The Institutional Dilemma of the Ownership of Service Science and Technology Achievement And Its Solution

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Abstract: The paper focuses on examining the position based on the practice of domestic property rights reform of Service Science and Technology Achievement(SSTA), compared to observe the foreign legal system.Then this reflect on our country existing posts the plight of the shortage of the property right system and the reform of SSTA, to explore suitable for China's national conditions of position the legal basis of property rights reform of SSTA.The aim is to build a system of elastic multiple property right configuration model or architecture. The article uses the literature analysis method, comparative analysis method.

Keywords: SSTA; Property Rights; Service Invention; Rewards

I. Introduction

Academic History and Trends of Domestic & Foreign Related Researches

In order to “turn innovation achievements into real industrial activities" (Xi Jinping, 2014) and to solve the "Last Mile" problem in the entire process of scientific and technological innovation, in recent years, local governments at all levels, under the guidance of the central policies and laws, have carried out the in-depth reform on the management for the use, disposal and revenue of science and technology achievements of state-owned institutions (hereinafter referred to as the "three rights"), extending the reform to all local state-owned enterprises and institutions. However,

the reform of "three rights" of state-owned institutions in China is too slow to make an upsurge in the transformation of science and technology achievements (Kang Kaining, 2016). In 2016, the practical exploration of the mixed ownership of Southwest Jiaotong University on dividing the patent right of service invention to the inventor has been known as the "Xiaogang Village" practice (the ground-breaking reform of China's land system) with the ice-breaking significance of science and technology achievements in property reform for the first time and drawn nationwide attentions for touching the ownership of Service Science and Technology chievements. In November 2016, the General Office of the CPC Central Committee and the General Office of the State Council issued *Several Opinions on Implementing the Distribution Policy of Assorting Knowledge Value as Guidance*, clearly stating: strengthen property rights and other long-term incentives, explore the endowment of researchers with science and technology achievements ownership or long-term rights, and encourage scientific researchers to obtain reasonable income through the transformation of science and technology achievements. Against this background, in view of the existing research results at home and abroad as well as the local practical experience, this research focuses on the property right system innovation of Service Science and Technology Achievements in our work.

1. Status of Foreign Researches

Many foreign scholars have discussed issues such as the effect and ownership of government-funded inventions from the perspectives of law, sociology and economics (Kenney & Paton, 2009). Related researches include: (1) The influence of *Bayh-Dole Act* on university innovation. Scholars believe that the Act has created an intellectual property system that can predict the distribution of benefits, which has a very positive effect on promoting the university innovation (Greenbaum, 2011; Kenney, 2009); however, some empirical researches show that the Act has made little contribution to university innovations (Jensen and Thursby, 2001). (2) The problem of the ownership of service invention at university. Since the promulgation of the *Bayh-Dole Act*, it has become a common practice for universities to own inventions

(Waterscheid, 1990). The university employees' transferring of inventions to universities without signing any agreement concerning the distribution of service inventions has shown the tendency of the court to support patent requests of universities (Ohashi, 2004). In the case of Stanford v. Ross infringement of patent rights in 2011, the Supreme Court held that the *Bayh-Dole Act* was not the provision that empowers automatically, yet the initial rights of university inventions under the *Patent Law* belonged to the inventor rather than to the university (Yeh, 2012). A comparative study with the University Technology Licensing Office shows that inventor ownership structures are also very effective in promoting innovations (Kenney, 2009). (3) Ownership, conflict of interest and profit distribution of service inventions. Merges (1999) explored the legal basis of the ownership legitimacy of employees' invention from the perspective of law and economics. Some scholars have explored the ownership, conflicts of interest (COI), inventor disclosure, university use, and substantial use of resources of university intellectual property rights in the United States, Canada and other countries (Owens, 2003; Dix & Culver, 2004). Some scholars have also made a comparative study on the ownership and reward system of service inventions in Germany, Finland, France, Britain, the United States, Japan and other countries (Falck & Schmaltz, 2005; Gummo, 2010; Wolk, 2011; Koichiro, 2014). The results show that the relevant legislation can be divided into three categories: Firstly, employers have priority, for example, the United States; however, the United States courts insist on freedom of contract, so employers can actually obtain all the inventions during the employment through the agreement that may not pay extra compensation; Secondly, it is favorable for the employer on ownership and the employee on reward, such as France and Japan; Thirdly, the inventor has priority, for instance, the German law stipulates that the original ownership of inventions, even the service invention, belongs to the inventor, the units are not prohibited to use the invention, and the inventor can get compensation commensurate with the contribution.

