” Jose, the leader of the MIT Artificial Intelligence Project, presented the difference between strong and weak Artificial Intelligence in the future at an MIT lecture on Artificial Intelligence. A picture of Obama’s colleague standing on a weight machine was displayed at the meeting, and anyone with normal intelligence who was there to put his foot on the device as a joke would be able to read the picture and laugh. For weak Artificial Intelligence, the meaning of the picture is incomprehensible. It can only recognize a group of people in the picture, items such as weighing scales, etc. It may also be able to identify Obama and some of the employees in the photos, and even calculate how many people were smiling and coming out happy with them. But it doesn’t understand why people are laughing in this picture, nor does it see the pranks of its colleagues. In theory, strong artificial intelligence can understand the meaning of this photo.³⁷⁾ Using this simple example, the big difference between weak and strong AI will jump onto the page.

In this way, we can easily understand Musk’s “artificial intelligence threat” is actually, he worried and vigilant artificial intelligence, is not the many areas of science and technology, consumer products in the current use of the Artificial Narrow Intelligence’s technology. Musk cautioned that once the Artificial General Intelligence and Artificial Super Intelligence

37) See news back that time via https://weibo.com/art213?refer_flag=1005055010_&is_all=1, Accessed April 2018.

technology was implemented, it meant that artificial intelligence reached or surpassed the intellectual level of normal people. Prof. Pinker said: “If you really don’t want strong AI to be born, maybe you should start by avoiding weak AI.” This approach is clearly not universally accepted. Although the research and development of strong artificial intelligence technology is still in the initial stage, no matter from the perspective of legal practice, the existing legal planning has been unable to effectively apply the rapid development of artificial intelligence technology is self-evident. Or from the point of view of human social development, artificial intelligence is breaking through the bastion of human intelligence at an incredible speed, the wheel of history will never stop.

According to the current forecast, AI will always develop to beyond the functional Artificial General Intelligence or Artificial Super Intelligence stage.³⁸⁾ This intellectual revolution has brought unprecedented challenges to the current legal system and legal order, especially in civil subject law, copyright law, tort liability law, personal right law, transportation law, labor law and many other areas with the existing legal system form a fierce conflict, highlighting the legal system product supply defects. In the face of AI through algorithms, big data and deep learning technologies have surpassed human facts in specific areas, we should actively respond.

B. The Characteristics of AI

AI is of epoch-making significance in the whole world. From its application in social development, the author will summarize three main features of AI : Virtual and independence are the intrinsic characteristics

38) Xianfeng Gu, “Historical review and current development of artificial intelligence.” Chinese Journal of Nature, 2016, Page 157-166.

of AI, which is the generalization of the essence of AI, and economic value is the external characteristic of AI in the contemporary society.

1. Virtual entity: flexible use of smart carriers

We usually say that AI is algorithm, data as the core technology of the main body. AI is a kind of virtual entity, if we want to let people know and apply it, we must rely on it on different forms of carrier. Unlike other disruptive technologies, the development of AI is not limited to a specific industry, but can support all the industrial changes of universal technology. Because of this, the virtual entity of AI leads to the flexibility of its intelligent carrier. Flexibility is a characteristic that the intelligent technology overlaps with the intelligent carrier in the process of application and carries out automatic processing. It is based on the demand of various fields in social life and relies on the carrier to perfect and integrate the main function of AI. For example, AI and mechanical devices combine to form intelligent robot, but the formal carrier of AI is not limited to machinery, intelligent robot is only one of its specific types. Therefore, although the flexibility of AI carrier for its development prospects, but also lead us to determine the essence of artificial intelligence by its external form of confusion. For example, intelligent robots in the home play the role of “human” or family tools; artificial intelligence in unmanned driving technology is “driver” or the vehicle itself. As the level of AI continues to rise, it is not appropriate to refer to AI as a machine, because what we usually refer to as a machine is a device made of metal or non-metal, which excludes the digital form of AI systems and does not accommodate AI’s multi-carrier form. Therefore, in the complex and diverse external manifestations of artificial intelligence, we should see the essential characteristics of artificial intelligence and explore.

2. Autonomy: The intellectual and interactive of AI is prerequisite for autonomy.

Compared with the traditional mechanical equipment, people often mention that the AI's learning ability, autonomous ability and adaptive ability reflect the most notable characteristics of AI is independence. The autonomy of AI is mainly shown in two aspects: on the one hand, intellectually, although artificial intelligence is different from human intelligence, but artificial intelligence depends on human intelligence. Artificial intelligence attempts to simulate human brain according to the intelligence level or type of neural cognition, psychological cognition, language cognition, thinking cognition and cultural cognition, reaching the level of human intelligence.³⁹⁾ In fact, John McCarthy is the author of the modern concept of artificial intelligence, in his view, "intelligence" is about the achievement of certain goals of the behavior "mechanism", and the machine can be achieved by imitating human behavior mechanism, can also use any means freely to create behavior mechanism. Thus, we get a very important concept in the field of artificial intelligence - "machine learning".⁴⁰⁾ Machine learning is a concentrated representation of the autonomy of AI entities. On the other hand, in terms of interactivity, the interactivity here refers to the level of human-computer interaction. From weak AI, strong AI to super AI, there are two situations in man-machine relationship: AI is outside human intelligence, as an independent entity, and AI and human intelligence are combined. In the first case, the degree of autonomy of AI mainly depends on the intelligence level of artificial intelligence, that is, the intelligence of AI. In the era of weak AI, under

39) Shushan Cai, "Artificial Intelligence and Human Intelligence", Journal of Peking University (Philosophy and Social Sciences), 2016.

40) McCarthy, J, What is Artificial Intelligence, URL: <http://www-formal.stanford.edu/jmc/whatisai.html>, Accessed November 2018.

human intelligence, AI does not possess some of the capabilities possessed by human intelligence, such as creativity, but it is also not a tool entirely at the disposal of human beings, and has a certain capacity for independent judgment under established procedures and frameworks. In the future, with the coming of the era of strong AI or super AI, AI has the ability of memory, calculation, logical thinking, and even emotional experience, expression and communication similar to natural person. At this time, stay in the object level identified may not meet the needs of reality. In the second case, artificial intelligence is implanted into human body to form all kinds of bionic intelligent machines. At this time, “legal person is not social human” appears in modern sense, such as intelligent wearable equipment.⁴¹⁾ The aim of this human-computer interaction mode is to enhance the function of human body. In this state, artificial intelligence and human brain play a synergistic role, artificial intelligence as part of the human body. With the development of man-machine cooperation technology, there will be a new form of man-machine or semi-robot, which has both biological intelligence and machine intelligence. Therefore, in the era in which artificial intelligence is highly integrated with human beings, it should be considered to bring artificial intelligence into the ranks of legal subjects in order to maintain the emotion and living needs of natural persons and to promote social and economic development.

