




# Application and Improvement of the Patent Examination System for Technical Business Models

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**Abstract.** With the advancement of science and technology, traditional business models have undergone fundamental transformations, and technical business models have gradually emerged, adding new impetus to corporate technological innovation. Conducting patent examination and protection for business model innovations have also been gradually incorporated into the revision and development process of patent laws. As an overall scheme for business operations, business models have increasingly integrated with emerging technologies, and their technical and methodological characteristics have provided the prerequisites for patent protection. However, specific issues such as how to define and examine the patent rights of technical business models have not yet been properly addressed, and a formal legal protection system for technical business models has not been established. Our country should actively integrate into the international trend of business model patent protection, enhance its technological competitiveness, and in combination with the actual development needs of Chinese technology-based businesses, improve the laws and regulations for the patent protection of technical business models, refine the patent examination and management system for business models, and boost enterprises' independent innovation capabilities.

**Keywords:** Business Model; Technicality; Patentability; Patent Protection; Examination Standards

## 1 Introduction

With the rapid development of science and technology, technical business models have emerged as a new driving force propelling technological innovation in enterprises. These business models deeply integrate emerging technologies—such as the internet, big data, artificial intelligence, and blockchain—making their technical and methodological characteristics the prerequisites for obtaining patent protection. Incorporating business model innovations into the scope of patent examination and protection has become a significant trend in the revision and development of patent laws globally. However, as strategic frameworks for overall enterprise operations and value-creation mech-

anisms, the determination of patent eligibility and the examination standards for technical business models still face numerous challenges in China. This has resulted in a large number of business models with innovative technological cores struggling to secure effective patent protection, failing to fully stimulate enterprises' independent innovation capabilities. Meanwhile, major developed countries and regions have actively explored and established their own distinctive patent examination systems for technical business models. There is an urgent need for China, based on an in-depth analysis of the nature, development status, and existing issues within the patent examination system for technical business models, to clarify their legal status, define the scope of protection, optimize formal examination and substantive examination standards, and establish a clear, scientific, and efficient patent examination mechanism for technical business models. This will provide solid institutional safeguards for enterprise technological innovation and enhance China's technological competitiveness in the global digital economy.

## **2 Theoretical Investigation and Practical Exploration of Technical Business Models**

### **2.1 The Basic Theory of the Technical Business Model**

#### **2.1.1 The Relationship and Distinction Between Business Models and Business Methods.**

Commerce refers to an economic activity that organizes the circulation of production factors in the market, characterized by the pursuit of profit and the continuous engagement in similar commercial operations. Based on this understanding, some scholars conceptualize business models as transactional structures between enterprises and their stakeholders<sup>[1]</sup>, while others regard them as the reconfiguration of internal value networks within firms. In contrast to perspectives in management and economics, which analyze business models through the lens of value systems and operational structures, legal scholarship often equates business models with business methods. Legislatively, China has not drawn a clear distinction between the two concepts. Current regulatory language reveals a lexical conflation of business models and business methods<sup>[2]</sup>. Some researchers even use the terms interchangeably, suggesting that business methods are also referred to as business models. In practice, it is common for people to describe commercial expertise and managerial strategies, derived from long-term business operations, as either business methods or business models. However, while the two are related, they remain conceptually distinct.

The concepts of business model and business method are not synonymous. A business model is a strategic approach and business philosophy that provides a high-level overview of a company's core activities, whereas a business method refers to the specific pathways employed to implement that strategy or business direction. The former is abstract, while the latter is concrete. The two differ in both scope and implementation methods<sup>[3]</sup>. The term model is related to resource allocation, describing the relationships

formed between elements according to certain patterns or principles. It generally involves the combination or connection of two or more elements within the same system. For example, in legislative models, the concepts of “unified civil and commercial law” versus “separate civil and commercial law” describe the relationship and state of integration or separation between civil law and commercial law within the legal system. Similarly, a business model involves the various relationships between a company and its partners—such as suppliers, customers, and other stakeholders—as well as internal relationships between departments, products, services, strategies, and channels. In contrast, the concept of method is relatively singular, focusing on the means to achieve a specific objective. It does not necessarily involve multiple elements or the relationships between them.

Within the framework of patent law, business methods typically denote specific operational methodologies and processes associated with commercial activities; they constitute the method(s) or pathway(s) that facilitate the execution of a business model, placing greater emphasis on the concrete procedures and techniques of business operations. Sole business methods, such as rules governing auctions, fall within the category of rules and methods for mental activities. Pursuant to the stipulations of Article 25 of the Patent Law, they are excluded from patentability. Business methods may become eligible for patent protection when they are integrated with technologies such as computing or networking, thereby constituting a novel technical solution capable of resolving a defined technical problem and yielding a discernible technical effect. A business model, in contrast, primarily describes the logical architecture and operational mechanism through which an enterprise creates, delivers, and captures value from a macro perspective, placing greater emphasis on the entity's overarching strategic approach and resource allocation strategy. Generally, pure business models—such as the core concepts underpinning franchise systems or the sharing economy—are typically classified as rules and methods for mental activities. They do not qualify as protectable subject matter under Article 2, Paragraph 2 of the Patent Law governing invention-creation and are consequently ineligible for patent grants. However, where a business model incorporates technical means such that it forms an integrated technical solution, it can become eligible subject matter for patent protection. Moreover, this approach fosters innovation by incentivizing enterprises to actively leverage technology within their business model development, driving the evolution of novel business models. Simultaneously, it furnishes firms with a novel form of competitive advantage and a legal mechanism for safeguarding their innovations.

