

DILEMMA AND APPROACHES
OF INTELLECTUAL PROPERTY RIGHTS
IN THE INTEGRATION OF INDUSTRIALISATION
AND INFORMATISATION IN CHINA

by

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As a new type of economic and social development model, integration of the industrialization and informatisation (The Integration) has given rise to broad attention in China. China has formulated a development strategy for the integration, that is "Developing modern industry system, vigorously promoting the integration of the information technology and industrialization".

However, we may ask: what's the integration? At the moment there's no general consensus on this topic in the theoretic fields in China. We observe that the current focuses are mainly zoomed in the macro-aspect in exploring the path of the integration, its feasibility and other related issues.

In our view, and we are afraid that this macro approach may lose sight of the problems of property rights in the integration process. In fact, the industrialization and the informatisation have their own unique attributes, and they form different property rights structures.

This thesis focuses on the property rights structure, and then explores the IP dilemmas in the integration process in China. Finally, we propose some specific approaches to resolve issues arisen from the process, such as the establishment of legal mechanisms of property rights, innovation and licensing mechanisms, information security mechanisms, etc.

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As a new type of economic and social development model, the integration of industrialization and informatisation has given rise to broad attention. In the process of reform and opening up in China, there have been different positions about the informatisation and industrialization. As a development opportunity, the state once put forward the development concept which is "informatisation stimulates industrialization, the industrialization promotes the informatisation"¹. However, in reality the industrialization and the informatisation are separate. While the country's economy will be faced with much greater danger from the so-called Internet bubble. So, the idea of the integration is a scientific judgement based on the basic conditions. There is no doubt that implementing the integration by changing the mode of production, adjusting the industrial structure, changing the modes of resource allocation have strategic significance for China to face current financial crisis and maintain economic growth. However, industrialization and informatisation have their own unique attributes, which will make integration of industrialization and informatisation inevitably face a conflict on the structure of property rights. The nature of conflict is directly related to the success or failure of integration patterns, as well as the implementation of the national strategy of constructing an innovative country.

1. THE STRUCTURE OF PROPERTY RIGHTS ABOUT THE INTEGRATION

What is the integration of informatisation and industrialization? There is no unanimous consensus. Some scholars think it means the continually rising process of information literacy of workers, and the process of transformation from industrial economy to the servant economy², some others think it

¹ The report OF Sixteenth Congress of the Chinese Communist Party

² Zhongda Gan. Theory and path selection OF, integration [M]. 1 edition. Beijing: Electronic Industry Press, 2009.

is a scientific development way³, which has a great influence on China. Scientific development way originated from the scientific concept of development which focuses on coordinating divergent contradiction during the economic society development process. In economic field, scientific development emphasizes the adjustment of industrial structure and the optimal distribution of resources. Then, it noticed the phenomenon that informatisation and industrialization are separate, and the development demand from the process of change in industrial operations. However, the nature of the integration of the informatisation and industrialization is not dug up.

As it is known, the character of industrial economy is scale economy. Industrial society focused on the unification, including the unification of standards and harmonization of behavior. It is undoubted that these characters of industrialization make great contributions to the human civilization. However, with further development of informatisation, its personalization is different from the communality of industrialization. The contrast between them is not only reflected in human behavior, more importantly, is reflected in the legal property rights paradigm.

1.1. THE PROPERTY RIGHTS STRUCTURE OF THE INDUSTRIAL AGE

About the property rights in the industrial age, the following is the fusion structure (figure 1).

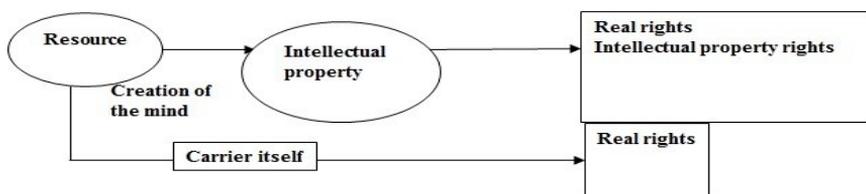


FIGURE 1: PROPERTY RIGHT STRUCTURE OF THE INDUSTRIAL AGE

In such property rights system, the materialization of knowledge is relatively simple, the serious conflicts on the property rights did not take place.