3. Economic Value: Extrinsic Characteristics of AI

As the basic technical support of the intelligent society in the future, AI will have a great and far-reaching impact on social production, life style and working style. Similar to autonomy, the breadth and depth of this value will increase as technology progresses. Through the universal

41) Shaofei Guo, “The Legal Status of ‘Electronic Person’”, *Oriental Law*, 2018, Page 38-49.

application of artificial intelligence, we are building a highly information-based, intelligent society. In terms of production, from the perspective of the world, in order to solve the society's internal population, industry and energy and other three structural contradictions. Germany was the first to propose the new concept of "Industrial 4.0". Japanese scholar Hiroshi Fujiwara published "The Fourth Industrial Revolution" in 2010 and put forward a new concept of "The Fourth Industrial Revolution". The United States puts forward the development goal of "re-industrialization" and hopes to construct a new system of industrial division by using artificial intelligence, big data, internet of things and other new technologies. Against this background, the Summer Davos Forum held in Tianjin, China in 2016, with the theme of "The Fourth Industrial Revolution - Power of Transformation", has attracted worldwide attention. ⁴²⁾The Fourth Industrial Revolution is based on a collection of four major emerging technology vectors: The Internet of Things, big data, artificial intelligence, and robots. Artificial intelligence technology makes the traditional industry rapidly intelligent and at the same time develop a number of new intelligent industries and become a new economic growth point. Recently, Street Bees published a new report, "The Impact of Artificial Intelligence," providing insight into the public's perceptions of Artificial Intelligence and machine learning technologies, as well as their current and anticipated impact on their own and their professional lives. Most of the 3,500 respondents from the UK, the US, India, Nigeria and South Africa were more concerned about the role of artificial intelligence technology in their working lives. (India: 59 per cent; Nigeria: 58 per cent; the United States: 37 per cent; and the United Kingdom: 25 per cent) ⁴³⁾In life, artificial intelligence is first and foremost emotionally accompanied and satisfies the

42) Yuhong An, "The Fourth Industrial Revolution", *Macroeconomic Management*, 2016.

43) See news back that time via <http://www.199it.com/archives/746532>, Accessed April 2019.

needs of human life, such as the emotional accompanying robots, entertainment robots. the birth of sexual services and human skin mate robots is not a technical issue but a legal issue. Secondly, AI popularized in the daily tools, such as domestic robots and watches, bracelets and other wearable equipment, so that our lives more convenient and intelligent. Finally, AI in service robots, driverless, intelligent medical treatment, AR and other aspects of the rise and application of a more comfortable life experience, greatly changed people's way of life. In the work, the intelligent industry for the new generation of technological revolution, technological progress to replace people's daily many repetitive labors. For each of us, AI can free us from some heavy, dangerous work, reducing people's physical labor at the same time improve the efficiency of the work. Therefore, we can devote our energy to the things we like to do without working for the sake of work, and realize the pursuit of free value.

IV. The characteristics of AI are consistent with the conditions of subject qualification

In China, after “Made in China”, we firmly proposed “created in China” and “intelligent manufacturing in China”. In response to the request of The State Council on July 8, 2017 issued the Notice of the State Council on Issuing the Development Plan on the New Generation of Artificial Intelligence for the development of AI to point out the direction. Meanwhile, experts predict that the revolution that starts intellectual age is forthcoming. The legislative technology of separating “biological person” and “legal person” provides the legal theoretical basis for Artificial

Intelligence legal personality. However, the main subjection of the intellectual revolution will also encounter obstacles in the society ruled by law, especially in the determination of civil subjects, it is thrown many challenges to the law. Giving AI legal personality needs to be changed on the basis of legal cogitation. Meanwhile, the author combines the characteristics of artificial intelligence to explore whether artificial intelligence entities should be granted legal personality:

A. Legacy Entities and Virtual Entities

As for the basis for judging the civil subject qualification, Shangkuan Shi ever inducted two specific conditions: “being a subject of right requires the social existence suitable for enjoying the right and the recognition by law”.⁴⁴⁾ Artificial Intelligence is not discovered, but is created by human invention. This means that the personality basis of AI entity is different from that of natural person, which is the natural person itself as a living entity and also different from the group personality. The foundation of group personality is the entity that can be the unified attribution of power and obligation in the life of commodity economy.⁴⁵⁾ Generally, the development and application of artificial intelligence technology are the two cornerstones of algorithms and data. Therefore, there is an unbridgeable gap between the artificial intelligence entity and the traditional entity from the perspective of traditional personality theory.

Above all, the theory of personality changes with the times. Japanese civil jurist Hoshino Echi pointed out: “Even if the existence of non-human,

44) Shangkuan Shi, “General Principles of Civil Law”, Beijing: China University of Political Science and Law Press, 1997.

45) Tian Yin, “On Legal Personality Right”, Chinese Journal of Law, 2004, P51. Print.

for the right to be suitable for private law as the subject of rights and obligations, will be recognized.”⁴⁶⁾ The author believes that we should break through the bondage of the traditional concept of entity in law, and give full recognition to the virtual entity in the substantive, not as an exception. First, the “exceptional phenomenon” to explain the phenomenon of Artificial Intelligence to explain the weakness of theoretical paradigm. According to Kuhn, the founder of philosophy of science, with the development of practice, there will be more and more “exceptions” that are difficult to explain for paradigm. Once these exceptions develop enough to shake people’s confidence in the paradigm, there will be a crisis, and the scientific revolution will begin.⁴⁷⁾ Secondly, the legal subject system will not be abused due to the recognition of the existence of virtual entities, which requires that AI must be specified only in form. The virtual entity in essence cannot be prohibited. When AI participates in all aspects of human life and society and shares social resources with natural persons, it is difficult for the law to ignore their “feelings” and “appeals”.⁴⁸⁾ If the law refuses to recognize the formal meaning of AI but cannot prohibit the existence and development of artificial intelligence, it is likely to lead to a large number of “distorted” private law cases, which hinder the development of society and economy. Third, Western philosophers believe: “Technology to a certain degree will inevitably have the spirit, if the development of technology more intelligent, he will be like the brain as a better carrier of the spirit.”⁴⁹⁾ With the development of the times, the

46) Hoshino Eiichi, “Person in Private Law-Righteous Civil Law Property Law as the Center”, Beijing: China Legal Publishing House, 2004, P21.