Overall, a business model tends to describe the overarching operational philosophy of business activities, while a business method focuses more on the specific means to realize such a philosophy or direction. The current Examination Operation Procedures: Substantive Examination Volume defines business methods as the broad set of rules and methods related to commercial activities in human society. Furthermore, the 2017 version of the Patent Examination Guidelines included the phrase, “A claim involving a business model includes not only business rules and methods but also technical features,” indicating an intention to encompass business methods within business models. The 2023 version of the Patent Examination Guidelines explicitly states, “If a claim

involving a business model contains both business rules and methods as well as technical features, it should not be excluded from the possibility of obtaining patent rights under Article 25 of the Patent Law." This revision clarifies that a business model incorporating a technical solution may be granted patent rights, provided it satisfies the statutory requirements for patentability stipulated in the Patent Law. Concurrently, it reiterates that purely conceptual business models, completely devoid of any technical features, are excluded from patentability. This clarification provides valuable guidance to the public regarding technological innovation, enhancing the legal certainty surrounding patent eligibility for business-related inventions and positively shaping innovation strategies.

### **2.1.2 The Definition of the Connotations of Business Models and Technical Business Models.**

The concept of the business model has long existed in practice. At its core, it represents a systemic structure through which an enterprise organizes and allocates various resources and elements in its business operations. This system encompasses components such as sales strategies, capital, human resources, brand, services, information, innovation capacity, intellectual property, and profit distribution mechanisms. Some scholars regard the business model as the embodiment of an entrepreneur's creativity, functioning as the internal mechanism through which the enterprise increases value via commercial operations. A business model typically incorporates multiple key elements, including the firm's profit structure, marketing channels, and critical resource capabilities<sup>[4]</sup>. It serves a dual purpose: value creation and value capture. As a comprehensive concept, the business model places greater emphasis on portraying the enterprise's holistic and systematic structure.

As an abstract concept and philosophy, the business model is not typically considered an object of patent protection. However, the integration of business models with technical features endows them with the characteristics of a "technical solution". Essentially, both technological business models and traditional business models are business strategies and operational philosophies derived from the company's experiences in its business activities. A business model represents an optimized configuration and utilization of resources and elements within a company's production and exchange activities. When combined with specific technologies in the era of information networks, it acquires technological attributes, thus acquiring a different essence and scope compared to traditional business models.

According to the Patent Examination Guidelines, the presence of technical features or the incorporation of technical devices does not, in itself, alter the fundamental classification of a business model. However, only business models that meet certain criteria may qualify as patentable subject matter<sup>[5]</sup>. The type of business model eligible for patent protection—referred to in this paper as a technological business model—is one that integrates commercial logic with technical characteristics. A technological business model is a broad concept that encompasses business strategies and architectures implemented through technological means, and that exhibit distinct technical features as well as significant societal contributions. It does not constitute a purely technical solution or a mere set of business rules and methods; rather, it is a hybrid, holistic, and inseparable

commercial operation framework that bridges both the technical and commercial domains.

### 2.2 The Current Development Status and Trends of Technical Business Models

Since the rise of the internet in China during the 1990s, Chinese enterprises have traversed over three decades of evolution in business model innovation, progressing through three distinct phases: imitating established business models from foreign companies, adapting overseas business models to fit the domestic market, and ultimately creating entirely novel business models, signifying a transition from learning from international counterparts to becoming global pioneers in business model innovation. Against the backdrop of global economic digital transformation and consumption upgrading, business innovation has emerged as a critical pathway for enterprises to break through growth bottlenecks and build core competitiveness. According to the latest In-depth Research and Investment Strategy Report on China's Business Innovation Industry(2024-2030) released by Shenzhen Zero Power Intelligence Co.,Ltd., China's business innovation market reached 4.2 trillion yuan in 2024 and is projected to hit 5.1 trillion yuan in 2025, achieving a CAGR of 18.5%. This growth rate significantly outpaces that of traditional business models (as detailed in Figure 1).

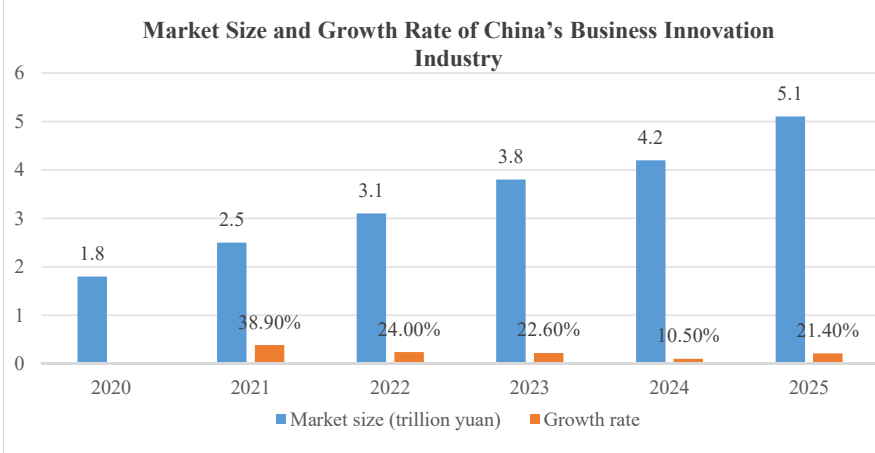


Fig. 1. Market Size and Growth Rate of China's Business Innovation Industry

At present, the business innovation market is dominated by three tiers of players. Tech giants like Alibaba, Tencent and ByteDance take up 40% of the market share, mainly providing underlying technologies such as cloud computing, artificial intelligence and payment services. Innovative enterprises in vertical fields, such as rednote and Poizon, account for 35% of the market through models like social e-commerce and C2M. Traditional enterprises like Suning, Yonghui and Haier, leveraging digital transformation, contribute 25% of the market growth.

