POLITECNICO
DI TORINO

A dissertation submitted to

Politecnico di Torino in conformity with the requirements for

the degree of Master of Engineering Management

Research on Patent Subject Eligibility of Business Method

Candidate: Ji Rui

Student Number: s240496

Major: Engineering Management

Supervisor: Alessandro Mantelero

July.2019

ABSTRACT

The attention at the national level, the awareness of enterprises and the increasing number of patent applications have reflected the demand for patent examination of business method in China. *The Guidance of the Patent Examination (2017)* has clarified that the combination of business methods and technical features will not be rejected, but the specific examination still need to be refined.

This thesis starts with the theoretical basis by summarizing the "technical contribution theory" and "practical application theory". Business method has become an eligible patent subject, breaking through the limit of intellectual rules because of the contribution to the technical field and the practical application. Then the correspond between the business method and *Patent Law* devotes to clarifying the legitimacy of subject matter examination of business method patents. It is further explained that the necessity of subject matter examination is to determine the scope of business method patents and control the patent quality.

Furthermore, this thesis analyzes the examination practice through empirical research and comparative research. SIPO adopts two provision defined patent subject eligibility of business methods from both negative evaluation and positive evaluation. JPO and EPO attach great importance to "technical feature", emphasizing the participation of technical manners and the realization of technical effects. USPTO pays more attention to the concept of "practical application" and the two-step framework from the *Revised Guidance for Determining Subject Matter Eligibility* is essentially the practical application of "inventive concept" to "abstract ideas".

Finally, based on the development of the business activities in our country, this thesis explores the feasibility of extraterritorial experience. It is believed that we should adopt a cautious attitude and restrict business method patents through more specific rules. Pre-empt and post solution activities evaluation should be considered in *The Guidance of the Patent Examination*. The manner which examines novelty and inventiveness in advance can be maintained but should be refined. And the training for examination of business method patents should be strengthened.

Key Words: patent of business method, subject matter eligibility, patent examination

Contents

Chapter 1 Introduction 1
1.1 Background 1
1.2 Concept of Business Method Patents 1
1.3 Research Review 3
Chapter 2 The Theoretical Basis of the Subject Eligibility of Business Method Patent 7
2.1 The Theoretical Origins of the Eligibility of Business Method Patent 7
2.1.1 Technical Contribution Theory 8
2.1.2 Practical Application Theory 9
2.2 The Legitimacy of Eligibility of Business Method Patents 10
2.3 The Necessity of the Eligibility Examination of the Business Method Patent 13
2.3.1 Defining the scope of the client of the business method patent 13
2.3.2 Control the Quality of Business Method Patents 15
Chapter 3 Examination Experience of Subject Matter Eligibility 17
3.1 USPTO 17
3.1.1 Elements of Examination Reflected in Judicial Precedent 17
3.1.2 Revised Guidance for Determining Subject Matter Eligibility. 23
3.1.3 Procedures for the Eligibility Examination of Business Method Patent 26
3.2 EPO 28
3.3 JPO 31
Chapter 4 Countermeasures for Improving the Examination of Business Method Patent 33
4.1 Analysis of Examination Experience 33
4.2 Strengthen Coordination and Complementarity Between the Court and the Examination Administrative 34
4.3 Refinement of the Review Guidance 35
4.4 Strengthen the Training for Examination 37
REFERENCE 38

Chapter 1 Introduction

1.1 Background

The development of information technology and the innovation of e-commerce activities have promoted the deep integration of the Internet and the real economy, and promoted the emergence and development of business methods with various technology collections as the main form of expression. What kind of attitude should be adopted for this kind of business method, how to protect it with appropriate borders, and become the focus of countries on the issue of patents on business methods. In 2003, China encountered a foreign-owned enterprise represented by Citibank, and it smashed the business method patent layout, which greatly occupied the living space of Chinese enterprises in this field. Therefore, the protection of business method patents not only involves rights holders. The property right is also an important factor for enterprises to achieve commercial success and achieve national strategic goals.

Since 2015, the State Council has successively issued five policy documents to promote the specification of business method patents. From the policy level, the state has attached importance to business method patents. With the improvement of enterprise innovation and the further improvement of patent layout awareness, under the GO6Q classification number of the business method patent, the number of applications for 1900 invention patents from December 2015 gradually increased to 3,950 in November 2018. The number of applications for invention patents. At the national level, the company's awareness of the distribution of business method patents and the increasing number of patent applications for business methods all reflect China's research needs for business method patent examination.

1.2 Concept of Business Method Patents

The use of technology enhances the efficiency of business activities, and through the penetration and development of technology into business behavior, forms a business method patent with both economic efficiency and technical characteristics. "Commerce" is still the purpose of the method, but technology is the guarantee of the possibility of carrying a commercial method to become a business method patent.

From the perspective of the method itself, the business method of the patent law must first have more than one step and be executed for a specific purpose in order to produce a specific physical effect [1].

At present, the definition of the concept of business method patents is extended from the description of the extension to the definition of the scope of its definition. British scholar Michal Likhovski believes that in the context of patent French, it includes consumer behavior management, market operation means, buyer and seller behavior regulation, merchants' methods of providing services, methods of expanding trade and market, methods of distributing goods and providing services, and Methods of production and manufacturing processes can be included in the scope of business method patents [2]. Unlike Michal Likhovski's researchers, which cover all stages of production, sales, and after-sales, the European Patent Office's comparative research report to the US-Japan-European Trilateral Agreement defines business method patents in advertising and asset valuation. Education, recruitment, or recruitment are more closely related to interpersonal, social, and financial activities, and less relevant to engineering. Japanese scholar Hirashima supports this definition, which is that business method patents are mainly reflected in the fields of finance and services compared with industrial method patents, while industrial method patents are mainly embodied in the field of industrial technology [3]. The U.S. Patent and Trademark Office defines the business method patent in Patent Code 705: "(1) Devices and corresponding methods for business operations, government management, enterprise management, or financial data report generation, which enable data in After processing, there is a significant change or completion of the arithmetic operation; (2) means for changing the data processing or arithmetic operations provided by the goods or services and corresponding methods" [4]. The US Inventions Act defines a business method patent as “a patent that uses data processing or other operations to control the corresponding equipment in a financial product or service” in the “Review Procedure for the Transition Period of a Business Method Patent”.

With the development of technology in the financial industry, banking and other fields, the scope of patents that business methods are adapted to is also expanding. The US Patent and Trademark Office's 2000 patent white paper on the title of business method patents "Automated Financial or Management Data Processing" Methods "Define a business method as an "automated data processing method." The business method patent is defined as “when the equipment and corresponding methods are used

in (1) the operation, administration or management of the enterprise; (2) the generation of financial statements, the processing of financial data; or (3) the goods or goods. The data processing and calculation operations for clearing houses are more focused on the processing of data in commercial activities to produce actual application transformation. The tangible medium used is no longer limited to the representation of computer software. According to the US Patent and Trademark Office's definition of a business method patent, the application of a combination of business methods and machines, such as health care, insurance, investment management, accounting or finance, is within the scope of a business method patent.

1.3 Research Review

Larry A. DiMatteo used historical research to sort out the reasons why business methods were once excluded from the scope of patent legal objects: First, business methods lacked the novelty and creativity premised on patent protection; second, from the perspective of social interests, Commercial methods are publicly available to achieve greater social value; third, more companies use trade secrets to protect business methods rather than patents. The author's objection to the business method patent pointed out that the scope of the patent object that is too loose may lead to the emergence of “bad patents”. However, the controversy still affirms that the business method patent is an important step to deepen the understanding of modern technology. The opportunity for the integration of the US, European, and Japanese patent systems[5].

For the patent protection of business methods and the evaluation of the patent value of business methods, John R. Allison and Emerson H. Tiller have made five measures to quantify the business method patents by constructing data sets. Indicators of the value of a business method patent: the number of prior art references, the type of prior art references, the number of claims in the patent, the number of inventors, and the time spent by the USPTO review prior to authorization. It is worth noting that, with respect to the prior art, the business method patents are significantly more than the "general patents", and the patent references are less than other "general patents". Due to the inclusion of more claims, the review time is longer than other "general patents". Based on the above factors, the author concludes that the quality and value of business method patents is not inferior to the conclusions of other patents [6].

Starling D. Hunter reached the same conclusion through empirical research, arguing that the negative evaluation of business method patents is more from the media orientation, but in fact the quality of business method patents is not lower than the average standard [7]. David Orozco holds a different view on this issue, arguing that the number of business method patent claims is on the other hand represents a larger scope of claims, which may lead to the result of “excessive preemption” of the underlying technology[8]. This is in contrast to John R. Allison and Emerson H. Tiller's view that "more claims reflect greater patent value."