47) Zhengxia Qian, “A History of Western Philosophy”, Shanghai: Shanghai People Press, 1985, Page 705.

48) Chngdan Zhang, “Study on the Challenges Brought by AI to the Traditional Civil Subject Theory”, Science Technology and Law, 2018, Page 37-43.

49) Phil McNally Sohail Inayatullah, “Robot Rights-technology, Culture and Law in the 21st Century”, Beijing: World Science, 1989.

recognition of the subject qualification of artificial intelligence should break through the old theory that the reproductive flesh and biological organism are the bearer of spiritual existence.

B. Independence and Autonomy

In accordance with the current law, natural persons, legal persons and other organizations are legal subjects, legal persons and other organizations of the law given personalities. According to the traditional theory of civil law, there is an insurmountable gap between the subject and the object of legal relations, only two types of legal relations can be achieved. Things without spiritual will should not be the subject, but the object of legal relationship. But through the changes of the times, the impassable gap between the subject and the object is now shaking.⁵⁰⁾ Actually, While Alpha Go is one of the top players in Go field, may be weak in other areas. We might as well call it “the foolish child who can play chess”, it is proposed to be a limited intelligence “person”, this proposed person is between the person and the object intermediate subject. It is different from the real body of the natural person, but also different from the machine repeated simple mechanical action to complete human instructions.⁵¹⁾ The author thinks that the criterion of judging the independence of natural person and legal person is the independent consciousness and the independent consciousness respectively, and it is the necessary condition to endow the legal subject. However, the connotation of independence is not invariable according to the changes of times. YowalHellari, a professor of Israeli history, points out: “A growing number

50) Huixing Hui, “From Modern Civil Law to Modern Civil Law”, Deiking University Law Journal, 1997, Page 12.

51) Zhiguo Ma, “The Possibility of Applying Criminal Law to Artificial Intelligence Body”, Journal of Huazhong University of Science and Technology (Social Science Edition), 2018, P8.

of scientists believe that it is not free will that determines human behavior, but hormones, genes and synapses.”⁵²⁾ The essence of the social entity problem that one of the core elements whether it is endowed with the qualification of legal subject. The essence of entity is after the emergence of the social phenomenon of the entity, countless scholars analyze, study, explore the fundamental attribute of the conclusion, and the conclusion is not exactly the same. Take the legal person system as an example, there are contract theory, separate behavior theory, common behavior theory and so on. Since most scholars agree on the theory of joint action, this theory becomes accepted by all. This shows that the essence of the legal subject is the theory based on the existing social phenomena, and is not any law that can not be changed. So, after the fact changes, the conclusion that the change comes out is the progressive and scientific research attitude. Taking the establishment of a one-person limited liability company as an example, Ciyun Zhu once put forward: “In such circumstances, we cannot be forced to maintain the past theory of the nature of the company, but should follow the changed facts.”⁵³⁾

Autonomy is a state of independence, “the ability to operate for long periods of time in a real-world environment without any form of outside control, once a machine is started and at least in some area of operation”. The value of artificial intelligence is not to imitate human behavior, but to have the ability of autonomous learning and decision-making. Because of this, AI technology cannot be simply understood as an expression of the will of its creators. Programmers give only learning regulations, but the real decision is made based on large-scale data training algorithm itself,

52) Yuval Noah Harari, “Brief History of Humankind”, Beijing: CITIC Press, 2017.

53) Ciyun Zhu, “The Impact of One-Person Companies on Traditional Company Law”, Chinese Legal Science, 2002, P11. Print.

and this result has no direct causal relationship with the programmer's will. Along with the development of deep learning and human-computer interaction technology, the application of science and technology may lead to the development of "thinking ability" similar to that of natural persons. Therefore, Autonomy that the AI essential characteristic may take the traditional personality theory connotation the extension. The autonomy of AI is embodied in two aspects: intelligence and interactivity.

1. Intelligence is a prerequisite for the autonomy of the AI

It is a computer system that simulates, extends and expands human intelligence. Intelligent entities in the context of AI have a high degree of selectivity and judgment, and their "intelligent" attributes allow them to be independent of anyone else (even their producers or designers). Unlike previous attempts to transform human meaning into sign manipulation, for example, into a language or mathematics that computers can understand, it is not the same. Machine learning at this stage, in contrast, is the process of building and improving an algorithm. Algorithm rules can draw conclusions from data. The algorithm is very different from the program. It is a series of rules or instructions that a computer is required to follow.⁵⁴⁾Through machine learning and deep learning, robots can also have human-like neural networks by simulating the spiritual networks of humans. Alpha Go is the best example of an artificial mental network model. In fact, it is not nerve cells that produce consciousness, but the arrangement and combination of nerve cells. Whether it is a biological cell, a simulated neuron composed of electrical components, or just a piece of code written by a programmer (neurons), it can be seen as a cornerstone of self-consciousness.⁵⁵⁾In addition, robots can also have human-like

54) Calum Chace, "The Economic Singularity", Beijing: Machinery Industry Press, 2017, Page 53.

intuition or feelings, with unique ideas and inspiration. For example, in 2017 Open AI announced a study showing that, with training, agents can also create languages for communication. That same year, the Facebook Institute for Artificial Intelligence upgraded the dialogue strategy of two chat bots, and they tried to create a language that humans could not understand.⁵⁵⁾ It should be noted that although the AI program and algorithm is designed by the human, but its operation and make judgments, decision-making process is a “black box”, cannot be considered that this is an extension of the designer’s thinking, wisdom and will. As Nobel laureate economist John Carnegie, who has spent his life studying irrational biases in human minds, told the Devil’s Economics blog in 2011: Essentially, whether it’s human or artificial. The rules of thumb are biased, but the rules of thumb for artificial intelligence are not necessarily the same as human experience.”

2. The development of human-computer interaction technology is the driving force behind the enhancement of AI autonomy.

It is often mentioned that the learning ability, autonomous ability and adaptive ability of artificial intelligence all depend on the development of man-machine interaction technology. Human-Robot Interaction refers to the information communication between human beings and robots through certain sensors and interfaces to achieve mutual understanding and supported by certain interaction technologies. The goal of the research is to make the robot coexist with human harmoniously, accomplish the task of user’s confession naturally and efficiently, and provide users with timely and effective feedback. Big Data and AI algorithms play an

55) Zhiguo Ma, “The Possibility of Applying Criminal Law to Artificial Intelligence Body”, Journal of Huazhong University of Science and Technology (Social Science Edition), 2018, P8.