In 2024, there were over 1,200 financing cases in the business innovation sector. Fields like generative AI (AIGC) and cross-border social e-commerce were the most attractive to capital, with financing increasing by 65% year on year. The key technology applications in business innovation in 2024 are AI-based business decision-making, metaverse business scenarios, and blockchain in supply chain finance. Leading enterprises such as Alibaba, Tencent, and ByteDance have introduced AI-driven dynamic pricing, smart customer service, and supply chain optimization, boosting operational efficiency by 30%. Brands like Nike and Li-Ning have achieved a 15%-20% rise in additional revenue through virtual stores and digital collectibles (NFTs). In cross-border trade, blockchain tech has improved transaction settlement efficiency by 50% and cut fraud risks by 80%.

Conversely, if enterprises fail to implement patent portfolio planning for business models and formulate protective strategies, homogeneous competition within the industry becomes inevitable. A vivid example is China's group-buying sector, where the absence of effective competitive barriers led to the explosive emergence of "Thousand-Group War" within a single year. The industry rapidly descended into simplistic capital-driven attrition warfare. Excessive market expansion and homogeneous competition caused most platforms to collapse shortly after their fleeting prominence. Notably, Meituan—the pioneer introducing group-buying models to China—emerged as the industry leader after surviving intense competition. Following its acquisition of Dianping in 2015, Meituan integrated user-generated content (UGC) to enhance user retention. As the industry evolved, Meituan not only achieved substantial innovation in business models but also established competitive barriers through systematic patent protection for these innovations.

Driven by technological advancements, the innovation and iteration of business models will continue to accelerate. Enterprises must maintain acute market insight and technological sensitivity to promptly capture emerging tech trends and shifting market demands, while proactively exploring and experimenting with novel business frameworks. With the maturation of technologies like big data and cloud computing, Artificial Intelligence (AI) and Machine Learning (ML) will achieve broader applications and deeper integration across commercial domains. Concurrently, sharing economy models are poised to expand and deepen their footprint in diverse sectors.

### **3 Issues in the Patent Examination of Technological Business Models**

#### **3.1 Incomplete Legislative Framework for Patent Examination**

##### **3.1.1 Unclear Legal Status of Technological Business Models.**

In 2002, China officially acknowledged the potential patentability of business models in practice by granting two patents to Citibank (USA) for its electronic money system and data management computer system<sup>[6]</sup>. According to the 2006 and 2008 versions of the Patent Examination Guidelines, the China National Intellectual Property Administration (CNIPA) adopted three parallel criteria to evaluate novelty or inventiveness:

(1) based on the technical background or general knowledge disclosed in the specification; (2) based on retrieval and comparative citation; and (3) based on the prior art. While China's standard for the patentability of business models has consistently emphasized the need for technical character, the examination process has involved significant examiner subjectivity and discretion, often resulting in unconvincing outcomes. The 2017 revision of the Guidelines clearly stated for the first time that business models with technical features may be granted patent rights, marking the formal recognition and protection of such models by the state. The 2023 version introduced further modifications. However, with the continuous advancement of science and technology, the criteria for patentability of business models remain underdeveloped. Although the Guidelines explicitly affirm that business models can be patentable, they provide no clear definition of the fundamental concept or legal status of business models, nor do they clarify the standards for assessing “technical features.”

### **3.1.2 Unclear Logical Relationship and Order of Application Between Legal Provisions.**

To determine whether a technology qualifies as patentable subject matter, two aspects must be examined: whether it constitutes a technical solution, and whether it falls into the non-patentable category. Article 2 of the Patent Law provides a positive definition, requiring that patentable subject matter must include a technical solution. Article 25 provides a negative constraint, excluding rules and methods for mental activities from patentability. Therefore, whether a business model qualifies for protection under patent law depends on assessing it under both Article 2 and Article 25—i.e., whether it constitutes a “technical solution,” and whether it falls within the scope of “rules and methods for mental activity.” Business models that lack technical features are excluded under Article 25(2), while those implemented through technical means may be recognized as patentable subject matter under Article 2. However, even for business models with technical features, the question of whether they constitute mental activity rules may still arise, causing confusion in the application of the two provisions. The Patent Law does not clarify the logical relationship or priority of application between these two articles. Furthermore, the Patent Examination Guidelines apply the same criteria—technical means, technical problems, and technical effects—to both provisions, suggesting a parallel relationship. Yet in actual practice, the examination process seems to reflect a sequential logic. The coexistence of these two provisions, without clear guidance on how to interpret and prioritize them, has created practical challenges for the examination of business model patents.