In addition, David Orozco provides insight into administrative measures for business method patents, arguing that business method patents themselves are subject to objectionable patents, and that the US Patent and Trademark Office enforces certain regulatory rules for its effective regulation. The industry expansion and quality plan complements the Supreme Court's judicial precedent and can form an administrative leverage to further gain the effect of judicial and administrative departments on the coordination of business method patents [8]. Scholar Daniel Harris Brean regards administrative measures exclusive to business method patents as protection against discrimination in business method patents [9]. It is pointed out that under the TRIPS Agreement, the United States is obliged to equally protect inventions belonging to the technical field. However, in fact, the current US patent system examines business method patent applications strictly in other technical fields, and constitutes the exclusion and discrimination of business method patents. From the data in which patents are invalidated, business method patents have far exceeded the proportion of invalidity of other types of patents. At the level of the review process, the special procedures developed by the US Patent and Trademark Office “covering the review procedure for business method patents” allow anyone to raise the question of the eligibility of the business method patent object, and the right holder of the business method patent is placed in the long-term right. Stable in the middle of trouble. On this issue, the author's attitude is similar to that of Timothy R. Holbrook, who believes that the special review procedure for business method patents stems from the abstraction of the method patent itself, and the special procedure is to avoid excessive monopoly of abstract ideas and natural laws [10]. It is not a discrimination against business method patents. On the contrary, the necessary post-delegation review process can guarantee the value of the business method under the protection of patent law, which

essentially reflects the equal protection of technology and respect for the balance of interests of patent law.

In the international coordination of commercial method patent protection operations, the more representative ones are Robert E. Thomas and Larry A. DiMatteo's research: from the perspective of comparative studies between the United States and Europe, the international coordination of patent licenses for business methods is pointed out. Case law has different experience. Europe and Japan have always been based on the development of national policy-oriented business method patents, adopting an attitude that only recognizes the innovative computer-implemented business method patent object qualification. The European and Japanese Patent Offices are dedicated to interpreting statutory exclusions in order to further rule out the fact that their main technological innovations are limited to the use of computers. In the conclusion section, the author suggests that the commercial method patents should have a shorter patent protection period and a special database covering the existing methods of business methods [11]. This proposal is also reflected in the research of Chinese scholars and has certain reference significance.

In terms of specific review criteria, Hung H. Bui comprehensively clarified the evolution of the concept of "abstract ideas" in the jurisprudence of US law after Alice's case, summarizing that abstract ideas should include: mathematical algorithms, natural laws, Human organizational activities, management activities, and thinking processes, in summary, are artificially defined rules and intellectual activities that lack structural and procedural technical significance [12]. The analysis of this concept is more relevant to the "rules and methods of intellectual activity cannot be granted patent rights" as stipulated in Article 25 of the Patent Law of China, and has a high reference significance.

Summarizing the academic achievements of business method patents, the author finds that the following aspects are insufficient to be further studied and improved: First, there is less discussion on the objectivity review of commercial method patents. Relevant research mostly focuses on the discussion of patentability of business methods, and the review of patents on business methods is more studied from the perspective of tri-personal review. Second, research involving patent examination of business methods usually begins with national review standards. However, due to the development of technology and the renewal of judicial practice, the review standards have undergone major changes, and it is difficult to draw operational countermeasures

and suggestions by rigidly using comparative methods of reviewing standards. The third is to pay attention to the status quo of legislation and the status of application and authorization of business method patents in various countries. It has not been analyzed from the perspective of the commonality between the extraterritorial review practice and China, which leads to the lack of basis and feasibility of the countermeasures. Fourth, there are many principled suggestions, and there is a lack of specific methods for analyzing object review. At present, there is no specific guidance in Chinese business method patent object review system. Therefore, the corresponding suggestions or countermeasures proposed should be the review ideas that can produce reference opinions. The operational operability of many recommendations is still insufficient. It can be seen that domestic scholars still have a large space for discussion and exploration in the examination of the eligibility of business method patents. The author will try to make up for the lack of the above research results.

Chapter 2 The Theoretical Basis of the Subject Eligibility of Business Method Patent

2.1 The Theoretical Origins of the Eligibility of Business Method Patent

In the process of the development of the patent system, the commercial method was once excluded from the scope of the patent object because it was “not patentable”. The root of the business method to break through the barriers to the original "intellectual activity rules" is the migration and penetration of non-technical activities such as business methods into the technical field, so that business method patents can be fixed for commercial purposes and technology as a carrier. The development of business method patents reflects the evolution of the patent system from “production function” to “return function”, or because it is the internal driving force of socioeconomics [13]. Although countries now basically recognize the legal status of business method patents, it does not mean breaking the original meaning of patent protection, and incorporating pure business activity rules into protection. Pure commercial methods are still excluded from the scope of patent objects. In essence, the patent system of business methods in various countries does not break the definition of patent object by patent law, but relies on the multi-solution and flexibility of language to interpret patent law according to economic development and policy needs in different periods [14]. On the other hand, commercial methods have become patents for business methods and require a review as a bridge to distinguish between purely commercial methods and patentable business methods. The objectivity review is the first threshold, and it is also an important link. The development of its theoretical origin implies the process of coupling business methods with patent systems. The author sums up two arguments from scholars' arguments and international treaties: the theory of technical contribution and the theory of practical application. The standards of censorship and judgment of various countries have traces in these two views.

2.1.1 Technical Contribution Theory

One of the important reasons why business methods are incorporated into the patent landscape is the ability to contribute to the technology field. The various philosophical principles of the patent system, whether it is the natural rights theory of the patent system, the service remuneration theory, the monopoly interest incentive theory or the public change protection theory, imply the requirements for technical contributions. The business method patents, the emerging things in the information age, are able to conform to the patent system through technical contributions, and at the same time distinguish them from the general industrial technology patents.

The European Patent Appeals Board stated through the Pension Benefit that "if the method itself has a technical contribution, then it is still a method of doing business, but it is no longer a business activity method itself." Technology contributions separate the business method itself from the business method patent. As a result, the commercial method itself is excluded from the scope of patent protection because it does not have technical contributions. It can be considered that technical contribution is the cornerstone of patentability. If the commercial method is technical in nature, it should open a gap in its patent object status. [15]. If support is sought from international treaties, the technical contribution theory is a reasonable way to consider whether a patent satisfies the "any technical field standard" embodied in the TRIPs Agreement.

For business method patents, an important part of the invention is the composition of "non-technical elements" such as business rules and business thinking [16]. Summarizing the review practices of countries, the application of the technical contribution theory can be subdivided into two tendencies. One is to dilute the role of business activity rules, as long as the application can solve technical problems as a whole, and adopt technical means to produce technical effects. The review model of China and Japan can be classified into this category. That is to say, the technical contribution can be embodied in the technical problem to be solved by the patented invention, or in the technical effect obtained by the solution to the technical problem, and can also be embodied in the specific solution to solve the technical problem.

The other way is to rigorously contribute to the technical contribution of non-technical elements. In order to avoid protecting the business method as an abstract idea, non-technical elements are required to contribute to the technical

elements, and the patentability of commercial methods without technical contributions is excluded. To leave clearer guidance for investors in the field of technological innovation [17]. This view holds that when non-technical elements make a deeper contribution to technological elements, high-quality development and progress in the entire technological field can be brought about. The EU's review of business method patents corresponds to this “strict technical contribution” view, which not only distinguishes between technical and non-technical elements, but also requires that non-technical elements, that is, part of the business activities, need to contribute to the technical field before they can be evaluated as eligible business method patents.

2.1.2 Practical Application Theory

Judge Mayer of the Bilski case pointed out that "the patent system is designed to protect and promote the advancement of science and technology, not the idea of how to implement commercial transactions." "Practical application" limits the abstract and theoretical characteristics of the business method itself, enabling it to be manufactured or used in the industry and to solve practical problems. British intellectual property expert Cornish pointed out that “no patent protection should be provided for information that has not yet been determined for practical application [18]”. This shows that through the practical application of business method patents, purely commercial methods belonging to abstract ideas stay in the public domain until they can Patent rights can only be obtained when the society has a real use.

Article 12, paragraph 1, of the Substantive Patent Law Treaty, proposed by the Secretary of the Standing Committee of the WIPO Patent Law in 2002, states: “The scope of the subject matter for which patent protection can be obtained shall include products and methods made or useful in any field of activity” [19]. This provision is also one of the realistic basis of "practical application theory". Some scholars have concluded that the patent system under practical application theory is a tool for commercial competition, and industrial interests are the fundamental legal principle. When mathematical algorithms and business rules belonging to the ideological category can directly lead to industrial applications, the industry will not hesitate to amend or abandon the traditional patent principles, and strive to pave the way for these objects [20]. This view reflects the tendency of practical application theory to expand the object of patent protection.

The practical application restrictions on business activity methods are embodied in the "specific, tangible and useful standards" established by the State Street Bank case and the "machine or conversion standards" established in the Benson, Flook and Diehr cases. The extension and embodiment of the theory. The US court found that if the invention can produce the effect of actual application, it can become the subject of patents, whether it contains mathematical algorithms, or whether it is combined with hardware, or whether it is a commercial method, reflecting the protection of intellectual achievements to the protection of the patent object itself. Expansion trend. The US Supreme Court pointed out in Brenner v. Manson that unless the method can be fixed by practical application, the corresponding patent boundary and scope cannot be accurately defined, and it may monopolize an unknown field. The core of practical application theory is "restriction". By restricting the rules of intellectual activity to prevent excessive preemption, the original rules of intellectual activity are limited to inventions with a certain level of "material world" entity value. The aim is to avoid granting patents to topics that are no more than ideas or ideas or merely the starting point for future inventions or research, so it can be said to be a goal-oriented view, which implies a technical challenge, in strictness. It is lower than the technical contribution theory.