2. Status of Domestic Researches

(1) Research on service invention in China. The first is the country research on the service invention system. Some scholars have conducted a comparative study on the service invention system in the United States, France, Japan, Germany and South Korea (Wang Bing, Ma Jun, 2004; Jia Penglei, 2004; Chen Chi, 2008; Zhang Yurui, 2010; Zhang Yinglu, Liu Hua, 2014; Xiao Bing, 2015; Shen Hui-En, 2015). The second is the discussions on specific problems existed in the service invention. For example, the analysis based on the perspective of labor law (Zhang Ling, Zhu Dong, 2006; Chen Minli, 2013), the dispute resolution mechanism of service invention (Wu Yan, 2015), and the case analysis (Tao Xinliang, 2015; Xu Zhuobin, 2015). The third is the discussion on the necessity of legislation for service invention. Most scholars think it is necessary to make the invention of ordinances and inventions (Tang Suqin, Yue Lin, 2016; Wang Haibo, Ke Chunlei, 2016; Chang Zhe, 2016). Some scholars also dissent or negative attitude (Zhang Yumin, 2016; Wang Qing, 2015).

(2) Research on the ownership and benefit distribution of intellectual property rights in colleges and universities. The university patent ownership is generally limited to provisions of China's patent law on service invention (Yin Xintian, 2012; Liu Pinqing, 2015). He Min (2007, 2012) made a theoretical explanation on the ownership of service invention. Jiang Zu (2016) explained the rationality of service invention reward in terms of the dual mode of agency costs and resource allocation thereof. Wang Linghong (2013) proposed that the service invention rewards should not set a "minimum proportion" on the premise of patent authorization. Tao Xinliang (2016) argued that the legislation should specify that the service invention can be stipulated as the non-service inventions or the shared-service inventions by contract. Xiao Bing (2016) pointed out that the functional reward should be clearly defined as a distribution mechanism of benefits rather than a generation mechanism of benefits. Jia Liping (2016) proposed the reward calculation base, the measurement criteria of scientific definition of contribution and other recommendations for service invention. Many scholars have discussed the issue of ownership on university inventions funded by government by comparing many documents for reference to study the specific intellectual property issues in industry, university and research (Lv Wei, 2004; Zhu

Xuezhong, Qiao Yongzhong, 2009; Zhao Li , Shan Xiaoguang, 2007; Xie Huijia, 2014; He Lianhong, Chen Jican, 2015).

(3) Research on the reform and implementation for the "three rights" of science and technology achievements. Nie Changhong and Xiao Youdan (2015) affirmed the significance of "three rights" reform on the transformation of science and technology achievements. Xu Xiaoyang, Li Xiaoxuan, Wu Jianmei et al. (2015), through investigation and study, pointed out that certain achievements have been made in the reform of the "three rights", but the ownership of science and technology achievements has not yet been fully rationalized. Kang kaining (2015) detailed the practical exploration for the mixed ownership of servicescience and technology achievements made by Southwest Jiaotong University under the background of "three rights" reform. Song Hefa, Wu Bo et al. (2016) argued that the "three rights" reform of science and technology achievements in our country should draw lessons from the licensing right system of Japan and South Korea.

Generally, relevant researches at home and abroad have shown a great deal of insights and have laid a solid foundation for follow-up researches. The property right reform of servicescience and technology achievements is a major and realistic concern in promoting the innovation driving and science-technology supply-side reform. There are two issues to be solved urgently in the current reform of property rights for science and technology achievements: First, the reference of extraterritorial system has not "perched on a fine tree". The key to the success or failure of legal transplantation lies in whether the law can adapt to local resources and can be localized (Su Li, 1996). The existing *Patent Law* and the *Draft Service Invention Regulations* do not take into account the specific institutional backgrounds and historical circumstances, the actual results and the latest changes when drawing lessons from the extraterritorial system, nor the conditions of China, instead of a strong regulatory flavor, leading to the large difference between the system default performance and the law enforcement effect, and even become the constraints on the innovation-driven strategic goal of China. Second, the rationality of local practice and

