



## Patentability of software and business method inventions: A cross-jurisdictional analysis

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### Abstract

The rapid expansion of digital technologies has reignited global debate over the patentability of software and business method inventions. While innovation in fintech, artificial intelligence, and platform-based economies increasingly relies on software-driven solutions, patent systems across jurisdictions remain divided in their approach to such subject matter. This paper undertakes a comparative legal analysis of the patent regimes governing software and business method inventions in India, the United States, and Europe. It examines the historical evolution of patent law in these jurisdictions, as well as statutory exclusions, judicial interpretations, and administrative guidelines that shape the scope of protection. Particular attention is given to the tension between encouraging technological innovation and preventing the monopolisation of abstract ideas. The study evaluates key judicial trends, regulatory reforms, and policy rationales underlying divergent approaches, highlighting the implications for innovation, competition, and legal certainty. By critically analysing cross-jurisdictional developments, the paper identifies doctrinal inconsistencies and proposes a balanced framework for assessing patent eligibility in the digital era.

**Keywords:** Software, patentability, business methods, innovation, IPR

### Introduction

In today's rapidly advancing technological landscape, the scope of intellectual property law's protection has expanded to encompass new areas of interest. Creators are now afforded broad safeguards under intellectual property law, allowing patent protection for novel processes or products that demonstrate an innovative step, except for abstract concepts, mathematical algorithms, and living organisms. This has become increasingly crucial in the digital economy, where having a patent to protect groundbreaking software or business models is more important than ever.

Concerns have arisen over the legality of software and business-process patents. However, the topic of what may and cannot be patented has been at the heart of these debates. In recent years, there has been an ongoing debate over what can and cannot be patented, particularly in the realms of software and business methods. Critics have raised concerns about the minimum amount of information required to obtain a patent, noting that patents for business methods and software are sometimes issued with overly broad or unclear claims, which can make it difficult for others to develop in the same area.

Furthermore, new legal and ethical concerns arise at the interface of technology and intellectual property law. Defining patentable subject matter, particularly in the context of software and business methods, remains a contentious and challenging issue, as the rate of technical progress frequently outstrips the capacity of legal frameworks to keep pace. As technology continues to advance and reshape various industries, it is crucial for lawmakers, practitioners, and stakeholders to closely monitor and adapt to the evolving landscape of patent law to ensure it remains a strong policy for the modern day, striking a good balance between stifling innovation and encouraging healthy competition.

Furthermore, the lack of uniformity in patent laws and regulations across jurisdictions adds to the complexity of patentability for software and business methods. Different countries & regions have varying approaches and criteria for determining patent eligibility, which can create challenges

for creators and businesses operating in multiple markets. This lack of consistency underscores the need for ongoing changes and updates to patent laws to keep pace with technological advancements and promote innovation in a fair and balanced manner. It also highlights the importance of seeking expert legal advice and guidance to navigate the nuances of patentability in different jurisdictions and adapt strategies accordingly. As technology continues to evolve and reshape industries, the need for well-defined, adaptable patent laws that strike the right balance between protection and competition becomes increasingly crucial in the dynamic landscape of software and business-method innovation.

### Historical And Development of IPR

The concept of IPR refers to the legal recognition & protection of original mental output, which is considered valuable due to its economic worth. The term "intellectual property rights" was coined to describe the legal claim an individual has to their original works of imagination. The branch of law that deals with IP is increasingly focused on protecting intellectual property. There is a common belief that safeguarding intellectual property helps expand the economy, and therefore, governments are responsible for establishing laws to protect their people's intellectual property. In fact, governments in all countries grant exclusive rights to inventions, and creators are responsible for monitoring and enforcing those rights against any violations.

India has a long history of protecting its citizens' ideas through legal protections. During the Harappan period, distinctive markings were found on pottery, which scholars believe served as trademarks. In the worldwide context of the 1300s, the first humans to discover mines in the Alps imposed their conditions on the surrounding water and timber. In Germany in 1409, a unique permission was granted to build a model mill for storing grain. Stained glass artists in England were granted exclusive rights to their work to spur innovation.