2.2 The Legitimacy of Eligibility of Business Method Patents

With the evolution of the patent system, patents have evolved from the initial concrete and responsive protection to abstract, forward-looking protection. The identification of the protection theme has also evolved from the human labor condensed in the previous object to Emphasis on the object rights themselves. The premise of the eligibility review of the business method patent object is that the commercial method can be regarded as a suitable patent object. The key is the degree of conformity between the commercial method itself and the patent system, and the subject matter of the business method patent has a rooted soil. The legitimacy of the business method as a suitable patent object is reflected in the following four aspects:

Firstly, the development of technology has enabled business methods to be combined with technology. Under the earlier commercial developments, commercial activities focused more on production and distribution, and the patent system focused on the technical characteristics and content of products and methods. However, with

the development of the market and the improvement of human needs, the demand for service links has proliferated, and users' demands for diversification of experience and choice have made it difficult to meet the needs of users simply by upgrading their products [21]. But the technical approach provides the possibility to make up for this shortcoming, and the status and importance of science and technology in business operations is increasingly evident. Through the integration of technical characteristics and business methods, market entities can use science and technology to mobilize their own market experience and innovation capabilities, making business methods both technical and groundbreaking. These business methods are also essentially inventions. But the result of such inventions is usually not a new type of product, but a technical solution born out of the product.

Secondly, the characteristics of the business method patent are in line with the patent. Commercial method patents in the usual sense have certain characteristics in common: (1) they are valuable and can be used for profit purposes; (2) usually the result of intellectual labor, which is a summary of effective methods on the basis of practice; (3) exists in the commercial field, which makes it distinguish between methods in manufacturing production; (4) abstraction, because most business method patents are products of abstract thinking, and do not directly produce tangible products, so It is difficult to define and grasp; (5) with practical elements, business methods should not be just fantasy, only the practical application of patents can create value for society; (6) easy to be imitated, because it is essentially a kind of information However, under the current developed communication conditions, it is vulnerable because it is easily obtained, and failure to achieve proper protection will dampen the enthusiasm of the creators. The above characteristics contain the possibility of possessing the substantive conditions of patents. In the era when information becomes wealth, for the patent law with the characteristics of “imitation prohibition law”, it is inevitable to produce the protection requirement of commercial method patents [22] Business methods can be called patent objects through proper integration with technology, and the patent system can also provide appropriate protection for business method patents.

Thirdly, the inclusion of commercial methods in patent protection is based on policy choices that encourage innovation. In the discussion of patent protection of business methods, whether it can stimulate the scientific and technological development of related industries is the cornerstone of the legitimacy of its

protection[23]. The business method patent is based on the development of rules and achievements in the field of business activities, and needs to be considered for humans' back feeding. If a suitable business method is used as a patent object to determine the rights, for the enterprise, the right subject can own and use the business method patent as an important intangible property, thereby enhancing its wealth. As an offensive business strategy, the business method patent can bring lucrative returns to the company through the use of patent licenses. As a defensive business strategy, the business method patent can prevent opponents from using the same business method technology solution, and file a lawsuit against the opponent when the opponent infringes the patent to compensate for the loss, while also restraining the competitor and placing himself in a dominant position. In summary, the acquisition of the above monopoly interests as an incentive factor can provide an intrinsic motivation for the main body of technological innovation to invest in innovation activities.

Fourthly, the incompatibility between business methods and patents can be resolved through patent examination. The challenge of business method patents is reflected in the fact that the commercial method is included in the patent object field is the excessive expansion of the patent system, which itself mainly involves the "commercial field" rather than the "technical field" [24]. Some people think that the commercial method solves the commercial activity. In the middle of trading methods, trading procedures, etc., some commercial method patents are only the computerization and networking of existing business activity rules, which lack obvious technical features, but will infringe the public domain due to the grant of patent rights. For the above non-compliance, it can be solved by setting appropriate review criteria. Through the combination of technical features and business methods, it is the threshold that can overcome the technical elements and solve the migration from the pure "commercial field" to the "business and technology field". The improper use of business method patents in the public domain is not intrinsic to its own legitimacy, but rather to questioning some of the low-quality business method patents. The solution to this problem lies not in negating the eligibility of the patent object of the commercial method, but in establishing a standard and process for the examination of the patent method of a qualified business method, especially the examination of the eligibility of the business method object, which should be properly screened. Valuable and compliant business methods, carefully analyzed, and carefully

authorized to scientifically delineate the boundaries between business method patents and the public domain. In addition, the property rights of commercial method patents granted by the patent system are not permanent and cannot be broken. The system of term limits and compulsory licenses in the patent system also provides solutions and paths for the above problems.

2.3 The Necessity of the Eligibility Examination of the Business Method Patent

2.3.1 Defining the scope of the client of the business method patent

The object eligibility review of business method patents is an examination of whether the object complies with the authorization requirements stipulated by law, and the Patent Examination Guide on which it is based is a legal document that defines the technology in a limited way. This process defines the scope of protection under the patent law and is a process of judging the commercial method of complying with the conditions of the patent law to protect the object. In the empirical study of American scholar Dennis Crouch, although the US Patent and Trademark Office did not become a litigant, the confirmation of claims in the patent examination process has an important impact on the judgment of patent cases. The United States Patent and Trademark Office defines the scope of protection according to the description of the claims, and the patent examination process is the review and confirmation of the scope of protection. The court will adopt the rights of the review process in the face of the different interpretations of the claims by the parties. To define the scope of the object of patent rights [25].

State Street Bank v. Signature Financial Group The Federal Court of Appeals removed the “exclusion of business methods” adopted by court practice over the past few decades, affirming the objectivity of the software program “citing mathematical deduction” and considered the request Even if the mathematical deduction method is covered in the item, as long as the invention produces "concrete, useful and tangible" results through the arithmetic function, it should not be directly excluded from the scope of the patent protection. Later, the Federal Appeals Circuit Court raised the criteria for the examination of the eligibility of business method patents in the In re

Bilski case. It is considered that a commercial method patent application can only be connected to the machine, or the material or its state can be transformed. The style is greatly limited to the scope of the object of business method patents.

In 2014, Alice v. CLS Bank, which was invalidated by the US Supreme Court, formed Alice's storm. More and more courts tend to consider the eligibility of patent objects in the early stage of litigation. The specific data is shown in Table 2.1. In the two years following the Alice decision, a total of 125 commercial method patents were questioned in the local courts, accounting for 26.3% of the total number of invalid patents. Explain that the patent object suitability review can effectively screen out commercial methods that do not meet the requirements of the statutory patent object. Some scholars have commented that Alice's storm has swept most of the business method patents, which has invalidated a large number of commercial method patents, but in the long run it is beneficial to clarify the scope of business method patent objects.

Chart 2.1 Summary of §101 Motions Since Alice[1]

	Total Invalid		
	Total	Total Invalid under §101	% Invalid
Fed. Ct. Decision	287	201	70%
Federal Circuit	40	38	95%
District Courts	247	163	66%
Patents	559	369	66%
Claims	15392	9907	64.4%

It can be seen that the strictness of the eligibility of commercial method patents determines the number of business method patents that can enter the patent protection field, and can also guide the combination of business methods and patents before the “first threshold” of patent examination. For example, under the guidance of the technical contribution theory, if the current review criteria of the European Patent Office are adopted, non-technical elements are required to contribute to the technical elements in order to be regarded as having a suitable commercial method patent. Due to strict technical requirements, the object range of business method patents is greatly limited. The adoption of an overall evaluation of the claims does not distinguish whether the technical contribution is derived from technical or non-technical elements,

[1] Data collected from Robert Sachs. Two Years After Alice: A Survey of the Impact of a “Minor Case”.http://www.bilskiblog.com/blog/2016/06/two-years-after-alice-a-survey-of-the-impact-of-a-minor-case.html/ Last visit：2019/3/25

which can reduce the criteria for object eligibility and expand the scope of the client of commercial method patents.

2.3.2 Control the Quality of Business Method Patents

The control of the quality of commercial patents is completed by the object eligibility review and substantive examination, but the division of labor between the two is different when performing this function. Judge Giles Rich of the United States once positioned the first object of the patent object eligibility review, and an invention must fall into the examination of the patent object eligibility criteria before entering the third-party review process [26]. The object suitability review is essentially a solution to how the rules of business activity are limited in the claims. The stricter the restrictions or contributions to non-technical elements such as business activity rules, the higher the threshold for granting monopoly power to patent applicants.

The “concrete, tangible, and useful” principle established by the State Street case has largely solved the problem of predictability and certainty at the beginning, and has attracted extensive criticism with the large number of authorizations for business method patents. After the case, the US Patent and Trademark Office authorized a number of commercial method patents that simply use software to implement functions, including Amazon's "one click" method, how to train kittens with a laser pointer, and ways to induce customers to order more food. This loose review standard has led to the patenting of a large number of low-quality business methods, which has lowered the overall quality of commercial method patents [27].