## **3.2 Scientifically Deficient Patent Examination Methods**

According to current provisions in China's Patent Law and the Patent Examination Guidelines, there is some room for protecting technological business models under patent law. However, no dedicated rules or procedures have been established for filing or examining business model patent applications. As a result, enterprises must rely on the general requirements for patent applications, which often do not align with the unique

needs of business model innovation. Examiners, when reviewing such applications, frequently draw conclusions based solely on the technical descriptions in the patent specification. For applications involving business models, there is a tendency to classify them directly as “rules and methods for mental activities” without careful analysis. The reasoning given for rejection is often unconvincing, resulting in many technological business models being denied effective protection after creation.

### **3.2.1 Rigid “Technicality” Criteria in Formal Examination.**

Technical character is a necessary precondition for any invention to qualify as patentable subject matter. Article 27.1 of the TRIPS Agreement, which sets out the general principle for determining patentability, specifies that patent applications must belong to a technical field and contain a technical solution. However, it does not define what constitutes a “technical field,” leaving this to be determined by each contracting party. Chinese patent law, however, does not provide targeted guidance on how to protect the property rights associated with business models. While the Patent Examination Guidelines refer to “technical features,” they do not offer a clear definition or standard for assessing what such features entail. When examining business model patent applications, it is essential to determine whether they fall within the technical domain. However, as big data, the internet, and other technologies become increasingly integrated with various industries, the boundary between technical and non-technical content becomes blurred. The continued development of emerging technologies has led to the gradual dematerialization and de-hardwareization of technical innovation, no longer confined to physical or natural sciences<sup>[7]</sup>. This shift has resulted in a growing disconnect between legal definitions and real-world applications. If industrial-era standards are used to evaluate modern information technologies, the definition of “technical character” risks becoming rigid and outdated, ultimately failing to meet the protection needs of digital innovation.

### **3.2.2 Overgeneralized Standards in Substantive Examination.**

#### **(1) Difficulty in Retrieving Prior Art for Novelty Examination**

Each country’s definition of patent novelty is based on comparing the patent application with publicly disclosed technologies. Technological business models possess significant uniqueness compared to other patentable subject matters, which makes it somewhat incompatible with the existing legal frameworks for assessing the novelty of business model patent applications. Currently, the patent protection for business models is in its nascent stage and lacks the comprehensive patent search and comparison databases found in traditional patent fields. The greatest challenge for novelty examination is the search for existing technologies. While relevant existing technologies do exist, there is a significant lack of materials that can be cited by patent examiners for comparison.

The standard for determining prior art is whether it was publicly disclosed on or before the application date and whether its core technical content is duplicated. For traditional patents, this standard is adequate because the physical boundaries are rela-

tively clear. However, the core of business model protection is not the outward technical manifestations, but the overall commercial operational structure integrated with technology. Some business models are sparsely documented and difficult to fix in material form, with no corresponding technical database. Examiners often cannot find relevant prior art when comparing and citing documents. If the novelty is judged solely by whether the technical features are already known, competitors could easily alter the technical features associated with an existing business model without changing its core structure, and the model might still be considered novel during examination. In the absence of a comprehensive search and comparison database, many patent applications with low quality and lacking novelty might exploit this gap, leading to the dilution of novelty standards and the proliferation of patents.

### (2)Lack of a Holistic Perspective in Inventiveness Examination

The purpose of inventiveness examination is to include inventions that make a significant advancement in the field within the scope of patent law protection. The strictness of the inventiveness examination standards directly affects the degree of openness of patents. For technological business models, their innovation is not limited to the technical features they incorporate but also includes innovations to the business model itself (such as the overall structure or implementation methods)<sup>[8]</sup>. In other words, the innovation of technological business models could either be in the technical features or in the creative concepts and ideas behind the business model. During the inventiveness examination, it is still unclear whether to examine only the technical features or the creative ideas, or whether to treat them as a whole. Additionally, because technological business models are mainly applied in the business sector, auxiliary standards such as commercial success also play an important role. Whether these auxiliary standards should be applied, and how they should be applied, has become a critical issue to address during the inventiveness examination stage<sup>[9]</sup>.

### (3)Undefined Scope of “Industry” in Utility Examination

The Patent Examination Guidelines state that the utility requirement is that the technology should be capable of being made or used in industry and should produce a positive effect. First, it must be implementable, meaning that it is a technical solution that can be implemented for industrial development; second, it must be replicable, meaning the result of implementation is stable, does not rely on random factors, can be repeated, and the outcome should be the same each time; third, it must have a positive effect, and this effect should be predictable. Technological business models exhibit the innovation and ideas behind business models through technological means, and they typically exhibit positive implementation results. However, since technological business models are mainly applied in the business sector, it is essential to focus on whether they can be implemented in industry, whether they can be reproduced, and how they can be applied<sup>[10]</sup>. Moreover, the current utility examination requirements stipulate that the solution or technology should be usable in actual industry, but the scope of “industry” has not been specifically defined. In practice, it is often interpreted as referring to traditional industries. Whether emerging industries should be included under this definition requires further explanation.