When it comes to registering intellectual property and reviewing it thoroughly before granting exclusive rights, the French have taken the lead. In the beginning, innovations were guarded by secrecy. As nations advanced technologically, their creations were shown as a source of pride. Germany's status as an industrial power was officially recognised for the first time in 1867 during a Paris fair. To prevent German countries from exhibiting their intellectual property innovations, Americans opted out of the 1873 Vienna exhibition. As a result, the Paris Convention for the Protection of Intellectual Property Rights was established. Priority claiming rights between convention signatory nations were guaranteed.

In 1856, the Indian jurisdiction enacted the Act VI, modeled on the British Patent Law of 1852, to safeguard innovations. During this period, pioneers of novel manufacturing processes were granted exclusive safeguards for 14 years. In 1859, the Act was revised as Act XV to permit the production, distribution, and utilisation of novel inventions within India, along with the grant of permission to third parties to engage in such activities, for a duration of 14 years from the date of filing of the specification. The Indian Patents and Designs Act, which was previously referred to as the Patents and Design Protection statute in 1872, the Protection of Inventions Act in 1883, the Inventions and Designs Act in 1888, and the Patents and Design Protection statute in 1911, underwent another name change in 1911."

### **The Rise of Software and Business Methods Patents**

The patent system protects creations as a subset of IP law. Interestingly, not all inventions are covered by the system. Several works qualify as innovations or inventions but are specifically exempt from patent protection. Software and business methods are just a couple of those mentioned in "Section 3 of the Patents Act 1970." TRIPS defines minimum standards and lists discoveries that participating countries may or may not exclude as patentable subject matter under their national laws. However, there is no mention of any of them in TRIPS.

In contrast to the United States, business methods and computer programmes are not protected in India and Europe. To grasp the rationale behind this exclusion and the degree to which it applies, it is necessary to become familiar with the concepts of patents and innovation. As the law has evolved in favour of patentability of software and business methods, this is due to the role of the judiciary in constructing the legislative provisions, not as a result of any amendment, so it is important to understand the language used in the legislation to find out to what extent there is a possibility of interpretation in favour of patentability. That's why you'll sometimes hear them referred to as non-statutory subject matter.

Despite a long legal practice in Western countries, there is no uniform test for either. The test differs from that applied to statutory subject matters, but is the same for both software and business methods. The reason behind it can be understood once we find the relation between the two and the way the law has developed in the West. Different reasons and tests applied in different countries or by different courts in the same country have led to two major stands. In the U.S., even a purely business method is granted a patent, whereas in Europe it is not.

They will be granted a patent in Europe only when they have a technical character. The liberal approach of America

has had negative consequences, such as trolls and patent thickets, leading other nations to adopt a cautious stance and grant limited recognition. There are concerns about India that need to be addressed while keeping the global situation in mind. The current research examines all of these issues and seeks to explain the prospects for the future at the national and global levels.

### **What Are Software and Business Methods?**

A computer is made up of many electrical circuits arranged in a complex way. These circuits work together to perform different tasks. However, a computer cannot do anything on its own. It needs instructions from the user.

Software is simply a set of instructions that tells the computer what to do. When a user gives a command, the software helps the computer understand that command and perform the required task. These instructions are written in the form of a computer programme. In simple words, a computer programme is a list of rules that tells the computer how to operate.

The Patent Act does not clearly define the terms "software" or "computer programme." However, the Copyright Act, 1957 provides a definition. According to Section 2(ffc) of this Act, a computer programme means a set of instructions stored in a machine-readable form. When these instructions are used, they make the computer perform a specific task.

A "method of conducting business" is also called a business method. It refers to a way of carrying out commercial activities. For example, imagine a self-service machine that works when a person inserts a card with identification details. Instead of giving customers a special card, the machine allows them to use a card issued by another organisation. The first time the card is used, it acts like a request for approval from the machine's owner. After approval, the card can be used for future transactions.

Another famous example is the "one-click" patent given to Amazon.com. This patent allowed customers to buy products with just one click, without going through many steps. It became an important example in discussions about software and business method patents.