In addition to the object eligibility review criteria that can control the quality of business method patents, the role of the relevant review process is equally important. The US Inventions Act proposes a “transitional plan covering patents for business methods” to establish a post-delegation review process with a transition period of eight years to re-examine the object suitability of business method patents with specific standards and procedures. The US Patent and Trademark Office has implemented the “Business Method Patent Review Quality Plan” requiring that “each rejected claim should be based on an appropriate review basis and the patent review process should correctly apply the law and citation documents”. The impact of the standards and implementation levels of object suitability on the quality of business method patents is profound. In the absence of a scientific object-specific review

process, on the one hand, rules and knowledge that should be in the public domain may be included in the monopoly of patent rights. On the other hand, patent protection may be achieved because of too strict review standards. The conditional business method application is rejected and the necessary patent protection is not obtained. Therefore, proper review standards and operational guidelines for the implementation of the review standards are key to controlling the quality of business method patents.

Chapter 3 Examination Experience of Subject Matter Eligibility

3.1 USPTO

3.1.1 Elements of Examination Reflected in Judicial Precedent

In the US jurisprudence, the business method has gone through the originally excluded subject matter to become the object of patent rights, during which it has experienced the process of establishing standards, expanding standards, strict standards, and going to standardization [28]. From the “Specific, Useful, and Visible” standards established by State Street Bank v. Signature Financial Group, the review criteria have become stricter after the In re Bilski case, and the “machine conversion and testing method” has replaced the “specific, useful, tangible” test method. To the clear "two-step test method" in Alice's case, the US courts at all levels have been trying to find out how to properly judge the object eligibility of business method patents. Although the US courts have adopted several changes to the review standards, the considerations for constructing the review standards are still basically consistent, which has somewhat alleviated the uncertainty and unpredictability in the patent review of business methods. Therefore, the author uses the elements of censorship as a clue to analyze and judge the elements of censorship in the process of argumentation, in order to provide reference experience.

3.1.1.1 "Pre-emption" and "Practical Application"

Business method patents are always accompanied by abstract ideas such as business activity rules, mathematical algorithms, and natural laws. In assessing the objectivity of business method patents, the problem that must be solved is to avoid the problem of commercial method patents monopolizing these non-patent abstract ideas. In response to this problem, the author believes that the investigation of the "Pre-emption and practical application" elements can be taken as a solution.

In Gottschalk v. Benson, the controversial patent is a method of converting binary-encoded decimal numbers into pure binary numbers using a common computer. The US Supreme Court considered the method application in the case to be too

abstract and completely covered the known or unknown use of coded numbers converted to pure binary numbers. Therefore, the exclusive use of all practical applications of publicly known knowledge is not accepted by patent law. This view lays the foundation for "exclusive practical application" when evaluating the eligibility of patent objects.

Through the Parker v. Flook case, the US Supreme Court further proposed an understanding of "practical application". The disputed patent in this case is a method of correcting the alarm value by using mathematical algorithms or formulas based on the original alarm value, update interval, The weight calculation of the current temperature and other factors produces the effect of automatic adjustment of the alarm. At the same time, the special formula used in this application covers any practical form of use in the catalytic conversion of hydrocarbons, but does not cover any other contemplated form of application of the formula other than catalytic conversion. Thus, the US Supreme Court raised the opinion that the difference between the case and Gottschalk v. Benson is that the use of the formula in the case is a specific application in a specific industrial field. In Gottschalk v. Benson, the disputed patent cannot be patented, not because the application contains natural laws and mathematical formulas, but applications that are evaluated as exclusive to all practical applications are not among the patent objects. Although natural laws and mathematical formulas are not patentable, the practical application of mathematical principles and natural phenomena is patentable. But this practical application requires not only a simple consideration of whether or not this mathematical formula is monopolized, but whether the claim points to a new and useful method, and whether there are other inventive ideas in addition to the application of the formula. Judge Steven further emphasized that examiners should not be affected by follow-up activities when reviewing patents, but should see whether the substance of the application points to the mathematical formula itself. To sum up, if the essence of the application is to monopolize the mathematical formula itself, then there is no patent object eligibility. If only the mathematical formula is actually applied, but it points to a new and useful invention point, it should not be excluded from the scope of the patent subject.

3.1.1.2 “Insignificant Post-solution Activity”

In Parker v. Flook, the US Supreme Court stated that an experienced patent attorney could add some subsequent steps to any mathematical formula, thereby making the application patentable. Such a "post-resolution" can formally turn a non-patent abstract idea into a patentable program. However, the concept of patent object stipulated in Article 101 of the Patent Law should not be a thing that can be handled by people at will. Therefore, such a "post-solution" should be distinguished at the patent object review stage. The District Court again reviewed the Flook case in an objectivity discussion on Intellectual Ventures v. Capital One, arguing that the participation of general-purpose computers, such as hosts, servers, and computer sites, was not part of a particular device and could only be counted as a computer system. The application in it is therefore not a limitation on abstract ideas. The consideration of "restrictions" should be more than just a post-solution.

Considering the extent of the “post-resolution”, US Supreme Court judges believe that “a negligible post-solution will not transform a non-patentable object into a patentable object”. In the case of Apple v. Amerant, the Federal Circuit Court of Appeals considered the process of recognizing handwritten content in a disputed patent claim and converting it into a text entry process. Adding a “manually modifying the menu” is a “post-resolution” that does not have significant significance. From the point of view of the effect of restrictions, even if a claim does not monopolize an abstract idea, it may still be a meaningless restriction. Because it is possible to employ customary steps that are not significant, such broad limitations are not sufficient to limit the claims to a reasonable extent.

In the case of Fr. Telecom S.A. v. Marvell Semiconductor, the Supreme Court examined the “post-resolution” considerations in both positive and negative aspects of the method patent element analysis. The judge pointed out that on the one hand, it is not possible to circumvent the principle of “non-patented object” by restricting objects such as mathematical formulas that do not conform to the protection of patent law to specific technical fields, and “post-resolution” without significates is also insufficient. Convert non-patented objects into patentable objects. On the other hand, the claims on statutory patent objects will not become patentable because they contain mathematical formulas, because the use of natural laws or mathematical formulas for product structure or method may be more in line with the requirements of patent objects.

In summary, the following situations may be evaluated as "post-solutions": first, the use of common functions of the computer; second, the use of artificial rules; third, the usual use of equipment that is not sufficient to limit the claims step. The "post-resolution" does not give the object of non-qualified object the status of the patent object, and the patent object does not lose the eligibility of the patent object because of the use or inclusion of abstract ideas, mathematical formulas and other elements.

4.1.1.3 “Abstract Ideas” and “Inventive Concept”

Considering business method patents contain abstract ideas that are not patentable, it is necessary to limit the abstract ideas in the application to have the patent object eligibility, and the element that limits the abstract ideas is the "inventive concept", also known as "significantly different." Elements." In the re Bilski case, the Federal Circuit Court of Appeals took the judgments of the Benson, Flook, and Diehr cases as examples. In the past, the Supreme Court's judgments have limited the use of abstract ideas, "trying to preempt the invention of abstract ideas" and "using abstract ideas." Whereas the invention encompasses only the invention of a particular application, the distinction should be made, and the test should be divided into two steps when determining the patentability of the method patent: (1) the invention is linked to a particular machine or device; (2) the invention Transforming a specific item into different states and things, the so-called "machine and conversion test method."

The Federal Court of Appeal further explains the method, first of all, whether the application is limited to a specific area of the basic principle or the invention covers the basic principle itself, which will result in a preemptive result, but if it meets one of the requirements of the machine and conversion test method, the invention contains only one specific application of the abstract idea, not the abstract idea itself.

Furthermore, for the degree of conversion, the Court of Appeals for the Federal Circuit adopted a discriminatory analysis: if the object being converted is a specific product, it must undergo a physical or chemical state transition; if it is a computer-processed digital signal or data, The so-called commercial method, the result of the transformation must represent a physical and tangible object.

Alice v. CLS Bank took the commercial method patent eligibility judgment forward again, and the Circuit Court of Appeal followed the two-step analysis

established by the Mayo case. First of all, it is considered that the claim of the patent method is similar to the concept of guarantee. This concept has not only existed for a long time, but also because the concept of “third-party intermediary reduces the risk of delivery” does not exist in any practical medium, which is the basis of human psychology. Abstract thinking, therefore, in examining the abstract ideas, the court needs to judge whether it has "elements that are significantly different from abstract ideas", that is, to invent ideas. The United States Supreme Court held that the claim in the claims is to use third-party intervention to reduce settlement risk, reflecting the concept of “intermediate settlement”, a concept that is “the usual and prevalent basic economic activities in the commercial field”. Similar to the “risk hedging” involved in Bilski, it is an abstract idea under Article 101 of the US Patent Law. The judge also emphasized that the application only briefly describes the function of completing the intermediate settlement through the usual functions of the computer. The simple description of the general computer is not enough to transform the abstract idea without the patent object's eligibility into the patent object. invention. Since this method does not realize the improvement of the function and structure of the computer, nor does it reflect the improvement of other technical fields, the system as a whole does not take meaningful restrictions on the abstract concept itself to make the system request items and abstract concepts generate. Substantially different, there is no object eligibility. Based on the progress of the Alice case, the local court further clarified the abstract ideas and inventive concept elements of the business method patents in the subsequent judgments by the judge's argument. The specific judgment contents are shown in Table 3.1::

Table 3.1 Application of abstract ideas and inventive concept elements to judge subject eligibility after Alice

Case	**Disputed Patent**	**The Judgments about abstract ideas and inventive concept**
Digitech Image. v. Electronic for Image,Inc[2]	Disputed patents are methods that use computer systems to ensure that pictures are continuously displayed on different devices.	The court believes that only the mathematical relevance method is implemented by the general function of the computer, and does not require physical equipment. It belongs to the abstract idea of patents that are not patented.