## 4 Comparative Analysis and Implications of Representative National Standards

### 4.1 Examination Standards in Leading Jurisdictions

#### 4.1.1 U.S. Standards: “Machine-or-Transformation” and “Two-Step Test”.

##### (1)The “Machine-or-Transformation” Test

The 1998 *State Street Bank* case in the United States was the first to formally address the issue of business model patentability. The U.S. Federal Circuit held that the accounting method in question merely summarized a mathematical formula and was not sufficiently tied to any specific technology or apparatus, thus should not be granted patent protection. The case established a relatively vague test for determining business model patentability—namely, the “useful, concrete, and tangible result” standard. As long as the patent applicant could demonstrate a practical, useful, and specific result, the invention was preliminarily deemed eligible for patent protection. In the 2009 *Bilski* case, the U.S. Court of Appeals for the Federal Circuit (CAFC) shifted its focus to whether the patent application was tied to a machine or apparatus, or whether it transformed one item into another, thereby introducing the “machine-or-transformation” test.

According to this standard, if a business model is implemented in conjunction with a machine or apparatus, it may be considered patentable. If not, it must be further evaluated based on the transformation criterion, i.e., whether it transforms a particular object or apparatus into a different physical state. This test restricted the patentability of abstract concepts or business methods that lack a connection to tangible devices. The *Bilski* plaintiffs later appealed to the U.S. Supreme Court, which acknowledged that the “machine-or-transformation” test could serve as one criterion for evaluating business model patentability, but emphasized that it should not be the sole test. The Court advocated for stricter standards to improve the quality of business model patents. Although the ruling did not establish a definitive, specific standard for future examinations, it clarified the value orientation of business model patent review and left room for future adjustments.

##### (2)The “Two-Step Test”

The U.S. Supreme Court held that laws of nature, natural phenomena, and abstract ideas are the fundamental building blocks of human ingenuity and should not be monopolized through patent rights. These are considered exceptions to patent eligibility under Section 101 of the U.S. Patent Act. In the 2014 *Alice* case, the Supreme Court applied a “two-step test” to assess the patentability of business models. First, the Court determines whether the claim is directed to an abstract idea. If it is, the claim falls outside the scope of patentable subject matter. Second, if the claim is not abstract, the Court evaluates whether the claim’s technical elements transform the idea into a patent-eligible invention. If yes, patent protection should be granted; otherwise, it should be denied. As more business model-related cases emerged in practice, the U.S. standard for business model patentability has evolved from vague concepts to clearer and more structured steps, providing practical and theoretical support for other jurisdictions in developing their own examination standards.

#### **4.1.2 EU Standard: “Technical Contribution”.**

The European Union has maintained a cautious stance on business model patents. Prior to 2000, the European Patent Office (EPO) did not recognize the patentability of business models or computer software due to their lack of technical character. Article 52(2) of the European Patent Convention explicitly excludes business methods and software from patentable subject matter. However, with the rapid growth of the global economy and continuous technological innovation in the internet era, the EU gradually recognized the necessity of protecting business models through patents. In the Pension Benefit System case, the concept of “technical contribution” was introduced and applied for the first time in evaluating the patentability of a business model.

The EU’s examination standard for business model patents requires that a technological business model must demonstrate both technical features and technical contribution—neither element can be absent. The distinction between technical domains and economic domains has led to more stringent requirements for patentable technical solutions. Due to the non-obvious nature of technical contribution, the assessment must consider how the problem is solved, what method is used, and what effect is achieved, based on a specific and practical context. This has significantly increased the complexity of examining business model patents in the EU. Although the EU has developed relatively clear examination standards, the boundary between technical effect and technical contribution has become increasingly blurred with the fast-paced evolution of modern technologies. In practice, this has led to difficulties in clearly classifying and determining patent eligibility.

#### **4.1.3 Japan’s Holistic Examination Approach.**

Initially, Japan held a negative stance on patent protection for business models. However, after the U.S. opened the door to business model patents, Japan hesitated to recognize the patentability of business models. Despite this, Japanese companies began actively applying for business model patents in the U.S. By 1999, Fujitsu, Hitachi, and other companies had already obtained business model patents in the U.S. In response to the growing demand for patent protection, the Japan Patent Office introduced the "Business Model Examination Guidelines" in 1999. These guidelines stated that business models with technical characteristics could apply for patent protection, thus establishing a strategy for protecting business model patents. The guidelines referred to business models as "inventions related to business" and specified that business models containing technical ideas could qualify for patent protection. They also introduced the "Examination of Business-Related Inventions" document, which allowed business model patents to be examined similarly to computer software patents.

In 2000, the Japan Patent Office revised its examination guidelines, emphasizing the need for a holistic approach in determining the patentability of business models. The creativity standard was also updated to consider both the computer technology and the business model when examining patents that use computer technology. This approach requires examiners to evaluate the creativity of both the hardware and software features as well as the business aspects of the model. Therefore, Japan’s approach to examining business model patents is stricter than that of the U.S. In 2001, the Japan Patent Office

also published cases where business models were found ineligible for patents. To improve the quality of business model patent examinations, Japan not only established a specialized patent examination body but also collaborated with companies and experts in related fields. As one of the countries that has seen the most success with its patent system, Japan has always followed a pragmatic strategy in business model patent protection. By actively deploying patent protection strategies, Japan has developed into a technological powerhouse in just a few decades.