56) Zhanli Sun, “The Legal Status of Intelligent Robot”, Oriental Law, 2019, P8.

increasingly important role in our society, such as participation in transactions, diagnosing and treating diseases, supporting justice and law enforcement, and customize service. This means that at the level of human-computer interaction, using purely passive tools to depict AI is not appropriate, at least not fully covered by AI. Hence, we need to actively shape the social role of artificial intelligence, to maximize its benefits and minimize the threat.⁵⁷⁾ The author believes that with the development of human-computer interaction technology, the relationship between people and machines has changed greatly. The interactive characteristics of AI will bring about new changes in social relations and even legal relations. Just as the invention of printing in the 15th century changed the course of modern history, empirical knowledge replaced religious doctrines. The establishment of the new social relations between people leads to the change of their legal relations. The thoughts and actions produced in the rational era have shaped the contemporary world order. However, technological changes such as artificial intelligence are impacting kinship and parenthood, which are protected by law on the basis of consanguinity; marriage on the basis of acquired emotion and action; and moral and ethical relations on the basis of society. Is it possible that when AI is involved and felt like a human being, that the various machines on which our world depends are driven by data and algorithms and are not subject to ethical or philosophical norms? Today, with the division between man and machine becoming vague, we have to face up to the need of renewing the standards bestowed by the tradition of legal personality.

To sum up, the degree of autonomy of artificial intelligence is not the basis to deny its independence. Based on the above classification of AI

57) Henry A. Kissinger, "How the Enlightenment Ends", The Atlantic, 2018, P30.

entities, all AI share the common characteristics of AI – autonomy, and different types of AI differ in the degree of autonomy, regardless of the type of AI technology involved. The criteria for determining the degree of autonomy of an AI entity are not a simple combination of the intelligence of one person and another person, but an organic combination of application software and hardware entities that use AI techniques to achieve independent activities such as AI behavior, thinking, language, cognition, reasoning, decision-making, etc.⁵⁸⁾ Therefore, we should not deny the AI on the basis of legal personality, but treat different intelligent entities differently on the premise of recognizing the independence of the will.

C. Choice of Value of Legislator: Economic Value Offered by AI

The legal subject rule is a kind of value judgment. In the final analysis, the value orientation of AI under the scientific revolution is determined by human beings, just as the dependence of human and machine is regulated by the potential system and code of conduct.⁵⁹⁾ From “human being can be inhuman” to “human being can be inhuman” reflects the protection of human rights and the progress of human civilization, because the recognition of multi-subject qualification is in the ultimate sense a respect for the dignity and equality of natural persons and the freedom of personality. Legislators are not at liberty to choose which social presence should be incorporated into the rules of law. As a newborn social being, AI still needs to pursue and strengthen this universal human value to

58) Zhiguo Ma, “The Possibility of Applying Criminal Law to Artificial Intelligence Body”, *Journal of Huazhong University of Science and Technology (Social Science Edition)*, 2018, P8.

59) Handong Wu, “Institutional Arrangements and Legal Regulation in Age of Artificial Intelligence”, *Science of Law (Journal of Northwest University of Political Science and Law)*, 2017, P128-136.

endow its legal subject qualification. From the historical evolution of legal subject qualification, we can see that the legal subject is valuable in politics, economy, culture and so on according to the social conditions at that time. Because economic base that decides superstructure is the foundation society develops progress, the economic value of individuals is based on the following two aspects:

First, It is that the perspective of economic benefits brought by Artificial Intelligence, Xinzhe Wang, chief economist at the Ministry of Industry and Information Technology, said that according to incomplete statistics, by the end of 2017 there will be more than 2,000 artificial intelligence enterprises in China, including more than a hundred related enterprises in Beijing, Guangdong, Zhejiang, Jiangsu and Shanghai. It is estimated that by 2020, the scale of China's core artificial intelligence industry will exceed 150 billion CNY and that the scale of relevant industries will exceed one trillion CNY in the Global AI Product Application Expo 2018. Artificial intelligence is the leader of the new "Digital Revolution".

Second, the development of AI has given birth to the potential economic risks: although artificial intelligence technology has been widely used in logistics, transportation, medical treatment, manufacturing, services and other industries, but in the application of artificial intelligence practice, due to the absence of legal personality regulations for artificial intelligence under the current legal system, resulting in the lack of legal value of practical application guidance, social and economic security risks. It is mainly reflected in two aspects:

On the one hand, the traditional trading system has a severe impact,

giving artificial intelligence the legal status to help drive transactions. Food, clothing and housing are the basic elements of human life, and the acquisition of these elements is through commodity production and commodity exchange in today's society, so commodity production and commodity exchange is indispensable to human social development. "But the commodity is not capable of autonomous exchange, so we must find its guardian, the owner of the commodity."⁶⁰⁾ In the age of intelligence, artificial intelligence is involved in our lives in a variety of ways. It can be a colleague on the job, a housekeeper on the job, a contract counterparty who benefits us, or a torturer who causes us problems. Thus, the determination of civil subject is the first condition of civil juristic act. In May 2017, Microsoft Robot Xiao Bing, for example, created a poetry collection called "The Sun Loses the Glass Window," which was published by Beijing United Publishing Co. The author's signature is not Microsoft or an AI design team, but Xiao Bing. This suggests that, regardless of whether or not the law confers legal personality on an AI entity, the AI entity actually participates in the transaction in its own name. However, due to the lack of a carrier of rights, the legal consequences of exchanges cannot be attributed. Therefore, the law endows the AI civil subject qualification, is advantageous in promoting the transaction to carry on.

On the other hand, it leads to the absence of civil responsibility. Clear artificial intelligence's legal subject status, causes it to undertake the responsibility to have the basis. At present, the most disputes arose in the field of AI tort. With the development of artificial intelligence technology, the gap between intelligent robots and human beings only leaves a lack of affection, jealousy, disgust and so on. But this should not be the inevitable

60) Karl Heinrich Marx, "Complete works of Marx and Engels", Volume 23, Page102.

obstacle for intelligent robots to become the main tortfeasors. From the point of view of tort identification, even the infringement of human beings does not fall under the subjective elements of emotional factors, let alone only for human use of intelligent robots.⁶¹⁾ For the reason, the EU has taken the lead in offering solutions to the AI's assumption of liability, which are mainly reflected in the establishment of insurance programs and the establishment of special funds. When these schemes are applied in the social practice, the process of obtaining the qualification of legal subject for AI will be promoted. At this time, AI can become the carrier of power and duty, also become the carrier of property responsibility, which endows it with practical value.