2 Digitech Image Technologies, LLC v. Electronics for Imaging, Inc.,758 F.3d 1344, (2014)

Planet Bingo v. VKGS[3]	The disputed patent is a patent for crossword puzzle on a computer. The general system remembers the number selected by the user, and continues to use the selected number in the subsequent game and confirm the winning and losing method.	The judge held that the role of the computer in the disputed patent was only the function of completing a large number of calculations. It was similar to the core concept of "risk avoidance" in the Bilski case and Alice case, and it was an abstract idea. It is not an inventive concept only by adding ordinary computer computing functions in each step.
BuySAFE v. Google[4]	Disputed patents are method and machine readable media that perform a series of steps to authenticate transactions and thereby safeguard the behavior of online parties.	The court ruled that the patent belongs to the traditional concept of third-party guarantee transactions, and even if the claim item guarantees the function to be restricted to the online transaction field, it cannot change its essence as an abstract idea. In terms of inventive concepts, only the general functions received by the computer network are utilized, and no more details are described, and sufficient inventive concept elements are not provided.
Ultramerical v. Hulu.LLC and WildTangent[5]	Disputed patents are patented by clicking on advertisements in exchange for free works.	An overall observation of the request item, the patent is described as an abstract idea, even if the execution instruction is added, the essence of the abstract idea cannot be changed. In terms of inventive concepts, the application merely completes the conventional steps through the network, and the writing range is too broad, and there is no limiting function to realize the inventive concept.
CET LLC v. Wells Fargo Bank, N.A[6]	A disputed patent is a method of processing copy files from different types, identifying file information through an automated digital device and storing it on a computer.	The Alice case was invoked to identify the information processing method as a basic concept for banking industry. In terms of analysis of the inventive concept, the Court of Appeal emphasized that computer-related equipment must provide "more than the functions known and commonly used in the related art".

[3] Planet Bingo, LLC v. VKGS, LLC, 319 Mich. App. 308, 900 N.W.2d 680, (2017)
[4] BuySAFE, Inc. v. Google Inc., 964 F. Supp. 2d 331, (2014)
[5] Ultramerical, LLC v. Hulu.LLC and WildTangent, Inc,772 F. 3d 709, (2014)
[6] Content Extraction a Transmission LLC v. Wells Fargo Bank, N.A.,776 F.3d 1343, (2014)

According to the above judgment content, the judgment of the abstract idea is based on two situations: first, there is no substantial connection with the machine equipment or only the general execution function of the computer; secondly, the described method is the basic concept of the passage. If it is the case listed above, it can be preliminarily judged that the application involves abstract ideas. The judgment of the "inventive concept" can be summarized as: first, improve the technical field or other technologies, and the improvement essentially points to the technical field rather than the abstract idea; second, improve the function of the computer itself; third, if there is no improvement The function of the computer itself must be more than the functions known or customary in the related art for the computer or related equipment.

Therefore, the analysis of the eligibility of the patent method of business method patents can be summarized as follows: on the premise of not “exclusively all practical application” elements, the objectivity of the business method patents involving “abstract ideas” under the “invention concept” is recognized. And to provide a way to distinguish the "post-resolution", to avoid the abstract ideas put on the cloak of technology, packaged into a patent object to obtain protection.

3.1.2 Revised Guidance for Determining Subject Matter Eligibility.

According to the decision of Alice, USPTO officially proposed a two-step framework through *Guidance for Determining Subject Matter Eligibility* issued in December 2016. The review process of the reviewer is shown in Figure 3.1.

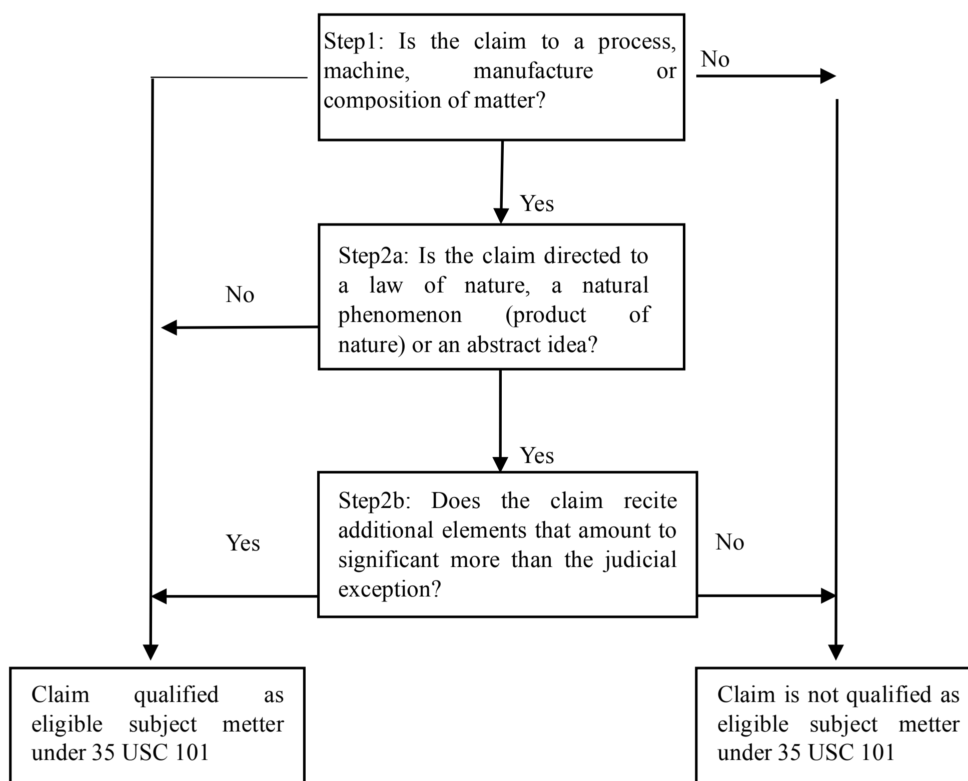

Figure 3.1 SUBJECT MATTER ELIGIBILITY TEST FOR PRODUCTS AND PROCESS[7]

Firstly, Step 1 determines whether the request item belongs to the scope of the legal object (process, machine, manufactured goods, material combination). If it does not meet the four legal patent objects, it directly determines that the patent object is not eligible. If it is a legal object, enter Step 2a to check whether the claim is described or the term jurisdiction does not grant the patent. Step 2 adopts a streamlined patent eligibility analysis method, that is, when a request item does not involve an object that is not granted a patent with judicial judgment, it can directly determine that it has patent eligibility and does not need to proceed with Step2b. Analysis with significantly different requirements. In the case of an object that is not patented by the judiciary, it is further different from the case where the patent is not patented according to whether Step 2b determines whether the additional element is described. If the limited effect is achieved, the patent object is eligible, and vice versa, the patent object is not eligible.

[7] Manual of Patent Examining Procedure, Chapter 2100, Section 2106 Patent Subject Matter Eligibility. Figure：Subject Matter Eligibility Test for Products and Process. https://www.uspto.gov/web/offices/pac/mpep/s2106.html. Last Visit: 2019/3/19

In order to further improve the patentee's expectation of the stability of its patent rights, the US Patent and Trademark Office's *Guidance for Determining Subject Matter Eligibility*[8] issued in January 2019 further refines the two-step framework.

Firstly, the "abstract thoughts" are embodied. According to Article 101 of the Patent Law, "natural laws, natural phenomena and abstract ideas" are excluded from the patentable object. According to the opinion of the US Supreme Court, "to some extent, all Inventions use natural laws and natural phenomena. How to clarify the boundaries is the problem that patent law and patent examination need to solve? The guide analyzes and generalizes previous jurisprudence and classifies abstract ideas as follows: (a) mathematical concepts, including quantitative relationships, mathematical formulas (equations), mathematical operations, etc.; (b) organizational methods for certain human activities: basic economics Principles and practices (including hedging, insurance, means of risk reduction); commercial or legal activities (including paradigm agreements, legal obligations, advertising, distribution or promotional activities and behavior); human activities or interpersonal management activities (including social, teaching) And related rules and guidance); (c) Thinking process: completed by human brain activities including observation, assessment, judgment and comment.

Secondly, judge whether it is “pointing to” the object of judicial exclusion. First of all, it is judged whether the claims of the application describe the "abstract ideas" listed above. The key to the review is to judge the claims as a whole to judge whether the proposed scheme incorporates abstract ideas into "practical applications". The consideration of application is whether to impose meaningful restrictions on abstract ideas so that claims avoid the monopoly of abstract ideas in the sense of text. It should be noted that the claim of the application should judge from the overall analysis whether it is an object of judicial exclusion. This is also the main task of the Step 2a phase. In this step, it is divided into two processes depending on the situation. The first case is not involving the judiciary. Excluded objects, directly identify the object is appropriate; the second case: the claim contains judicial exclusion, then the next phase of Step2b analysis.

Finally, starting from the procedure of object review, the key to the Step2b phase is the identification of “extra factors” and the degree of integration with the claims.