## **4.2 Lessons Learned from International Experience**

### **4.2.1 Embracing the Global Trend of Business Model Patent Protection.**

Despite differences in the specific standards of patentability, developed countries in Europe and the U.S. have always paid significant attention to protecting business models through patents. Initially cautious, the European Union gradually accepted and began to promote business model patent protection, adopting the strictest patent examination standards for business models. Whether it is Japan's holistic examination standard, the EU's "technical contribution" standard, or the U.S.'s "machine-or-transformation" and "two-step test" standards, it is clear that the international community is placing increasing importance on patent protection for business models<sup>[11]</sup>. As patent examination standards become more stringent, the focus on business model patents is intensifying. Currently, China's patent development in business models lags behind that of foreign countries. China should actively integrate into the global trend of business model patent protection, improve its technological competitiveness, and expedite the refinement of patent examination standards and procedures for business models, allowing for an objective assessment of their patentability and clearly defining the scope of protection.

Internationally, patent examination practices for technical business models increasingly emphasize the correlation between technical features and commercial value, specifically demanding that the technical solution directly manifest and enhance the value and efficacy of the business model. China could strengthen its scrutiny of this correlation during examination, avoiding the grant of patents based merely on the superficial combination of technical means and business methods, thereby ensuring that patent protection delivers substantive impetus to both technological and commercial domains. Simultaneously, as national patent examination systems continuously adapt and refine themselves in response to industrial development needs, China should enhance communication and exchange with industry stakeholders, promptly understanding the latest innovations in technical business models and enterprise requirements; this will enable the patent examination framework to align more closely with the practical realities of industrial development, providing robust intellectual property safeguards for driving industrial upgrading and fostering innovation-driven growth.

### **4.2.2 Developing Patent Examination Standards Suited to National Conditions.**

The United States pioneered patent protection for business models and remains a leading country in this area. The United States Patent and Trademark Office (USPTO)

has the broadest standards for examining business model patents. As long as the claims can be converted into practical applications, there are no requirements for the use of specific software or hardware. However, in judicial decisions, U.S. patent practices continue to emphasize "technical features" when guiding patent examination. The European Union's patent examination standards are more stringent. Not only must a business model include technical features, but it must also be integrated with other devices and demonstrate a technical contribution. The strict "technical contribution" requirement makes the EU's standards more demanding than those in the U.S. Japan, after thoroughly studying foreign cases and legislation, adopted a holistic approach for examining business model patents. Japan has tailored its patent examination system to fit its own national context, becoming one of the world's leading technological nations through practical and adaptive approaches to business model patent protection. To improve the quality of patent examination, China should avoid blindly copying the patent examination rules of developed countries like the U.S. Instead, based on its current legal system, China should focus on the core element of "technicality", developing a patent examination system suited to its national conditions, with Chinese characteristics. Taken as a whole, Japan's approach to assessing inventiveness adopts a holistic principle, with its standard occupying a middle ground between those of the United States and Europe. This approach integrates considerations of both technical factors and commercial considerations regarding the inventive contribution of the subject matter. China could draw reference from this holistic examination approach. When evaluating the inventiveness of technical business models, it would be advisable not only to focus on the innovativeness of the technical features themselves but also to appropriately factor in their applied value and effectiveness within the business model context. This would enable a more comprehensive assessment of the inventive step height embodied in technical business models.

#### **4.2.3 Ensuring Quality in the Examination of Technological Business Model Patents.**

The United States has consistently expanded the interpretation of Section 101 of the Patent Act to grant broader authorization to market innovators, aiming to propel the development of emerging technology industries. Economically, this more lenient examination posture, through the dual coordination of the patent system and industrial policy, has secured the United States' advantageous position in international intellectual property competition. However, shifts in patent examination standards have also generated controversy in several instances and catalyzed the emergence of patent trolls. For example, the U.S. Patent and Trademark Office (USPTO) granted Amazon.com the "One Click" patent in 1997. The underlying technical solution was remarkably simple, yet the exceptionally broad scope of the claims provoked intense dissatisfaction among competitors within the industry. After the USPTO ultimately affirmed the patent's validity upon reexamination, Amazon promptly initiated numerous infringement lawsuits against rivals and aggressively pursued global licensing of the "One Click" patent, thereby accruing substantial revenue.

Conversely, Japan and the European Union (EU) have traditionally adopted a more cautious stance towards patent examination for business models, striving to balance

industrial development needs with patent protection demands. Specifically, the EU has instituted stricter limitations on business model patent applications entering its jurisdiction to safeguard the development of industries within its region. These rigorous patent examination standards have enhanced the quality and reliability of business model patents. It is foreseeable that excessively low examination thresholds for business models would enable dominant industry players to fortify their market positions, create patent thickets, and stifle the growth opportunities of small and medium-sized enterprises. Consequently, China should encourage enterprises to augment financial investment and allocate specialized research personnel, provide targeted guidance for business model patent applications, and simultaneously ensure robust protection for high-quality technological achievements while implementing timely measures to curb patent monopolies, thereby guaranteeing the high-quality development of business model patents.