V. On the Confirmation of Legal Qualification of AI in China's Private Law

In modern society, influenced by the theory of individualism and liberalism, the civil legislation of all countries is based on these two principles, and the individualism and liberalism emphasize the individual as the basis. In legislation and practice, the dual subject structure of natural person and legal person was formed because the modern civil subject system was designed on the basis of individualism and liberalism.⁶²⁾

61) George R. Cross and Cary G. Debessonet, "An Artificial Intelligence Application in the law: CCLIPS, A Computer Program that Processes Legal Information", *Journal of HIGH TECHLL.* No.1, 1986, P329.

62) Karl Larenz, "General German Civil Law", Beijing: Law Press, 2003, Page 42.

A. Status Quo of Establishing the Status of AI in Overseas Practice

The law establishes the subject of law according to the substantive concept accepted by the legislator, takes it as the axis of legal relationship, undertakes the content of legal relationship, and then constructs the legal order. The legal subject or legal personality is the entity which is chosen by the legal thinking to bear the legal relation. Therefore, the legal subject in history has never been the entity in the real world itself, but the entity that the legislator accepted in the thought, sometimes even the entity of fiction.⁶³⁾ There are many viewpoints on the subject qualification of AI in the field of extraterritorial legal theory.

1. Animal Theory

Based on the abstract legal personality system established by modern civil law and the theory of environmental ethics abroad, the discussion on animals as a civil legal subject has been controversial. For example, the German Civil Code of the “animal non-objective” of the provisions, establish the subject position of animals. Today, someone assume that empowerment path for AI similar to animal theory. The most representative is Russia, Russian scholars drafted as Russia’s first robot law draft of the Grisham Act proposed the robot in different legal relations and development of the position. Take AI as a property positioning similar to animals, and grant robots the ability to obtain special rights within a limited scope of subjects of right. ⁶⁴⁾First of all, from the point of view of the draft itself, it does not propose that the legal provisions on animals should be applied to robots after it has been positioned as animals. But

63) Weiqiu Long, “Basic analysis of the concept of legal subject (below)”, Academics, 2000.4.

64) Jianwen Zhang, “The Contribution and Limitation of the Grischen Act—Review of Russia’s First Robot Bill”, ECUPL Journal, 2018.2, Page10.

this leads to its positioning is only formal significance, but lack of practical value. Secondly, the animal itself as a civil subject is not the common practice of countries, there are still many unresolved disputes in theory, and it does not have universal value. Finally, from our country native legislation situation, General Provisions of the Civil Law of the People's Republic of China has not accepted the animal to take the civil subject this legislation practice. It is not feasible in our country to establish the subject qualification of AI compared with animals. Based on the above analysis of the features of the AI entities, it is not an illusion that the AI entities become unified owners of rights and obligations. Although as a legislator, the legislative system should not be designed beyond the current stage and foreseeable circumstances, cannot be based on the imagination of science fiction to pursue the reality of law too forward-looking.⁶⁵⁾ But combined with the current development of artificial intelligence, the definition of animal is obviously unable to meet the objective needs of social and economic development, without economic value.

2. Product theory

the doctrine essentially regards AI as the object of rights. The flaw of this doctrine is found in the case of *Mrazek v. Bryn Mawr Hospital*.⁶⁶⁾ In the case of *Mrazek v. Bryn Mawr Hospital*, doctors used Leonardo da Vinci medical robots to perform prostate surgery. Because the robot refused to accept the doctor's orders during the operation, the team carried out the operation artificially, but after a week, the patient had severe bleeding and other symptoms. The patients then sued for damages from

65) Jianwen Zhang, "The Contribution and Limitation of the Grischen Act – Review of Russia's First Robot Bill", *ECUPL Journal*, 2018.2, Page10.

66) Ugo Pagallo, "The Laws of Robots: Crimes, Contracts and Torts", Dordrecht Springer, 2015.

robotic manufacturers and hospitals. In the United States, the court eventually dismissed the plaintiff's claim on the basis of strict product liability. The first fundamental reason for the above judgment is the great difference between AI entities and products- AI have autonomy. Many AI agents are "neural networks". They learn by analyzing large amounts of data and building mathematical models. Humans cannot predict whether the solution to a problem will cause loss and avoid it in advance. This defect occurs when the makers of artificial intelligence produce "products." Therefore, it would be unfair to place AI entities as products, whether reversal of the burden of proof attributable to the particular tort is attributable solely to the manufacturer's designer or to adjustment of the product liability law. ⁶⁷⁾

3. Electronic personality theory

In May 2016, the Legal Affairs Committee of the European Parliament proposed to create an "Electronic personality" for robots in the Draft Report with Recommendations to the Commission on Civil Law Rules on Robotics. On the basis of the concept of "the non-human agent" as put forward by the European Civil Law Rules in Robotics (52) that the theory circle will further improve its development and put forward the theory of "Electronic personality". The European Civil Law Rules in Robotics 59th (f) that in the long run, it is necessary to create a special legal status for robots, so that at least most complex automatic robots can be established the same legal status as electronic persons, liable for a large number of damages caused by their manufacture, or have electronic personality after

67) This means that the plaintiff must bear the burden of proof, prove that the product is defective and there is a causal relationship between the defect and the plaintiff's loss, so that it will fall into the "Polanyi paradox", the consequence is that the plaintiff bears the risk of losing the case.

application when robots can make automatic decision or third parties can communicate independently.⁶⁸⁾ From this we can see that the European Union is AI legal personality of the emergence of the application is similar to the process of legal personality. But then came the question of who should be the applicant. Does the applicant apply according to standards? What is the legal status of the applicant in this application? This theory of electronic personality has not yet given a clear answer. More importantly, it is uncertain that the introduction of registration will hinder the further development of artificial intelligence technology when the relevant conditions are not perfect. As a German robotics association argues, EU legislative proposals merely see the scale of AI applications, but do not mention the actual damage and consequences they have caused. The benefits of AI far outweigh the disadvantages. In this case, the legislation is not appropriate to limit its development and to give it sufficient discussion is necessary, however, for the time being, there is no need for detailed legal rules to curb AI development.⁶⁹⁾

B. The Conceive of Institutional to Grant Legal Subject Qualification for AI

Once an AI entity is granted citizenship, a series of legal issues will arise. In the future, if the law endows AI with the qualification of subject, then the substantive requirements for AI to acquire the status of subject, i.e. ability and specific material requirements, should be clearly defined in the law. The determination principle of Artificial Intelligence's ability is that it can at least moderately get rid of the shackles of the inherent

68) Gabriel Hallevy, "The Criminal Liability of Artificial Intelligence Entities—From Science Fiction to Legal Social Control", *Journal of Akrom Intell* No.4, 2010, P171.