[8] U.S. Patent and Trademark Office announces revised guidance for determining subject matter eligibility. https://s3.amazonaws.com/public-inspection.federalregister.gov/2018-28282.pdf. Last Visit：2019/3/23

Several “extra elements” appearing in the claims should be analyzed separately and integrated into the overall analysis, if only Superimposed “obvious, customary, customary activities” cannot be considered to constitute “extra”. The representative “significantly different elements” provided by the guide are: advances in computer function, treatment or prevention, integration with specific machines, transformation of substances or changes in state, etc., which are practical rather than simple migration or connection. Since the main purpose of the Step2b review is to judge whether the application is an appropriate "inventive idea," the role of "extra factor" is reflected in the addition of a definition that is significantly different from abstract thinking. To ensure the degree of integration of “extra factors” and claims, the author believes that it can be understood by means of “limited thinking”. Having the scheme consisting of claims as a whole, there may be a single "extra factor" sufficient to transform abstract ideas into "real applications", or a combination of "extra features" to limit abstract ideas to "real applications."

The guidance emphasizes that the “extra factor” should be considered in the Step 2b phase because Step2a does not need to evaluate the “extra factor” concept. If the claim does not involve “judicial exclusion”, then the “conventional, obvious element is allowed in the application. ", should avoid the preconceived concept of interference.

In addition, the guide also procedurally closes possible vulnerabilities. Consider the case of "except for the abstract ideas enumerated in the first part of the guide but should be considered as abstract ideas for review" under special circumstances. In this case, the application for the conclusion of the "object dissatisfaction" needs to be approved by the technical center supervisor. A refusal decision is made to reflect the attitude of the review guide to cautious determination of exceptions.

3.1.3 Procedures for the Eligibility Examination of Business Method Patent

The business method is more prone to problem patents and further triggers malicious litigation because of its own difficulty and challenge of review [53], so it is more likely to be questioned and more relevant to the review process. In 2012, the Leahy Smith America Invents Act (AIA) created three procedures for post-delegation review: the IPR process, the post-approval review process (PGR), and the review process (CBM) covering the transition period of the business method patent. The review procedures of both parties only allow patents to be invalidated on the grounds

that they are not novel and creative. Under the transition procedure covering the transition period of the commercial method patent, the applicant may challenge the eligibility of the patent object according to Article 101 of the US Patent Law and then render the patent invalid. As a procedure specifically designed for business method patents, a patent requires at least one claim to cover a business method patent and provides for a “transition period” of eight years from the entry into force of the bill. In the process, the review procedure covering the transition period of the commercial method patent is shorter than the court proceedings, and the Patent Trial and Appeals Board is required to complete the trial within twelve months. The procedural shortcuts make more than 90% of the commercial method patent review cases based on the “patent object eligibility” as the review procedure covering the transition period of the commercial method patent. In the procedure, the “patent claim does not conform to the definition of the commercial method patent” is the reason for the invalidity of the patent. The examination of the object eligibility exists in the application and final written decision stage.

Although the transition process covering the commercial method patent is not attributable to the court litigation system, the review of the subject's eligibility criteria is still deeply influenced by the “two-step analysis” of Alice's case, which will determine whether “is a judicial The object of exclusion is regarded as the element of pre-judgment, and then the claims are separated or analyzed as a whole to determine whether there is an invention concept that is significantly different from the object of judicial exclusion, so that administrative review and judicial practice are consistent in the judgment standard.

In addition, the US Patent and Trademark Office has promulgated and implemented the “Improved Quality Assurance Program”, in which the “Second Pair of Eyes” program has played an important role in controlling the quality of commercial method patents. The so-called "Second Pair of Eyes" evaluation procedure refers to an evaluation by the examiner of the authorization and approval of each patent under the 705 classification number. The purpose of the evaluation is to allow the dissident to quickly indicate various problems. It is further considered by the examiner or its supervisor. The results of the “Second Pair of Eyes” program will also be used to examine the quality of the work in the review process and for examiner training, which allows patent examiners to acquire more prior art patent

applications for reviewing business method categories. Increased rigor and accuracy of the review. The author believes that the US Patent and Trademark Office's special procedures for commercial method patents reflect an understanding of the nature of business method patents. As the first country to incorporate business method patents into the protection, the USPTO has long-term exploration experience in the process of patent review of business methods. Due to the abstraction of the business method patent itself, the setting of special procedures can avoid excessive monopoly abstract ideas and The laws of nature provide guarantees for the quality and value of patents, embodying equal protection of technology and respect for the balance of interests.

3.2 EPO

According to the provisions of Article 52, paragraph 1, of the European Patent Law, the patentable invention is "objects that are innovative, progressive and have the influence of industrial progress in all fields of technology". Article 52, paragraph 2, states that the non-special case is: (a) scientific discovery, natural theory and mathematical methods; (b) aesthetic creation; (c) methods, planning and rules for thinking operations, competitions, commercial activities, computer software; (d) display of information. Although the law excludes the business activity method from the patent object by enumerating clauses, the exclusion points to a purely commercial method, rather than excluding all patents related to business methods. The European Patent Office recognizes computers, networks and the Internet. Technology-based inventions are not excluded from the scope of patent subjectss on the premise of technical features[9].

The European Patent Office adopts the "Technical Contribution Theory" judgment standard established by the Vicom case for the suitability of commercial method patent applications. The Vicom dispute patent is a method of converting pictures into digital form storage, in which the digital information conversion method uses mathematical operations including sharpening and coloring the picture. The European Patent Office determines that the application is not a technical element by including a non-patentable numerical algorithm. Based on the judgment of the case, the European Patent Appeals Board concluded that the object of the commercial

[9] Comparative Study on Computer Implemented Inventions/Software Related Inventions report (2018). https://www.jpo.go.jp/news/kokusai/epo/software_201903.html Last Visit: 2019/4/8

method patent is judged whether the use of mathematical operations has reached an objective technical contribution [29]. The subsequent Pension Benefit System[10] further analyzed the need for commercial methods to be physically combined with machinery and equipment in order to pass the patentability provisions of Article 52. The disputed patent in the case is a user-entered search request, and the system derives the result that meets the user's requirements based on the non-human intervention of the indicator. The applicant was individually evaluated as a purely commercial method on the grounds that the results were not human intervention and that the business method should not be separated from technical equipment [30]. The Patent Appeals Board stated that “the method involving economic theory and practice only does not belong to the patent object. The application of the computer equipment attached to the patent cannot change the essence of the claim. The essence of the patent law is the method of commercial activities excluded by the patent law.”

In the way of examination, the European Patent Office adopts a differential review of business methods under different classifications[11]. According to the technical equipment combined with commercial methods, it is divided into three categories: (1) abstract business methods (2) and specific computer hardware, computers. A network, or other computer software combined with a business method of running a business step; (3) a business method combined with a specific device other than a computer. The first business method is directly excluded according to Article 52, paragraphs 2 and 3 of the Patent Law; the second business method adopts the same examination method as the computer-related invention patent; and the third case is based on the combined equipment, adopt a similar program review of computer-related inventions. It can be seen that the review of the commercial method combined with the technical equipment refers to the review method of the computer related party patent.

Before 2010, the European Patent Office did not set up a special object review step, but rather presumed to be technical in nature, ie to meet the patentability requirements [38]. The judgment of the object and the novelty and creativity of the application are reviewed in parallel. In the review, the claim is emphasized as a whole against the existing technology. If the application objectively does not solve the

---

[10] Patent：EP88302239.4

[11] http://www.trilateral.net/projects/Comparative/business/6.pdf
Comparative Study Project: Examination of “business method” applications. Last Visit: 2019/3/29

technical problem, then the object of dissatisfaction is made at the stage of creative review. The conclusion of the grid. Therefore, this parallelism in the trinity review without prior consideration of the object status has greatly reduced the threshold of patentability.

According to the review method provided by the European Patent Office in the "Comparative Research Report on Computer-Related Inventions" jointly published by the Japan Patent Office in March 2018, as shown in Figure 3.3. The current review process of the European Patent Office not only sets up a special object review step, but also judges the technical characteristics of the patent object through two levels of the object review stage and the preliminary stage of the three-sex review. First, determine whether the application has technical characteristics. If it does not have technical characteristics, it will directly refuse the authorization according to the principle clause that does not meet the definition of the invention. Secondly, in the preliminary stage of reviewing novelty and creativity, it is also necessary to distinguish between technical elements and non-technical elements. Only when technological progress can be evaluated can be evaluated as novelty and creativity. In addition to further refine and concretely evaluate the object eligibility, it is also in the technical characteristics. This issue has been carefully evaluated twice to prevent audit errors, reflecting the European Patent Office's emphasis on the technical characteristics of the object eligibility review and the object review itself.