1. Despite copyright, and its carrier are all the properties, the copyright, as intellectual property is significantly different from its carrier, usually the sale of carrier does not necessarily lead to the trans-

³ Qiping Jiang. Informatization and industrialization Integration is a scientific approach to development [J]. China information sector, 2008,1 (1): 48

fer of copyright. With regard to the relationship between work and their carriers, they are materialized through the work process, namely, "Published" "Performance" and other ways to complete the contract. Widespread dissemination of the works was implemented by achieving the form of the licensing trade.

2. About patent rights, the relationship between patent rights and property rights is relatively complicated. As the classical principle, the "physical change" shows more thorough in product patent. That is to say, patent activity necessarily gives rise to physical changes in the structure, such a change always materialized as a link to proprietary technologies. Because of the different nature of property rights, the materialized patents does not constitute the barrier of the integration of patent technologies and products. The method patents, designs and utility model patents constitute an integral part of the product, the patent and its materialization products achieve a "seamless" level. If a patent can not be materialized for products and not be transformed into productivity, despite the legal recognition for their patent rights and giving full legal protection, they can not produce the law conflict of integration.

Second, the capitalization of patent technology has become a universal model of business operations. We know that business capital often include currency, the real, due to the commercial value of the technology, the law recognized the technology long before, and trade secrets could be the important asset of company. Patent as a special technology are materialized into the product and then, enter the circulation, thus the patent funding and the patent purchase have become common phenomenon in business operations.

1.2. PROPERTY RIGHTS STRUCTURE OF THE INTEGRATION OF IN INDUSTRIALIZATION AND INFORMATION

With the development of informatisation characterized by the computer and communications technology, information technology gradually integrate into all industry categories and the process of industrial production; digital product structure makes the performance of the former industrial property rights structure more complex. See the figure 2 on the next page.

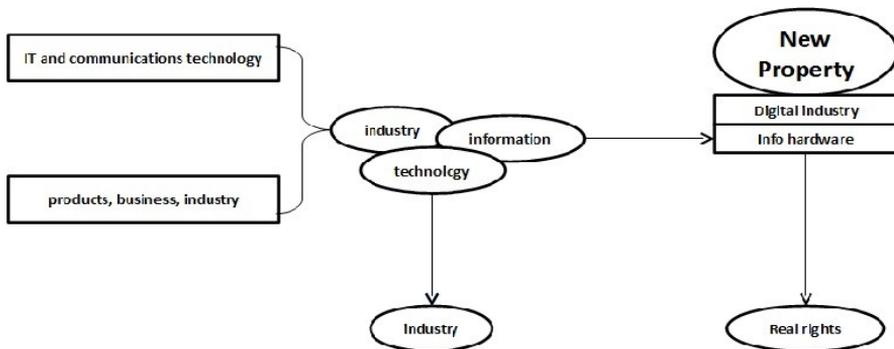


FIGURE 2: PROPERTY RIGHTS STRUCTURE OF TWO INTEGRATION OF THE INFORMATION AGE

First of all, informatisation has changed the legal structure of the industry capital. The Knowledge Characterized by the information technology has not been materialized in the product design, appearance, etc. It directly becomes an essential component of the product, such as embedded software, which is the core and basic components of e-products. That shows that in the informatisation age, without going through specific physical and chemical processes of the industrial age, intellectual property rights directly turn into the integral part of the product. As a result, the structure of property rights of informatisation age is different from that of the industrial age.

Secondly, the informatisation makes property rights integrate and conflict remarkable. Shown in Figure 2, the informatisation makes information technology and products, technology, business, industry of the industrial age to fusion,⁴ then forms the information-based products. By alone and value-oriented process, the information-based products form a new type of property rights, and the information resources are the protection object.⁵ The information-based products are different from real rights and intellectual property and have their own special properties. The information of information-based products can be independent of the material goods,⁶ therefore, the integration faced the conflict among intellectual property rights,

⁴ Jiang Ping Jin. The theoretical system of Two fusion [J]. Informatization construction, 2009 (4):9-10

⁵ Xiao-hua LU. Information property rights - the new protected mode of wealth in civil law perspective [M]. 1 edition. Beijing: Law Press, 2009.87

⁶ Jiawei Wu, kang Xie, Mingming Wang. Information Economics [M]. 1 edition. Beijing: Higher Education Press, 2002.28

real rights and new types of property rights, all these need to be coordinated by the law system.