## **5 Strategies for Improving Patent Examination of Technological Business Models**

### **5.1 Legislative Dimension: Improving the Legal and Regulatory Framework for the Patent Protection of Technological Business Models**

#### **5.1.1 Establishing Clear Legal Status for Technological Business Models.**

Given current developments, the first step should be to legally recognize the status of technological business models. Due to their distinctive characteristics, business model patents should be subject to stricter examination standards than ordinary patents. Applications for technological business model patents should be addressed in a dedicated chapter of the Patent Examination Guidelines, with specific definitions, classifications, and examination methods. This will help clarify the scope and types of business models eligible for protection, and provide an objective, precise, and highly applicable examination process, reducing examiner subjectivity and enhancing the predictability of examination outcomes.

Looking at developed countries such as the United States and the European Union, changes in the scope of business model patent protection have generally been achieved through case law or revisions to examination guidelines, under the premise of maintaining patent law stability. In contrast, research on business models in China remains exploratory. The revision of national laws and administrative regulations involves a rigorous justification process and long legislative cycles. The Patent Examination Guidelines, as a concrete interpretation of the Patent Law and its implementing rules, offer greater flexibility, procedural efficiency, and enforceability, allowing for rapid adaptation to market shifts and timely strategic adjustments. Detailed rules within the Guidelines can also make patent examination more targeted and operational.

#### **5.1.2 Defining the Scope of Patent Protection.**

In designing practical policy mechanisms, the development of business models requires the establishment of a scientific and appropriate examination method. One useful

approach is to classify business models based on whether they involve technical problems—into “conceptual business models” and “technological business models” (see Figure 2).

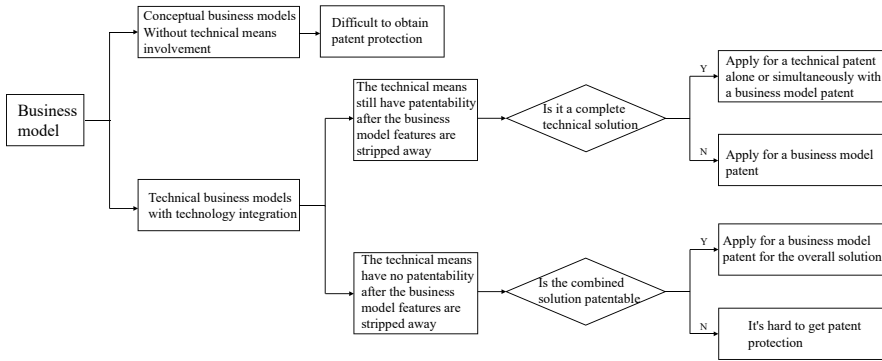


Fig. 2. “Dichotomy” Model of Business Model Patent Protection

As shown in Figure 2, patent examiners should clearly differentiate between these categories. Business models that involve only commercial rules or methods and do not introduce any technical innovation should be classified as conceptual business models, which fall outside the scope of patentable subject matter<sup>[12]</sup>. For those that contain both commercial logic and technical features, further evaluation is required to determine whether they meet formal and substantive examination criteria. The Guidelines should explicitly distinguish between formal examination and substantive examination, clarify the sequence and logic of the two procedures, and ensure their independence from one another.

Take the example of bike-sharing platforms: their operational models integrate computer software, hardware, and data analysis technologies, forming a complete solution that includes technical features, algorithmic elements, and commercial rules. Such a model should first be evaluated to eliminate portions that qualify as mere rules of mental activity, and then be assessed as a technical solution. The entire structure—including software, hardware, and implementation scheme—should be considered holistically during examination. Conversely, if the algorithmic processing is merely based on pre-defined calculation rules without any technical innovation, it should be classified as a conceptual business model and deemed non-patentable.

**5.1.3 Clarifying the Logical Relationship Between General and Exclusionary Clauses.**

Article 2 of the Patent Law provides the affirmative condition for obtaining patent protection by stating that an applicant’s invention must constitute a technical solution. In contrast, Article 25 sets forth the negative condition, specifying that "rules and methods for mental activities" are excluded from patent protection. In terms of content and scope, Article 2 offers a general definition of patentable subject matter, whereas Article 25 provides a specific exclusion for method patents. For technological business models, their inherently method-based nature determines that they should fall under method

patents, and thus Article 25(2), which addresses method-related exclusions, should take precedence. While both articles jointly serve as the legal basis for determining subject-matter eligibility in patent examination, their logical relationship and order of application must be clarified. Examiners should first apply Article 25(2) to assess whether the claim constitutes a rule or method for mental activity, and only thereafter consider the broader provisions of Article 2.

## **5.2 Practical Examination Level: Standardizing Patent Examination Methods for Technological Business Models**

### **5.2.1 Maintaining a Technicality-Based Formal Examination Standard.**

Most countries require business model patent applications to exhibit technical features. In *Gottschalk v. Benson*, the U.S. shifted its examination standard from the “useful, concrete, and tangible result” test to the “machine-or-transformation test”. Although the court did not explicitly state that a claim must have technical features, it rejected the idea that simply connecting an abstract idea to a specific machine or apparatus would render it patentable. As a product of the information age, technological business models often possess intangible and virtual characteristics, which challenge traditional technicality standards in patent examination<sup>[13]</sup>. Nevertheless, technicality remains the cornerstone of patent eligibility and should not be undermined. Business models seeking patent protection must be evaluated through the lens of technicality, with standards adjusted to reflect their evolving technological characteristics.