69) Gerhard Hegmann, "So will die EU jetzt Roboter per Gesetz bandigen", *Welt*, N.24, <http://www.welt.de/amp/wirtschaft/article156463323>, Accessed November 2018.

algorithm and form a certain degree of autonomous learning and creative ability. The issue of legal personality not only concerns the subjects of rights, obligations and responsibilities, but also the law is expected to adjust the new-type social relations, i.e. the social relations between humans and intelligent robots, and that between robots. Although it seems that there is a long way to go to incorporate artificial intelligence into civil subjects, the allocation of rights and responsibilities and the arrangement of systems should be given full attention in the field of legal research. Law is not only a kind of standard fact, but also a kind of value system. Value is never a one-dimensional self-sufficient closed-system, but an open system of pluralistic competition; it is not a static system, but a dynamic system that changes according to time and place.⁷⁰⁾ Facing the institutional composition of the future, we shall, with the theme of the technological development and regulation of artificial intelligence, form a social governance system containing legal rules, policy provisions and ethical norms.⁷¹⁾

1. AI in the Legislative System

According to the hierarchy of civil subject system as specified in Chapters II to IV of the General Provisions of the Civil Law of the People's Republic of China, Chapter II specifies natural persons; Chapter III specifies legal persons; and Chapter IV specifies unincorporated associations. Therefore, in our country the civil subject is divided into natural person, legal person and unincorporated organization. To sum up, whether or not artificial intelligence has legal personality, how to obtain

70) Hui Xie, "On Legal Value and Institutional Rhetoric", *Journal of Henan University(Social Science)*, 2017, P27.

71) Handong Wu, "Institutional Arrangements and Legal Regulation in Age of Artificial Intelligence", *Science of Law (Journal of Northwest University of Political Science and Law)*, 2017, P128-136.

the qualification of subject and other issues are not in other branches of law but should be specifically affirmed in civil law. Otherwise, it will cause the artificial intelligence legal system's construction to be difficult. Take the current tax reform in the era of artificial intelligence as an example. Although the development of artificial intelligence has increased social productivity, but also triggered the automation panic of "robot replacing human". The United States and the European Union have joined the discussion of robot tax in response to the decline in employment and government revenue caused by the intensive expansion of artificial intelligence. South Korea, in particular, announced plans in August 2017 to tax robots indirectly by limiting robot tax breaks, making it the first country to impose a "robot tax".⁷²⁾ But there are many different opinions about the legitimacy of AI taxation in the theoretical circle, each of which has its own opinions. The biggest problem of AI taxation lies in how to define AI entities in civil law, which is the main reason why AI is imposed. If an AI entity can have an independent legal entity status, it is entitled to be treated as an independent taxpayer to pay taxes to the state as a natural or business entity.

It is generally accepted that natural persons need not be defined separately by law, but legal persons need to be defined in the same way. After AI is incorporated into the scope of civil subjects in terms of theory, it needs to be clarified in practice that AI meeting those conditions can become civil subjects through legislation. Secondly, AI as civil subjects shall be regulated in terms of civil rights and civil responsibility.

First, Assumptions about Legal Rights Granted to AI

72) Cara Mc Googan, South Korea Introduces World's First 'Robot Tax' <http://finance.sina.com.cn/world/gjcj/2017-08-11/doc-ifyixcaw4251674.shtml>, Accessed November 2018.

With the increasing of the social application of artificial intelligence in the scope, depth and frequency, people will find that the traditional right type is difficult to apply to the artificial intelligence entity, and even the whole legal system is facing the crisis of disintegration due to the independent function of artificial intelligence. Generally, the core issue of the design of the AI right system is how to determine which AI rights should be acquired and which robots should acquire which rights. Traditionally, rights are classified into personal rights, property rights and political rights in accordance with the way of “all men are created equally” or the way of “human rights innate”. However, under the impact of modern artificial intelligence technology, the types of rights have already gone beyond the scope of rights defined by the traditional statute law, and gradually developed virtual rights, such as the right to be forgotten, the right to personal information, virtual property, etc.⁷³⁾ The irregularity of law caused by the right of artificial intelligence has brought great impact on the normal operation of the current legal system of our country. Therefore, in terms of the proposed system of robot rights, our country shall specify necessary right boundaries. From the point of view of legislation technology, whether to take the legislative method of “exemplary stipulation” or “enumerative”, will cause the inexhaustible problems of robot rights.⁷⁴⁾ In this regard, according to the needs of the social application of robots, “legal reservation” is a perfect suggestion to limit the rights of robots.⁷⁵⁾

73) Yujie Zhang, “On Robot Rights and Its Risk Rules in the Age of Artificial Intelligence”, *Oriental Law*, 2017, pp 56–66. Print.

74) Fengjing Liu, “The Legal Principle and Formulation of Exemplary Provisions”, *Social Sciences in China*, 2009.4, P93.

75) Yujie Zhang, “On Robot Rights and Its Risk Rules in the Age of Artificial Intelligence”, *Oriental Law*, 2017, pp 56–66. Print.

Second, AI as Responsibility Subject

The extensive development and use of new technologies, particularly AI, pose challenges to existing legal and regulatory frameworks. One important problem is who should be responsible for the decision of AI. Under the responsible system, any party responsible for the accident of the Machine will ultimately be the liability of the legal person (natural person or company). Resolving the issue of legal liability is important, because the practical application of AI must overcome the obstacles of legal liability. However, there are divergent views on whether new legal liability rules need to be formulated. In general, civil liability for AI is manifested in tort liability arising from the infringement upon personal or property rights by AI products such as intelligent robots and autopilot vehicles.⁷⁶⁾ In this regard, the United States, Germany and the European Union are aware of the AI tort liability should be imposed by specific laws or the need for moral regulation. The author believes that traditional principles for handling civil liability should not be simply applied, but rather special and comprehensive consideration should be given to the characteristics of AI. The main measure is to establish the principle of differentiated responsibility, according to the degree of autonomy of artificial intelligence to determine whether and how much responsibility it should bear. For AI producers, in Japan, the United States and other countries to support the application of strict responsibility for liability, which is based on the inherent attributes of AI.⁷⁷⁾ China should follow the trend of the development of the times and make special laws and regulations for the AI according to the condition of a country.