Therefore, from the analysis of property rights structure, the integration of industrialization and informatisation reflected the complexity of coordination of property rights. The key of the integration lies in the internal coordination of intellectual property rights and the coordination of intellectual property and other properties. The internal coordination of Intellectual Property Rights mainly reflect the steady changes when the industrial property rights system faces the development of information technology, then, the coordination between the intellectual property and the other properties mainly reflects the physical and chemical development of intellectual property rights. So, Intellectual property is the core of the structure of property rights while the industry and information technology integrate.

2. THE PLIGHT OF THE INTELLECTUAL PROPERTY RIGHTS OF THE INTEGRATION

The dilemma of the intellectual property rights of the integration is the legal obstacles to achieve the goal of “scientific development way” and directly influence the enthusiasm that is corporate promote capitalization of the intellectual property rights capital.

2.1. THE ANALYSED INDICATORS OF THE PREPARATORY STAGE OF THE DECISION-MAKING PROCESS OF STATUTORY CITY POLITICAL BODIES

Firstly, in the former industrial area, the exhaustion principle of rights means the transfer and the use of materialized carrier of the intellectual property rights doesn't need further approval of the intellectual property licensing. Any owner of the carrier have the right to dispose of their vehicle in accordance with their wishes. However, during the process of information product circulation, there is no longer able to simply use the exhaustion principle of rights, which has been recognized by the legislation of many countries.

Secondly, with regard to movable property acquired in goodwill system, when infringing copies of the information architecture as part of the product enter the market as a whole, any owner of the product acquainting in good faith also faces the risk of infringing the law, which is completely different from the legal issues in the old industrial age. As a result, the ven-

ture enables enterprises to lose confidence in the investments of intellectual property.

2.1.1. THE ANALYSED INDICATORS OF THE PREPARATORY STAGE OF THE DECISION-MAKING PROCESS OF STATUTORY CITY POLITICAL BODIES

Open-source movement: in relation to the commercial software, open source software allows the public to obtain the following rights: freedom of access to source code; of modifying the software code; of releasing the software source code.⁷ At present, many companies, such as IBM, Intel and other world IT business leaders who have joined the movement, used the open source embedded software in the mechanism of their products. The commercial software pursues maximum protection for holders, which means in legal the scope of the owners of software copyright have been the constant expansion with the continuous development of the technology and the constant innovation of the business model. Thus, this result of implementing the law will inevitably lead to the damage of legal rights and interests of many well-intentioned software users. To the contrary, the open source movement open the software code for public use comprehensively, the public through the open-source license can enjoy the completely different commercial software rights. Thus, the copyright and patent laws need to be amended to state property rights content of the open-source software.

2.2. LACK OF THE OPERATION MECHANISM TO SUPPORT THE INTELLECTUAL PROPERTY INNOVATION OF THE INTEGRATION OF INDUSTRIALIZATION AND INFORMATISATION

Viewed the ways of the integration, embedded software as the bond is the critical path to raise the level of industrialization and the development of economic society. It has become the Millennium development goals of the international community to find a consensus. The Europe and the United States has been actively deployed the development framework of embedded software at the core. The EU requires Member States to support an research projects in the value of 3.24 billion U.S. dollars in embedded software as an industry leader to improve innovation value of the household appli-

⁷ Hexiang Qi, Min-Fu Ma. Law and Economics analysis on Government procures the open source software [J]. Software Tribune, 2005 (14):3-6

ances, consumer electronics and automotive .⁸ The integration based on the sharing of information resources for industrial production, which is the integration of the manufacturing, sales, management, products, technologies and means, and optimal allocation of resources. As a result, the virtual organization was born, and make the corporate capital structure more complex, this is the "hard environment" of the industry convergence. However, the current system in China did not explicitly recognized the legal status of virtual organization, but also still lacks of an effective legal mechanism to regulate how to develop embedded software and how to create embedded software applications on the market, so that the inadequate supply of embedded software and the lack of the flexible virtual organization of the rational resources allocation, is not conducive to the promotion to the new organization's development to adapt to the integration .