innovation urgently needs to be induced and demonstrated, and reflected in the latest revision and legislation of the law. Since the "three rights" reform of science and technology achievements in China, there has emerged some practical exploration models which are quite pioneering. For example, the employee who made the science and technology achievements can share the intellectual property rights with the company or have a high proportion of benefits (low limit up to 90% in some places), the unit allows the inventor to transfer the service invention to the company by directly agreeing on the share proportion, which has broken through the *Regulations on Promoting the Transformation of Science and Technology Achievements*, and no scholar has made further study on the legal basis, operation process, actual effects and legal risks of its rationality and legitimacy. The research and discussion on these two issues will surely become the focus and hotspot of current and future researches.

II . Research Significance: Unique Academic and Application Value

1. Academic Value

The research attempts to break through the research paradigm of "system and clause-oriented" in the current research, deeply investigate the historical and cultural background, the realistic operating environment and the target value orientation behind the extraterritorial legal system, and the perspective of introducing the Property Rules and Liability Rules (Calabresi G & Melamed, 1972), and use the theory of property right incentives in the New Institutional Economics and the principle of balance of interests to thoroughly explain the legal basis inherent in the practice of the localization system and to greatly enrich the theoretical space and research literature of IP law and related laws (the *Labor Law*, the *Science and Technology Law*, etc.) in China.

2. Application Value

The research explores the limitation of the existing laws in direct reference to the extraterritorial system, focuses on the local practice of property rights reform of the servicescience and technology achievements in China, optimizes the original

rights allocation of servicescience and technology achievements and the system design of reward option distribution to provide basis and judicial interpretation reference for the amendment and legislation of the Patent Law, Service Invention Regulations and relevant laws, and to provide intellectual support for the establishment of long-term property right incentive system for China's service science and technology achievement transformation, which is conducive to the construction of the national innovation system, the implementation of innovation-driven strategy and the realization of the goal of intellectual property power. At the same time, the research also provides reference and guidance for the state-owned enterprises and institutions (especially universities and research institutes) to establish the market-oriented transformation mechanism of science and technology achievements, to achieve the distribution of increasing knowledge value as guidance, and to release the innovative vitality.

III. Contents of the Research

(I) Object of the Research

This paper takes the state-owned institutions (especially universities and research institutes) in China as the main body of the research, focusing on the issue of "un-acclimatization" of the legal system for the property right of servicescience and technology achievements, explores the property right reform of servicescience and technology achievements and the innovation of legal system to boost the development and implementation of China's innovation-driven development strategy.

(II) Overall Framework

1. Local Practice for the Property Right Reform of Service Science and Technology Achievements in China

The property right reform of science and technology achievements in China began with the gradual top-down decentralization of power, and boosted in the local bottom-up exploration. The former's pulling and the latter's pushing together enriched

the local practice of the property right reform of servicescience and technology achievements in China.

(1) Historical evolution: top-down system advancement

This part, based on the scientific definition for the connotation and judging criteria of servicescience and technology achievements as well as the "three rights" reform of science and technology achievement transformation, reviews the historical and institutional evolution of property right reform of servicescience and technology achievements in China, and summarizes the achievements and limitations of institutional evolution.

(2) Empirical analysis: bottom-up exploration

Under the background of innovation driving, there is no shortage of "bold" exploration in the property right reform of science and technology achievements in China, which has given rise to the realistic demand for regulating the local adaptation of the existing legal system. This part intends to analyze and summarize the characteristics and modes of local practices in the property right reform of science and technology achievements in recent years through field observations, questionnaires and case interviews, fully explain the realistic demand of real "scene" of system implementation for the ownership and benefit distribution system design of science and technology achievements, and attempt to reveal the applicable conditions, forming path, supporting mechanism, innovation factors of system innovation and the legal risks in "gray zone".