76) Jianfeng Cao, "Ten recommendations to interpret new trends in EU artificial intelligence legislation", published on Tencent Research Institute website via <http://www.tisi.org/4811>, Accessed November 2019.

77) Tong Zhang, "Research on Civil Liability for Damage Caused by Artificial Intelligence Products", *Journal of Social Sciences*. no.4, 2018, pp 103-112. Print.

2. Harmonization of Legal and Ethical Standards

The development of AI needs the coordination of law and ethics. Since modern civil law based on the maintenance of human dignity, the equality of natural persons, free personality is universally recognized. As for the adjustment of social relations, the ethical rules play a leading role. Artificial intelligence has developed into a kind of existence that can be compared with human in the ability of cognition, action and interaction, so it can be regarded as “quasi-subject” or “quasi-subject”. On the one hand, they may not actually know what they are doing, on the other hand, at least in the result, people can understand the function of what they are doing and give value and meaning to it.⁷⁸⁾ Therefore, the natural person needs the moral restriction, the artificial intelligence also needs the moral escort. With the improvement of agent’s autonomy, the complexity of agent’s function may cause great harm once it is disordered. On April 8, 2018, The robot called Xiao Ai produced by MI company, it is ended up with a public apology for homosexual discrimination. In the apology letter, “Xiao Ai” did not blame the error to its designer or to Xiaomi itself. This is because although every designer of the algorithm has its own value system and applies it to the algorithm, the artificial intelligence entity has its own way of thinking completely different from that of human. This not only provokes us to think: because AI is interactive, it is not enough to put AI entities within the framework of the law. In addition, legislation needs to be supplemented by ethical rules due to its lag. Therefore, not only the designers, controllers and users of AI should abide by the specific ethical rules, but also need to apply the specific ethical rules to the AI entity. The Asilomar AI Principles which was proposed at the “Beneficial

78) Weiwen Duan, “Value Reflection and Ethical Adjustment in the Era of Artificial Intelligence”, *Journal of Renmin University of China*. no.6, 2017, pp 98-108. Print.

AI” conference held by Asilomar in January 2017, advocates ethical and value principles such as keeping with human values and privacy protection.⁷⁹⁾ As the American science fiction novelist Isaac Asimov proposed three laws of robot: “The first law, robot must not harm human beings or sit by human injury; The second law, is that the first law does not conflict with the circumstances, the robot must obey human orders; The third law, without violating the first law and the second law, the robot has the duty to protect itself.” Its main emphasis is the ethical values: how people and robots live in harmony.

At the beginning of Artificial Intelligence development, ethical rules can effectively maintain the morals of research and discovery activities, protect human interests and promote the healthy and orderly development of human society. But along with the social demand unceasing promotion ethics starts to lose the standard function gradually, for example, the robot killer the incident. At this time, legislators need to establish mandatory legal norms as soon as possible to regulate. This is not to say that the ethical rules that have been shaped in society for a long time have been withdrawn from the stage of history.

From the angle of the relationship between law and morality, law and morality, as two means of adjustment, play different roles in different fields of social life in different ways and by different mechanisms. But there is a close relationship between them. On the one hand, the birth of morality is prior to the law, the legal system and legal system all at all times and in all countries are based on the ethics of a particular nation and country. On the other hand, some social moral norms will be gradually

79) Weiwen Duan, “Value Reflection and Ethical Adjustment in the Era of Artificial Intelligence”, *Journal of Renmin University of China*. no.6, 2017, pp 98-108. Print.

incorporated into the legal provisions in a specific historical period, forming the law of morality. This means that ethical rules are an important legal source of legal norms, which, as the last line of defense of artificial intelligence risk management, play a significant role in supplementing ethical rules. Only by connecting ethical rules with legal rules can we achieve the best effect of preventing and controlling artificial intelligence risks.

3. Building an AI Regulatory Mechanism

For risk prevention and governance in the Artificial Intelligence era, a comprehensive governance mechanism featuring technical control and legal control can be adopted. For example, there is special legislation for self-driving cars. Germany promulgated the *Eighth Amendment to the Road Traffic Law* to adapt to self-driving, and England promulgated the *Automatic and Electric Vehicle Act* in 2018, all of which are such efforts. The relevant legislation on self-driving cars can obviously provide a reference for the unified legislation of artificial intelligence, and also provide a method for us to predict the future legislation of AI. In the aspect of technical control, the supervision of AI can take advantage of the technology of regional fast chain. Because of the lag of the law, before the law regulates the AI, the technical code plays a vital role in the supervision of AI, even makes people have the intuitive feeling of the code equivalent to the law. For example, in order to protect the economic interests of copyright owners, many distribution platforms use the Digital Right Management System (DRM) and Technical Protection Measures (TPM) and hope to restrict the end users' use of digital content through a series of mechanisms including controlling access and restricting replication. Legal rules are ex-post remedies through state intervention,

while technical rules can be prevented by code in advance; in particular, the emergence of blockchain technology is an important step towards more widely used technical regulation.⁸⁰⁾ In the legal control, the establishment of artificial intelligence entity registration system has been widely accepted—the number of data differences constitute the main basis for robot identification. Our country should also comply with the trend of the times, establish a unified system of mandatory registration of artificial intelligence entities, to ensure that artificial intelligence entities get a unique number at the beginning of widespread application. Thus, evidence will be provided to support the determination of the rights and obligations of all parties and the definition of legal responsibilities in the application of artificial intelligence. This is not only a necessary guarantee for the retrospection of the rights and responsibilities of AI, but also the basis for the legal status of AI.⁸¹⁾ Some people hold that set up specialized regulatory institution to uniformly regulate AI in terms of ethics, application and security. This is helpful to give full play to the operational efficiency of the right of supervision and avoid the occurrence of the phenomenon of function shifting. But opponents, represented by the Britain Parliament, argue that it is unrealistic at this stage to establish a unified regulatory regime for artificial intelligence.⁸²⁾ Because the technology is developing too fast, it is impossible to conduct simple and rough supervision through legislation, and it is preferred to take standards, best practices and other ways as the transitional measures for the establishment of a unified regulatory body. The author believes that it is

80) Primavera De Filippi, Lei Zhao and Chuyi Deng, “Will Blockchain Replace Law?”, <http://www.chinacourt.org/article/detail/sshml>, Accessed April 2018.