2.3. LACK OF LEGAL REGULATION OF PUBLIC COMMUNICATION NETWORK SECURITY TO PROTECT THE INTEGRATION

With the development trend of information technology, the process of the industrialization and informatisation integration, the industrial development, integration technologies promotion and products circulation need to rely on public communication network, any threat to public information network security will affect the convergence. From the analysis of behavior, the major public information network security threats, consisted of various illegal and criminal activities through the information networks, such as attacking and destructing the networks. The illegal interception to network information, pirating embedded software and spreading false information industry and information technology has become the biggest obstacle to the integration. However, in the existing legal system in China, there is no relevant laws, such as information security, network security , or intellectual property law to regulate the illegal interception, piracy and other issues arising from the integration, nor corresponding provisions to rule the potential security risk of the embedded software. The lack of communication network security inevitably will hinder the integration, the transactions and flow of the product.

⁸ The European Union urged countries to support development of embedded systems [EB / OL]. (2006-3-38) [2009-9-11], <http://it.sohu.com/20060328/n242518261.shtml>.

3. THE INTELLECTUAL PROPERTY COUNTERMEASURE OF THE INTEGRATIONS OF THE INDUSTRY AND INFORMATION TECHNOLOGY

3.1. BUILDING A JOINT TECHNOLOGY PLATFORM FOR PROPERTY INNOVATION IN THE NAME OF THE GOVERNMENT

Through building a joint technology platform for the Property innovation, the government unit the research institutes, universities and enterprises, and cooperate with other countries and regions, then take up research projects from information appliances, mobile communications, environmental monitoring, traffic control, medical equipment, military equipment and other areas of embedded software. The electrical equipment, engineering machinery, numerical control machine tools, textile machinery, automobile and other traditional manufacturing industries need to be harmonized and concentrated. Then, the economic and social development level will rapidly increase.

In the EU, the integration has been upgraded to a strategic height, where the European Commission and the parliament issued a series of regulations on the establishment of a joint technology platform undertaking, such as COUNCIL REGULATION (EC) No 74/2008 OF 20 December 2007 Which proposed the establishment of "ARTEMIS (EU Embedded Computer Information Systems Technology Development Project) a joint venture platform" to implement a Joint Technology Initiative in Embedded Computing Systems, and the establishment of the institution, then made a clear and detailed requirements about the legal status, tasks, privileges and immunities, implementing agencies, project selection, financial rules of the undertaking and the cooperation of the government, research institutes, business co-operation,⁹ etc.

To this end, we can learn from the EU mechanisms, set up a special joint technical development and management agencies of the state, which issued specific and clear rules about the institution's legal status, tasks, project selection, funding support; domestic and international cooperation; making the specific strategic plan of the industry and information technology integration to promote the integration to carry out.

⁹ COUNCIL REGULATION (EC) No 74/2008 of 20 December 2007

3.2. BUILDING A JOINT TECHNOLOGY PLATFORM FOR PROPERTY INNOVATION IN THE NAME OF THE GOVERNMENT

To promote the integration, legal mechanisms to protect the supply of the embedded software need be established. The COUNCIL REGULATIONS (EC) no 74/2008 20 December 2007 of the European Union enacted the principle provisions about the intellectual property issues on the embedded software. According to the contents of the regulation, the purpose is to promote the knowledge innovation and development in order to achieve fair distribution of rights and rewards, and to achieve broad participation of private and public entities in projects. To this end, it clearly states that the protection, use and the dissemination of research results generated in the project, at the same time, govern the property of the research results acquired outside the project, which ensure the benefits of the participation and promote the exploitation. So, when the government is drawing up the strategy for the integration, it should amend the existing intellectual property system and formulate relevant regulations to rule the intellectual property issues of the integration, including the ownership, access rights, protection, use and dissemination, transfer of the research results in the project, etc.