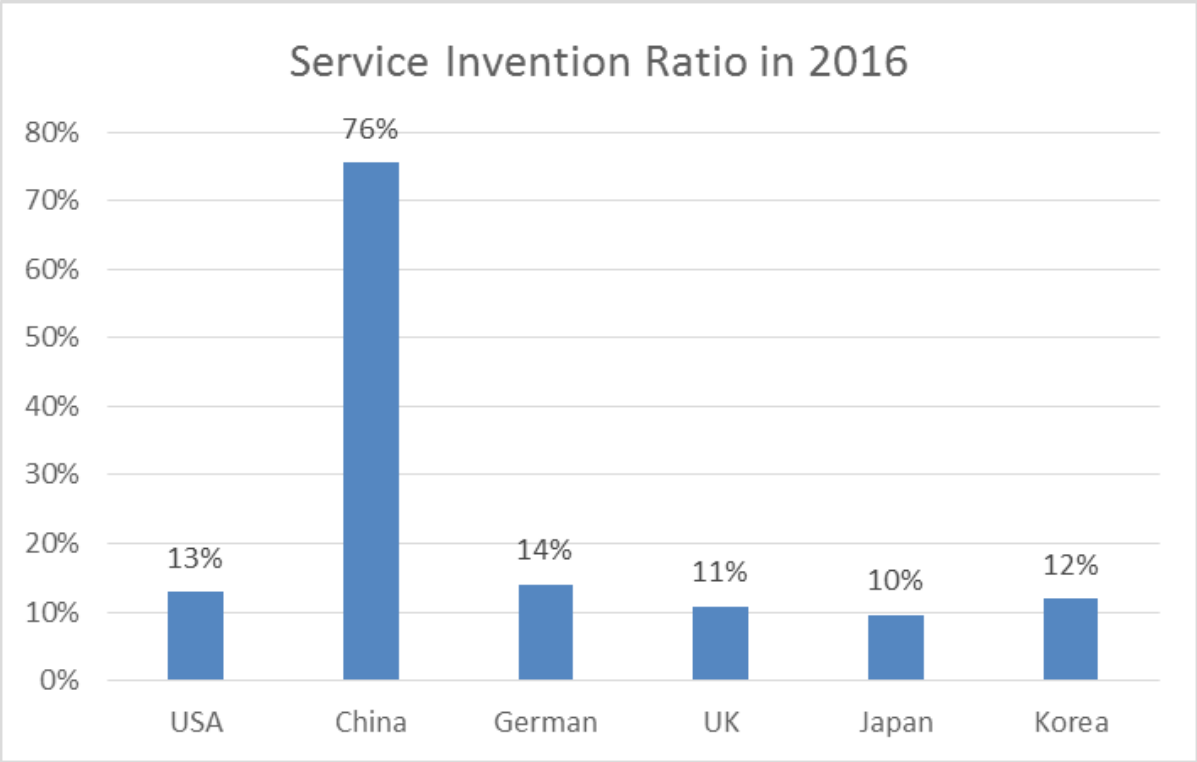
2. Basis for the Reform of Property Rights System of Service Science and Technology Achievements in China

(1) Comparative observation: reference from extraterritorial systems

In view of the foreign system of service inventions borrowed and transplanted by our country and the status quo of "failure" in the process of localization, this part selects the relevant legal systems under different genealogies of law in the United

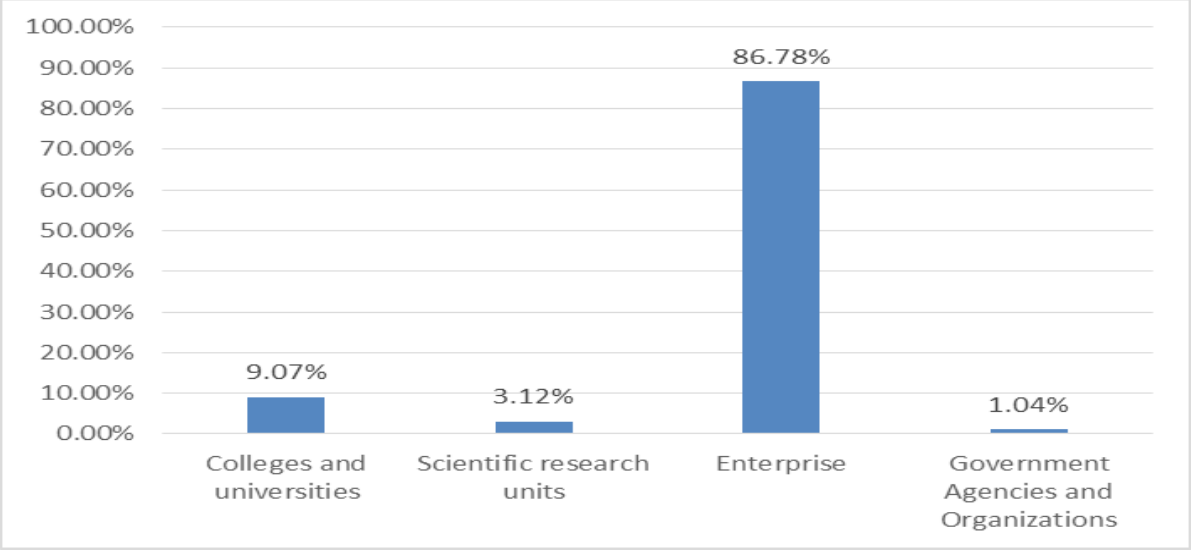
States, Germany and Japan, deeply compare and observe their institutional background, historical situation, mechanism contents and operational effect, etc. to draw lessons for the institutional innovation in China.