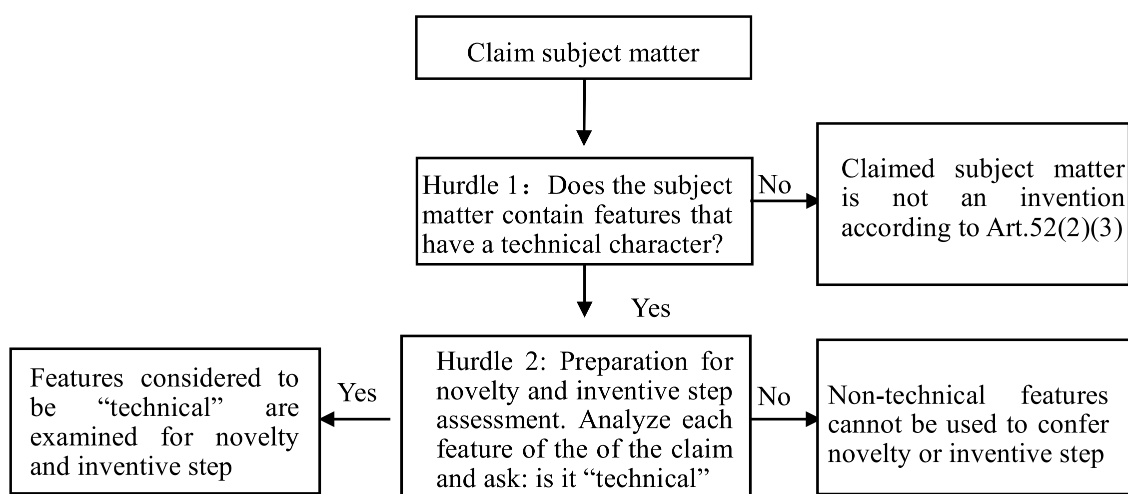

Figure 3.2 EPO approach to examine the patent subject matter[12]

[12] http://www.trilateral.net/events/meetings/hakone2018.html. Last Visit:2019/4/2

3.3 JPO

The Japanese Patent Law expresses the object of invention as "the invention referred to in this Law refers to the innovation that has been highly acquired by the use of natural laws." In the "Guide to the Examination of Computer Software Related Inventions" in the Patent Examination Manual, it is indicated that the commercial method software patents can be classified as conforming to the laws of nature in the third category: "Using hardware resources as a method of information processing" becomes a suitable patent object. Here, "natural law" refers to the law mainly applied to "natural science", excluding economic rules, industrial rules and artificial rules.

The Japanese Patent Office issued the “Business Method Patent Policy” [13] in November 2000, introducing experts to review and requesting the review of the review committee and the appeal review committee, and at the same time committing the compatibility of the practical operations of the patent authorities of the United States, Japan and Europe. In 2001, the “Procedures of Business Method Inventions Not Patented” was issued, which specified various situations that were not “inventions”, including details such as the writing points of various instruments, and influenced the review standards of Japanese commercial method patents. . The document lists the cases that are not invented: (1) applications related to the market or method, only describing the method or simply operating the computer as a device, or simply transmitting the information without actually using the computer hardware; (2) In electronic advertising, it must be explained how the method is implemented using a computer. If it cannot be stated, it cannot be patented. (3) It does not grant patents for obvious business methods, including the simplicity of technologies and methods based on the public or industry. Invention or simple combination, for example: applying industrial technology to another special field; (migrating the search system to the medical field to form a "medical data search system"); manual automation (a receiving indication system, receiving by network or computer) The indication received by fax); the design changed only by some manual arrangement. In the preparation of the specification, “unclear inventions” and “violation of patent authorization requirements” should be avoided. The procedures and functions described in the application cannot be expressed only in an abstractly defined way [31].

[13] Policies concerning "Business Method Patents"
https://www.jpo.go.jp/e/system/patent/gaiyo/business-tt1211-055.html Last Visit: 2019/3/28

Therefore, the author believes that, similar to the practice of the European Patent Office, although the Japanese Patent Office has ruled out economic activities and business activity rules in the regulations, it does not reject commercial method patents at the review practice level, but adopts technological progress and contribution standards. Open the gap for it. The difference with the practice of the European Patent Office is that the Japanese Patent Office does not explicitly distinguish between technical and non-technical elements through a review process, nor does it indicate that non-technical elements must contribute to technological elements in order to be progressive.

On the administrative side, the Japan Patent Office has added an “e-commerce review room” in the review of four departments, which specifically examines the application for the classification number of the business method patent, and guides the review operation of the e-commerce examiner through specific case training, and passes the review. The professionalization of the team improves the quality of the examination of commercial method patents, and strengthens the consistency of the basis and process in the review by means of case training.

Chapter 4 Countermeasures for Improving the Examination of Business Method Patent

4. 1 Analysis of Examination Experience

China's research and regulations on commercial method patents appear later in countries, and the development of review standards and related regulations is lagging behind. As a case law country, the United States has adopted legal precedents and a large number of legislations, which have a rapid response to policy orientation and economic development [32]. In addition, the "Patent Object Qualification Guide Amendment (2019)" issued by the United States Patent and Trademark Office extends to all patent applications before and after the effective date, reflecting the "abstract thinking" in the two-step analysis method. The influence of the elements of the "inventive concept" and the standardization tendency reflected in the review method, abandoning the single review standard, and standardizing the examination of the eligibility of the commercial method patent object through the review guide. The review practice has reference significance.

Compared with the guidance of China's Patent Examination Guide (2017) and the US Patent Object Compliance Guide (2019), China's objectivity to business methods is from the "intellectual activity rules" and "technical programs". The joint evaluation has a commonality with the two-step analysis method after the US Patent Office refinement. China's review guide is based on the premise of judging whether it contains intellectual activity rules, and adopts technical elements as a limitation; the US review guide adopts whether "abstract thought" is the first step of object review, and the judgment of "significantly different elements" is the second step. Although the idea of excluding restrictions is adopted, the significantly different elements are broader than the technical elements in terms of the degree of sufficiency of the qualifying elements. From the purpose of review, the purpose of the US Patent Object Compliance Guide Amendment (2019) is to distinguish between pure abstract ideas and abstract ideas with patent eligibility, as the judges in Alice's case say "two-step analysis". The essence is to distinguish the natural laws, natural phenomena, abstract

ideas with the objectivity of patent objects from the natural laws, natural phenomena and abstract ideas that do not have the patent object eligibility." [14] The purpose is to distinguish purely commercial methods from those that have technical elements, and have similarities in purpose.

From the overall trend, the stringiness of the US court's series of jurisprudence on the eligibility of commercial method patent object is precisely due to the summary and reflection of various problems in practice, and instead emphasizes the limitation of patent rights [33]. Faced with the situation of "insufficient protection" and "excessive protection", legislators need to consider comprehensive and balanced considerations when adjusting patent policies. Therefore, the author believes that it is possible to adopt the two-way standard of taking social interests as the core and taking into account personal interests [34]. It is not appropriate to adopt a too loose protection method for business method patents. Considering that China's business sector is developing rapidly, it is prudent to review and authorize business method patents. Loose objectivity review criteria will excessively incorporate business rules into the rules of patent law, which is not conducive to the free development of the market [35].

4. 2 Strengthen Coordination and Complementarity Between the Court and the Examination Administrative

Throughout the development of US business method patent examination practice, it can be found that the US courts and the US Patent and Trademark Office have formed a good complement [36]. On the one hand, the Federal Circuit Court of Appeals hears patent appeals and supplements the legal provisions through judgments and arguments; on the other hand, the US Patent and Trademark Office will hear the results whenever the Supreme Court and the Federal Circuit Court of Appeals make important judgments. Summarize and form an interim guide or memorandum to further strengthen the guidance on patent examination.

Although China is different from the US case law system, it can still consider the typical case in the patent protection to strengthen the guiding role of the case in the review practice. Business method patents are closely related to the development of computer and network technology. The publication of guiding cases can more timely

[14] Alice Corp. vs CLS Bank Int'l, 134 S.Ct.2347, (2014)

respond to the application of review standards brought by technological development, which not only helps to unify trial standards, but also provides important guidance for review work. The State Intellectual Property Office can timely summarize the important argumentation process and trial opinions in patent trial cases and publicize the guidance documents, which has important reference significance for subsequent patent applications, patent examinations and judicial practice in the same field, and strengthens the judicial system. The unification of trial and review practices provides more intuitive and specific operational guidance for patent applications and patent examinations. In view of the inconsistency between the existing review and the judicial conclusions, the author believes that the contribution requirements of computer equipment participation in the review should be improved, and the definition of technical means recognized in the Supreme Court judgment should be adopted to exclude the use of computer or network routine operations to run the corresponding business rules. It is considered as a technical means.

4.3 Refinement of the Review Guidance

Firstly, the specific review guidance for business method patents should be specified in the Patent Examination Guidelines. In the first chapter of the Patent Examination Guide (2017), the first chapter of the substantive examination of the second part of the "application for granting patent rights" stipulates that "if both the content of business rules and methods and technical features are included, it shall not be based on patents. Article 25 of the Law excludes the possibility of obtaining a patent." On the basis of this principled provision, the refinement provisions can be incorporated into Chapter IX “Review of Invention Patent Applications Concerning Computer Programs”, and the specific review method for the invention-related invention patents should be added to the second section of the review criteria. In addition, specific cases are used to refine the judgment criteria of “intellectual activity rules” and “technical solutions”, and the examiners are given clearer operational guidelines by combining examples with principled regulations.