Technical features are the decisive factor in determining whether a technological business model qualifies as patentable subject matter. The World Intellectual Property Organization (WIPO) defines technology as “a means of applying natural science and engineering to machines and processes for the purpose of enhancing or improving human conditions, or at least improving human efficiency in certain aspects.” Technical features reflect the human capacity to solve technical problems through the application of natural science. According to current definitions in Chinese law, technology can be divided into industrial and physical technology. However, with the advancement of information technology, particularly in virtual domains like computer networks, the scope of technical features should no longer be confined to the physical world. In applying formal examination standards, technical features should not be narrowly interpreted as industrial or mechanical, but should also include non-physical technologies such as information processing methods.

### **5.2.2 Developing Substantive Examination Standards for Technological Business Models.**

#### **(1) Expanding Prior Art Databases for Novelty Assessment?**

One of the major challenges in novelty examination is the retrieval of prior art. It is essential to expand and enrich prior art search databases to meet the needs of examining technological business models. Prior art refers to any publicly disclosed technology prior to the filing date. In determining what constitutes public disclosure, international standards should be adopted to broaden the scope of searchable prior art. Examiners

should go beyond relying solely on patent literature, and actively include unpublished patent applications, electronic publications, and non-patent literature<sup>[14]</sup>. In addition to comparing technical features against existing technologies, examiners must also consider the core logic and overall architecture of the business model. Standards for evaluating prior art in the context of technological business models should be established accordingly. Moreover, standards for recognizing public disclosure via the internet should be clarified. Promoting data interoperability, cross-border information sharing, and collaborative searching will also help strengthen the quality and efficiency of novelty examination.

### (2) Establishing a Holistic Perspective for Inventiveness Evaluation?

The inventiveness of a technological business model may lie in the technical domain, or in the design of its business logic and operational concept. The U.S. examination standards are relatively liberal, recognizing inventiveness in both the business method and technical feature. The EU, on the other hand, takes a more restrictive approach by requiring that inventiveness appear strictly in the technical domain. Japan adopts a more balanced position, evaluating inventiveness from the perspective of the overall solution. U.S. companies tend to demonstrate strong innovation capacity in business models. If China were to follow the U.S.'s permissive approach, it could lead to an overexpansion of patentable subject matter and patent inflation. Conversely, adopting the EU's strict standards might exclude a large number of business models from protection due to overly high thresholds. Therefore, China should assess inventiveness based on the entire solution, evaluating not only the originality of technical features but also the novelty of the overall structure and implementation method. If either component lacks inventiveness, or if both are deemed non-inventive, auxiliary evaluation standards should be considered to determine inventiveness from a holistic perspective.

### (3) Defining Conditions for Applying "Commercial Success" as a Supplementary Standard

Business models are primarily applied in the commercial sector, and in the patent examination process, standards such as "commercial success" should be considered as auxiliary evaluative criteria. However, the application of these standards must be strictly controlled, including their conditions and principles of applicability. The inventiveness standard is evaluated from a technical perspective, focusing on solving technical problems, while commercial success is evaluated from an economic perspective, concentrating on the impact on the market<sup>[15]</sup>. The essence of the patent system dictates that technical evaluation takes precedence over economic evaluation. Therefore, auxiliary criteria such as commercial success should only serve as a regulatory and supplementary mechanism. Commercial success acts as an indirect judgment of inventiveness and should be applied with strict adherence to principles. It should only be introduced when technical evaluation is not possible, and when used, the cause of the commercial success must be carefully examined to determine whether it is driven by innovations in technical features.

## 6 Conclusion

The evolution of emerging technologies has exerted multifaceted impacts on patent protection for business models, not only broadening the scope of patent-eligible subject matter and elevating the standards for assessing inventiveness but also increasing the difficulty of meeting sufficiency of disclosure requirements, thereby influencing the effective duration of patent protection. While innovations realized through technical means yielding technical effects enable an expanding array of business models to qualify for patent protection, business models involving emerging technologies typically exhibit greater complexity, encompassing multiple technical modules and components. This complexity introduces potential challenges for safeguarding business models under patent law. During patent prosecution, applicants must adequately disclose the technical solution, system architecture, algorithmic processes, and other details to enable skilled practitioners to comprehend and implement the invention, heightening the difficulty of satisfying disclosure obligations and imposing greater demands on examiner competence. Technical features and business rules within business models are often intricately intertwined, complicating separate assessments of inventiveness; consequently, evaluating the inventiveness of technical features necessitates consideration of the business rules' contribution to the overall technical solution. Business model innovation frequently spans multiple domains—such as technology, management, and economics—requiring comprehensive prior art searches and comparisons across diverse fields during novelty and inventiveness determinations. The extensive distribution and varied formats of prior art across these domains significantly increase the difficulty of retrieving and screening relevant literature, potentially compromising the accuracy of inventiveness assessments. Furthermore, some business model patents may become obsolete prior to the expiration of their protection term as their technical solutions are superseded by newer technologies. Emerging technologies are reshaping technical character standards and expanding the boundaries of patent eligibility, propelling business models toward a smart-enabled evolution. However, persistent issues such as legal lag, data privacy risks, and participation barriers for small and medium-sized enterprises necessitate resolution through the establishment of dynamic examination mechanisms, tiered protection schemes, and enhanced international cooperation. Enterprises and innovators must also adapt their patent landscaping and application strategies accordingly, maintaining competitive advantage through the patenting of core technologies and the construction of strategic patent portfolios.

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