Table 1



Data Source: Chinese intellectual property office 2016 patent statistics data (http://www.sipo.gov.cn/tjxx/tjnb/)

Table 2



Data Source: Chinese intellectual property office 2016 patent statistics data(http://www.sipo.gov.cn/tjxx/tjnb/)

(2) Legal basis: rationality and legitimacy

The problems of property rights system of service science and technology achievements existing in the localization practices along with the rationality and legitimacy of the localization system innovation required the support of legal theories. The core of its jurisprudence lies in the attribution of achievement ownership and the effective configuration of "three rights" among different interest bodies. This part intends to introduce the segment perspective of Property Rules and Liability Rules, make use of the theory of property right incentive of the New Institutional Economics, and dig deeply into the jurisprudential basis inherent in the localization system practice based on the principle of balance of interests. In the author's opinion, in the face of the variety and complexity of the realistic demand for property rights allocation in local practices, the traditional separation theory of "ownership-right of use" is too unitary; instead, a diversified property rights allocation model or structure with institutional flexibility should be built to resolve the strong regulation and over-rigidity of the existing service inventions, and embrace the grass-roots initiative in local institutional innovations.

3. System Innovation for the Property Rights Reform of Service Science and Technology Achievements in China

(1) Substantive Law System Innovation

This part mainly focuses on the research of ownership attribution system, reward system, reporting system of servicescience and technology achievements, government intervention system, etc. with the combination of China's national conditions, and attempts to explore the functional characteristics, applicable conditions and construction strategies of the above systems from the perspective of comparative methods, analyzes the system coordination problems existing in laws and regulations such as the *Patent Law*, the *Service Invention Regulations*, the *Contract Law*, the *Labor Law* and the *Transformation Law of Service Science and Technology Achievements*;

Explore the relevant supporting system for the property rights reform of servicescience and technology achievements: the pricing of science and technology achievements, the personnel evaluation, the scientific researcher undertaking, the flow of talent, the achievement transformation intermediaries, etc.

Table 3

Country	Representative Law	The ownership rules
America	Patent Law	Contract agreement; Without agreement (1)inventor: ownership ; (2)unit:enforcement
Japan	Patent Law	Contract agreement; Without agreement (1)inventor: ownership ; (2)unit: Non-exclusive enforcement
UK	Patent Law	Service Invention: unit; Non-service Invention:inventor
Germany	Employee Invention	Inventor report to the unit(4 month); Unit
France	IP Law	Unit; Transfer to Inventor

(2) Procedural Law System Innovation

At the present stage, there are still many shortcomings in the dispute settlement mechanism and procedures in the local practice of for the property rights reform of servicescience and technology achievements in China, which are mainly manifested in the unclear definition of the loss of intellectual property of servicescience and technology achievements, the deficiency of the authority of specific administrative supervision and inspection, the relaxation of the judicial confirmation criteria of administrative mediation agreement; the judiciary misbalance of interests for interests protected in "gray zone", the anomie of activeness and modest restriction. This part intends to demonstrate the necessity of establishing procedural mechanisms for the exercise of property rights in servicescience and technology achievements, and to explore the coordination mechanism of public power such as law enforcement and judicature for resolving disputes over rights and interests, and the specific issues concerning procedural issues involved in the property rights reform of servicescience and technology achievements.