3.3. CHANGE THE EXISTING INTELLECTUAL PROPERTY LICENSING SYSTEM TO ADAPT TO THE DEVELOPMENT OF OPEN SOURCE SOFTWARE AND CUSTOM-DEVICE LICENSE

The existing license granting mechanisms as a legal system is based on the protection of the exclusive right of the owners of intellectual property, in the case of the current commercial software, the holders of the software are granted the license by the way of absolutely controlling the software source code. The holders of the software strictly comply with the manner and scope of the licensing requirements; otherwise, it constitutes "unauthorized access" violations. In this regard, the open source movement and custom-style license become popular in the business field.

Open-source software aims to encourage the full flow of the software which brings the challenge to the absolute protection of obligations. In accordance with the provisions of open-source license, the holder can use the software rights, including copyright and patent rights without licensing. Now some IT international giants have also joined the campaign to develop

the integration degree of its products, enhance product quality and reduce costs.

Customized license denied completely the standard contracts. We know that the emergence of mainly aims to reduce trade costs and risks of the large-scale commercial trade negotiations, the law gives the standard contract relevant standard terms as an effective condition. However, the custom-style license is in order to fully protect the legitimate rights of the licensee, the licensee may be according to their own needs to determine the scope and modalities of the users, including the price and so on, which totally ruled out the past business model and legal framework. To this end, China should establish the licensing system of opening source software and custom-style license in the industry and information technology integration.

3.4. THE LEGAL CONSTRUCTION OF INTELLECTUAL PROPERTY RIGHTS SHOULD BE IN CONJUNCTION WITH THE NATIONAL SECURITY, ESTABLISHING THE LEGAL MECHANISMS FOR PUBLIC COMMUNICATION NETWORK SECURITY OF THE INTEGRATION

As the industry and information technology integration has become an inevitable choice for the economic development in the information age, now the embedded software has been used for banks, government, all kinds of files to the individual or family. For the threat generated by the embedded software outsourcing against the security and sovereignty, in United States some scholars have proposed to regulate the embedded software by "Computer Fraud and Abuse Act" in order to protect the sovereignty and security of the United States.¹⁰ So, we should define the ownership of the embedded software by copyright law, patent law system etc, at the same time, it's necessary to establish legal mechanisms for public communication network security to regulate specific circumstances, contingency mechanism and penalties measures of treating information security and sovereignty,¹¹ so that we can protect the property rights mechanisms of the industry and information technology integration.

¹⁰ Carrie Greenplate. Comments OF PROTECTION AND SOVEREIGNTY: APPLYING THE COMPUTER FRAUD AND ABUSE ACT EXTRATERRITORIALLY TO PROTECT EMBEDDED SOFTWARE OUTSOURCED TO CHINA [J]. American University Law Review, 2007 (10):1-42

¹¹ Min-hu Ma, Xiaona He. The base of emergency response mechanisms of Web information security and legal protection [J]. Journal of Intelligence, 2005 (8):77-80

4. CONCLUSIONS

The integration of industry and information technology, first and foremost, is the economic integration, followed by the social operation model. However, the integration caused by social change is based on industry breakthrough. To achieve such a breakthrough and transformation, the conflict of property rights should be given enough attention. The development of embedded software should be based on current industrial structure of China, in particular, the need of the pillar industry for change. Then by a breakthrough of the structure of property rights in embedded software, the government-led and corporate involvement mobilize domestic and foreign R & D resources, to excavate the technical and legal innovative mechanisms of embedded software, and crack the plight of the intellectual property rights from the legal system.

The key strategy of intellectual property rights is how to design the path of the embedded software in the integration. The EU legislative practice in this area for our country provides a useful mechanism for reference to explore the platform of the embedded software of the integration. Since the particularity of the economic and social development and the political system of China, the integration focus on to seek the areas of the property rights, legal protection needs for information security, and effective intellectual property strategy and policy guidance on how to promote the integration of industry and information technology.

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