Secondly, the follow-up evaluation of the elements of “preemption” and “post-solution” was introduced in the “Guidelines for Patent Examination”. The Patent Examination Guidelines (2017) exemplifies that commercial rules and methods are patentable. However, it should also be noted that this broader provision will

inevitably lead to abuse of the practical application of non-patentable objects. Even applications with technical features may attempt to monopolize all practical forms of business rules or methods [37]. Simple technical characteristics do not prevent the emergence of exclusive applications. Therefore, China's patent examination should introduce “exclusive” factors to prevent applicants from applying for and obtaining protection for the actual application form of non-patentable objects. In the examination of patents for business methods in China, it should be clarified that while adhering to the technical characteristics, the prohibition of exclusive use should be increased as a type of patent that cannot be granted in essence. Secondly, the review guidelines for “technical solutions” in the Patent Examination Guidelines are too broad and do not specify the degree of integration between “technical content” and “intellectual activity rules”. The introduction of the “post-resolution” evaluation process can prevent the intellectual activity rules from being protected by the general functions of computers and the regular participation of technical equipment, so that the scope of protection of commercial method patents in China is improperly expanded. Therefore, the author believes that the first chapter of the "Principal Examination of the Patent Examination Guide", "Application for Non-grant of Patent Rights", stipulates that "the use of the general functions of the computer, the equipment that is not sufficient to limit the claims, the usual steps of use is not a technical feature."

Thirdly, due to the early exclusion of commercial method patents and the fact that business method patents themselves contain the characteristics of business activity rules [38], non-patent literature is particularly important in the review of business method patents. Therefore, the scope of the “Non-patent Literature Resources” in the Draft Revision of the Patent Examination Guidelines (2019) should be expanded, and the literature resources in the commercial field should be added in addition to “foreign science books, journals, dissertations, standards or agreements, indexing tools[15]”. For example, company or industry publications, sales brochures, product brochures, etc.

[15] See the website of the State Intellectual Property Office: Notice on the public consultation on the “Draft Revision of the Patent Examination Guidelines (Draft for Comment)”.http://www.sipo.gov.cn/gztz/1137035.htm. Last Visit:2019/3/25

4. 4 Strengthen the Training for Examination

In the experience of various countries, the training of examiners' professional knowledge and the strengthening of related qualities are also an important part. The US Patent and Trademark Office trains examiners on the comprehensive knowledge of electronic information engineering, computer and business rules, and Japan's e-commerce review office specializes in the examination of commercial method patents. The realization of the patent examination effect of business methods requires not only the guidance of policies and regulations, but also the specific operations of the implementers of the review. Considering the pressure of patent applications in China, it is difficult to implement an independent business method in the form of an independent business method. It may be considered to refer to the information on the composition of examiners provided in the US White Paper on Business Method Patents. Of the 2160 working group examiners responsible for commercial method inventions, 26% of the examiners have more than three years of work in banking, securities, business development, market analysis, real estate analysis, business consulting, business information systems or financial analysis. Experience, including electrical engineers with an MBA background and Ph.D. in Information Science with experience in business information systems.

REFERENCE

［1］Yan Shangyu, Chen Dili. Research on European and American Business Method Patent Theory. Tokai University Law Research,2004 (12): 155-178

［2］Michal Likhovski, The First Mover Monopoly-A study on patenting business methods in Europe. Oxford University: Olswang and Oxford Intellectual Property Research Centre, 2000 Quoted from Sun Li. Research on patentability of business methods——Comparative and practical feasibility assessment of European and American judicial trials. Beijing: China University of Political Science and Law Press, 2014:17

［3］Hirashima, R., Changes in Subject Matter under the US Patent Law-Focusing on the so called “business method exception”.Institute of Intellectual Property, 2000 Quoted from Sun Li. Research on patentability of business methods——Comparative and practical feasibility assessment of European and American judicial trials[M]. Beijing: China University of Political Science and Law Press, 2014:18

［4］Feng Xiaoqing. Study on the Patent of Business Method.Northern Journal,2007(03):149-151

［5］Larry A. DiMatteo. E-commerce In The Digital Millennium: The Legal Ramifications of the DMCA and Business Method Patents: The Convergence of National Patent Law and International Internet Transactions. Rutgers Computer & Technology Law Journal, 2002(28):1-54

［6］John R. Allison, Emerson H. Tiller. The Business Method Patent Myth. Berkeley Technology Law Journal,2003(18):987-989

［7］Starling D. Hunter. Have Business Method Patents Gotten a Bum Rap? Some Empirical Evidence. Information Technology Theory & Application, 2004(06):112

［8］David Orozco. Administrative Patent Levers. Penn State Law Review, 2012(117):1

［9］Daniel Harris Brean. Business Methods, Technology, And Discrimination. Michigan State Law Review, 2018(01):307

［10］Timothy R. Holbrook. Method Patent Exceptionalism. Iowa Law Review, 2017(102) : 1001-1003

［11］Robert E. Thomas, Larry A. DiMatteo. Harmonizing the International Law of Business Method and Software Patents: Following Europe's Lead. Texas Intellectual Property Law Journal.2007(16):1

［12］Hung H. Bui. A Common Sense Approach to Implement the Supreme Court’s Alice Two-Step Framework to Provide “Certainty” and “Predictability”. Journal of the Patent and Trademark Office Society, 2018(100):165

［13］Austen Zuege. A New Theory for Patent Subject Matter Eligibility: A Veblenian Perspective. Cybaris, 2014(5):143

[14] Zhang Ping. On the Patentability of Commercial Method Software——Special Analysis of the Position and Value Orientation of the US, Japan and Europe on BMP and China's coping strategies . Internet Law Review, 2002, 2(00): 145 -168.

[15] Zhu Li. The attitude of the European Patent Office on business method patents - from the Perspective of the Pension Benefit case. Internet Law Review, 2002, 2 (00): 169-181.

[16] Liu Binbin, Cao Yuhua. Research on classification and characteristics of commercial method patents. Science and Economy Society, 2010, 28 (01):128-132+136.

[17] Li Shilin, Zheng Youde. Research on the Development of Patent Protection of Computer Software Inventions in the European Union. Science and Technology and Law, 2003(01): 60-67+86.

[18] W. R. Cornish, Intellectual Property: Patent, Copyright, Trademark and Allied Right, Sweet& Maxwell, 1996:175-176. Quoted from Li Xiaoqiu. Research on patentability of commercial methods in the age of information technology. Beijing: Law Press, 2011: 167

[19] Cai Jiewei. On the Qualification of Patent Objects of Business Methods——From Japan Dentsu v. Alipay and Tenpay. Electronic Intellectual Property, 2012(11): 94-96.

[20] Zhang Yong, Zhu Xuezhong. Business World Vs. The Kingdom of Thought——Research on the Development of Patent System Based on Practical Elements. Science & Technology and Law,2006(02):73-80.

[21] Yuan Ye. Analysis of Patent Protection of Internet of Things Business Methods. Intellectual Property, 2018(04): 83-87

[22] Liu Binbin. On the Changes and Development of Business Method Patents——From the Perspective of Analysis and Investigation of American Cases. Gansu Social Sciences, 2011(01): 202-206.

[23] Feng Xiaoqing. Exploring the Expansion of Patent Right and Its Reason. Journal of Hunan University(Social Science Edition), 2006(05):130-138.

[24] Huang Xiaocui. A preliminary study on the intellectual property protection system of business model. National Intellectual Property Strategy Implementation Research Base Information Express. 2016, 175(34): 1-6

［25］Dennis D. Crouch. An Empirical Study of the Role of the Written Description Requirement in Patent Examination. Northwestern University Law Review, 2010(104):382

［26］Janice M. Mueller. The first door which must be opened on the difficult path to patent ability is §101. Application of Bergy, 2012(06):379

［27］John R. Allison, Starling D. Hunter. On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods. Berkeley Technology Law Journal, 2006(21):729-730

[28] Zhang Yumin, Xie Yuan. De-standardization of American business method patent examination and its enlightenment to China. Intellectual Property, 2014 (06): 74-84.

[29] Susan J. Marsnik, Robert E. Thomas. Draw a Line in the Patent Subject-Matter Sands: Does Europe Provide a Solution to the Software and Business Method Patent Problem? Boston College International and Comparative Law Review, 2011(34):227

[30] Zhang Wen, Wang Wei. Some Thoughts on the Analysis of the "Technical" of the Claim in the Business Method Review. Electrical Review Practice (Second Series). Beijing: Tsinghua University Press, 2016: 32-41

[31] Zhao Wenbo. Research on Several Issues of Business Method Patent Examination System under Cloud Computing Service Mode. Shandong: Shandong University, 2018

[32] Pang Chong. Patentability Analysis of Business Methods. Beijing: Beijing Jiaotong University, 2017

[33] Hu Bo. Expansion or Restriction?——Revision of China's Patent Law from the Evolution Trend of US Patent Case Law.Hebei Law, 2014, 32 (05): 80-88.

[34] Li Yingyi, Lin Yan. On the Balance of Interests in Patentability of Business Methods. Journal of Sun Yatsen University(Social Science Edition), 2004(05): 45-49+123

[35] Liang Lingling, Chen Song Patent Protection of Commercial Method Innovation: Disputes and Enlightenment. Science and Technology Progress and Countermeasures, 2013,30(17): 108-113

[36] Lu Lei. The Development and Status Quo of American Business Method Patent Protection and Its Enlightenment to China. J. Law, 2019,40 (03): 96-104.

[37] Chen Jian. Business Method Patent Research. Beijing: Intellectual Property Publishing House, 2011: 252

[38] Zhang Ping. On the Creative Standards of Patent Protection for Business Method Software——Comparison of Patent Examinations among the US, Japan and Europe. Intellectual Property, 2003(01): 25-29.