V . Conclusion

Under the real conditions of China, the following key questions are answered theoretically and emphatically: the rationality and legitimacy of local practice in the reform of property rights of servicescience and technology achievements? How to explore the establishment of long-term property rights incentive mechanism for the transformation of servicescience and technology achievements based on the localization practice? How to correct the "system anomie" in the property rights reform of servicescience and technology achievements and the "market failure" of property rights transaction by innovating the system of property rights reform of science and technology achievements, stimulate the innovation vitality of state-owned enterprises and institutions (especially universities and research institutes), and transform the science and technology achievements into real productive forces as much as possible?

References

(I) Foreign Literature

[1] Yeh R M.The Public Paid for the Invention: Who Owns It? [J]. Berkeley Technology Law Journal, 2012, 27:453.

[2] Falck A V and Schmaltz C. University Invention: Classification and Remuneration in Germany, the Netherlands, France, the UK，the U.S. and Japan [J]. IIC, 2004, 36:912-927.

[3] Geuna A. and Federica R. Changes to University IPR Regulations in Europe and the Impact on Academic Patenting [J]. Research Policy, 2011(40):1068-1076.

[4]Merges R P. The Law and Economics of Employee Inventions [J].Harv.JL& Tech., 1999, 13 (43):2-54.

[5] Kenney M & Patton D. Reconsidering the Bayh-Dole Act and the Current University Invention Ownership Model, Research Policy, 2009, 38(9):1407-1422.

[6] Calabresi G&Melamed D A. Property Rules, Liability Rules and Inalienability, One View from the Cathedral. Harvard Law Review, 1972, 85 (4):1089.

(II) Chinese Literature

[1] Zhu Xuezhong, Qiao Yongzhong, et al. Research on the Attribution of Government-funded Patent Rights [M]. Law Press China, 2009.

[2] Xu Xiaoyang & Li Xiaoxuan. Attribution of Achievements Concerning the Output and Transformation of Science and Technology Achievements [J]. Proceedings of the Chinese Academy of Sciences, 2014, (05): 558-563.

[3] Song Hefa, Wu Bo, et al. Research on the Implementation System of Promoting the Transformation of Science and Technology Achievements into Intellectual Property Rights [J]. Studies in Science of Science, 2016, (09): 1319-1325.

[4] Tao Xinliang. The Nature Definition of Service Invention and the Remuneration and Reword of Service Invention [J]. Journal of Intellectual Property, 2016, (03): 3-13.

[5] He Min. The New "Humanistic Concept" and the Perfection of Service Invention Patent System [J]. Chinese Journal of Law, 2012, (09): 65-74.

[6] Wu Handong. The Nature of Institutional Innovation and the Objective of Knowledge Innovation in Intellectual Property Law [J]. Chinese Journal of Law, 2014, (03): 95-108.

[7] Liu Chuntian & Liu Boling. On the Definition of ServiceWorks and Their Attribution of Ownership [J], Journal of Renmin University of China, 1990, (06): 61-69+98.

[8] Zhang Yurui. Comparison and Suggestion on the Reform of China's Service Invention System [J/OL]. China Law Net.

[9] Renmin University of China, State Intellectual Property Office: Research on the System of Service Invention [R] .2012.

[10] Jiang Ge. Theoretical Predicament and Realistic Outlet of Reward System for Service Inventions [J]. Chinese Legal Science, 2016, (03): 125-144.

[11] Wang Qing. Service Invention Regulations: Necessary Goodness or Non-Necessary Evil [J]. Journal of Political Science and Law, 2014, (04): 27-34.

[12] Chen Minli. Contemplation for Service Invention System under the Perspective of Labor Law [J]. Science & Technology Progress and Policy, 2013, (20): 99-102.

[13] Kang Kaining. Exploration on the Mixed Ownership of ServiceScience and Technology Achievements [J]. Chinese Universities Science and Technology Transfer, 2015, (08): 69-72.

[14] Xiao Bing. Predicament Interpretation and Theoretical Reflection on Rewarding System of Service Invention [J]. Xiamen University Law Review, (01): 213-223.

[15] Zhang Zongren. Research on the Ownership Attribution and Remuneration Issues of Service Inventions [J]. Journal of Intellectual Property Rights, 2014 (10): 72-77.

[16] Zuo Yuru & Luo Dan. Gains and Losses of Service Invention Regulations [N]. Electronics Intellectual Property, 2013, (Z1): 44-45.