81) Yujie Zhang, “On Robot Rights and Its Risk Rules in the Age of Artificial Intelligence”, *Oriental Law*.no.6, 2017, pp 56-66. Print.

82) Published on the website of Tencent Research Institute, See <http://www.tisi.org/4811>, Accessed November 2018.

necessary to establish a unified AI regulatory institution, but combined with the current reality, whether the establishment of regulatory bodies or the introduction of regulatory legislation is difficult to catch up with the pace of technological change.

VI. Conclusion

With the rapid development of AI, whether it is industrial Artificial Intelligence or as an Artificial Intelligence existing in the society, it is necessary for the law to make timely and effective responses, such as whether self-driving cars can be on the road, and whether unmanned boats, unmanned aerial vehicles and other routes can be approved and opened up, which are all real problems in front of people's eyes. As they become more human-like, they need to be prevented and regulated by law. The law solution to the practical problem of AI is related to the future development of people and machines. For China, it has become very urgent to formulate the "Artificial Intelligence Development Law". However, it may be more appropriate to enact separate laws at present, because the technology of AI is still in a progressive stage, people's understanding of AI is still limited, and there is no condition for unified legislation. Take separate legislative approaches, and first regulate the most prominent issues through legislation. However, separate legislation is only an expedient measure. We have sufficient reasons to make a series of preparations for future unified legislation on AI. It can also be seen from this that there is still a long way to go in the future AI legislation.

The age of intelligence has come and will change the work of the future

forever. With the rapid development of Artificial Intelligence technology, robots have more and more powerful intelligence, the differences between robots and human beings may gradually narrow. Shen Wei, President and CEO of VIVO corporate for Boao Forum for Asia (BFA) in the 2018, said: “AI and 5G technology will redefine smartphones in the next three to five years and the ability of mobile phones to process interactive information will greatly improve. At that time, the phone will become a “personal assistant” of the most understanding of consumers, not only accept and process user instructions, but also for users to complete a lot of thinking and make decisions, so that people’s lives more convenient.” We should adhere to the following principles in the short term when AI are not replacing humans, are working with us.

Artificial Intelligence must have moral norms and responsibility consciousness in the advance public interests. Therefore, the governments must take the lead in formulating laws to clarify the status and development direction of AI, otherwise it will create a path for shareholders pay attention to about their own interests.

At present, the scope of the subject of the artificial intelligence should be strictly limited to meet the specific conditions stipulated by the law to make them have the ability to bear civil liability independently, but they are different from the ways of undertaking liability by natural persons. they are special forms of subjects in between people and objects adapting to the modern law-based society.

Since the development of legal regulations are based on real life. Despite a legal regulation enacted have a lag, to ensure the stability of the law. According to the interactive characteristics of Artificial Intelligence, we

can pre-standardize Artificial Intelligence in terms of ethical rules and respond to social relations that have changed or are likely to change. This kind of practice has already existed in Europe, Japan and other countries and has reference value for our country. The construction of these ethical norms will also provide important legal sources for the subsequent development of artificial intelligence laws.

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[Abstract]

The Legal Status of Artificial Intelligence in Chinese Private Law

QIAN, XUE · LIANG, CHEN

With the advent of Artificial Intelligence(AI), Big Data, Cloud Computing, that is call the “ABC era”, the IT industry has come in the era of Artificial Intelligence, which has become the core of the whole intelligence era. The short-term impact of Artificial Intelligence depends on who controls Artificial Intelligence, while the long-term impact is subject to whether Artificial Intelligence can be controlled. Therefore, the application and development of Artificial Intelligence need the definition of legal personality. First, this paper combs the reasons why natural persons and legal persons in the existing civil subject structure are granted civil subject qualifications. Secondly, combined with the characteristics of Artificial Intelligence entity, this paper is analyzed whether Artificial Intelligence should be entitled civil subject qualifications. Finally, it summarizes the new ideas about the construction of subject qualification in foreign private laws and puts forward some suggestions that are in match with the local situation of China.

Key Words: artificial intelligence ; capacity as a subject of law ; legal status ; legal personality ; strong AI; weak AI

<국문요약>

중국 사법상 인공지능의 법적 지위에 관한 고찰

QIAN, XUE · LIANG, CHEN

‘AI’(인공지능), ‘Big Data’(빅데이터), ‘Cloud Computing’(클라우드 컴퓨팅)의 출현으로 이른바 “ABC시대”로 불리는 IT산업은 본격적인 인공지능시대에 접어들게 되었다. 인공지능시대의 3요소 중 인공지능은 핵심으로서 단계적으로는 발전단계에서 누가 인공지능을 통제하느냐, 장기적으로는 강한 인공지능 등의 출현에 있어 과연 인공지능을 통제할 수 있느냐의 여부에 따라 인공지능시대의 영향력과 과급효과가 극도로 달라진다.

이러한 점에서 인공지능의 통제에 대한 법적 규제가 매우 중요하다. 즉, 인공지능의 응용과 발전에 있어 그 법적 성격을 새로이 정의할 필요가 있다. 예를 들어, 인공지능에 대하여 법적 지위를 어떻게 부여할 것인지, 인격을 부여하여 인공지능의 행위를 직접책임으로 하여 묻게 할 것인지는 현재 각국의 법학계의 과제로 되고 있으며, 많은 연구가 진행되고 있다.

이에 본 연구에서는, 먼저, 기존의 민사주체 개념에 있어 자연인과 법인의 민사주체자격 부여에 관한 이론을 분석하고, 인공지능의 실체적 특징에 대한 분석을 참고하여 인공지능에 대하여 법적 주체로서의 지위를 부여할 수 있는지를 검토한다. 이를 위해 외국에서의 사법상 인공지능의 법적 지위를 비교법적으로 검토하고, 다시 중국 현행법과 실무에서의 차이를 분석함으로써 어떠한 시사점을 가져올 수 있는지를 고찰한다.

이러한 연구를 통하여 장래 중국의 인공지능 관련 법제의 입법에 있어 인공지능의 민사주체 등의 법적지위 부여 가능성 검토에 좋은 자료로 활용할 것으로 기대한다.

주제어: 인공지능; 민사행위능력; 법적 지위; 법적 인격; 강한 인공지능; 약한
인공지능