A few other examples of business methods are as follows:

- E-commerce platforms and resources such as user interface designs, online shopping cart software, online payments, and affiliate marketing
- Data collection, HR administration, financial record keeping, and stock control
- Derivatives, valuation, and index linking are all tools and methods used in finance.
- Financial planning, tax preparation, investment management, and point-of-sale systems;
- Marketing - advertising management, catalogue systems, incentive programmes, and coupon redemption;
- Optimisation - scheduling and resource allocation

Business Methods and Software are two distinct subject matters, not only excluded from patentability but also not qualifying as innovations under Section 3 of the Patent Acts. Any preliminary look may lead us to conclude that they are different and only grouped in the same sub-clause. A closer examination of the facts indicates that most business methods cannot operate independently of software or a computer program.

### **Patentability criteria for Software and business methods**

A software patent lacks a definite legal meaning. A computer programme may be patented if it performs some useful function, as recommended by the FFII, "Foundation for a Free Information Infrastructure." As an example of intellectual property, computer software is highly prized and protected. The Indian system for protecting intellectual property is still developing. local legislation is adapted to reflect the shifting priorities of local and global markets. The legal significance of a software patent is unclear. According to the FFII, "A software patent covers any aspect of computer functioning that is implemented by software." Software patents and copyrights are problematic as computers' economic relevance grows. "Section 2(ffc) of the Copyright Act of 1957" defines the computer programme, while the Indian Patent law does not.

The applicant's intentions determine whether the software is subject to copyright and patent protection. Copyright law protects a developer's code, but others may reimplement the same essential functionality using other code. Even though it was invented separately, a patent may prevent others from using it. Despite the irony that patent law does not protect software, applicants prefer it to copyright for its clear benefits.

Legal software copy protection, long associated with artistic works, is now vital to protecting computer programs. The Copyright Act protects literary works on tangible media. The Act guarantees copyright holders' monopoly rights to all reproduction, adaptation, and distribution. Copyright is automatic after the work is created and corrected. Registration is required to sue for copyright infringement.

The 1957 Copyright Act protects literary, theatrical, musical, artistic, cinematic, and sound recordings. Literary analysis uses descriptive computer tools. The Copyright Act protects computer software like literary works. The Act defines a computer as a device that can process information. The Act defines a computer programme as a collection of instructions stored on a machine-readable medium that may be written, programmed, or schemed to command a computer to execute a given job or produce a desired result. The definition proves that the Act protects computer programmes and software on the same terms as literary creations. Any device that can process data is a computer. Mobile phones may receive digital audio signals, convert them to analogue signals, and wirelessly transmit the converted signals to an external device.

### **Software and Business Methods Patents In India**

The Patents Act, 1970, originally treated inventions broadly, covering new and useful products or processes. After India became a member of the WTO, the Act was amended in 2002 to comply with the TRIPS Agreement. The amendment expanded the definition of "invention" under Section 2(1)(j) to include a product or process involving an inventive step and capable of industrial application. However, Section 3(k) of the Act clearly excludes "a mathematical or business method or a computer programme per se or algorithms" from patentability. In 2004, through the Patents (Amendment) Ordinance, the government attempted to allow patents for computer programmes with technical application in industry or in combination with hardware. However, this change was withdrawn by the Patents (Amendment) Act, 2005, restoring the stricter

exclusion under Section 3(k). As a result, computer programmes per se, algorithms, and business methods remain non-patentable in India. The Indian Patent Office (IPO) issued the Manual of Patent Practice and Procedure in 2005, revised in 2008, to guide examiners on software-related inventions. However, the absence of a clear definition of "technical effect" and of binding judicial precedent makes software patent protection uncertain. Consequently, the IPO often rejects software patent applications.

### **Indian Approach toward Software Patent**

Section 3(k) of the Patents Act, 1970 excludes "a mathematical or business method or a computer programme per se or algorithms" from patentability. In 2004, the government issued the Patents (Amendment) Ordinance to allow patents for computer programs with technical application or industrial use. However, due to opposition, Parliament withdrew this change through the Patents (Amendment) Act, 2005, restoring the stricter exclusion. Therefore, software is not patentable if claimed as a computer programme per se. Protection is possible only when the invention shows a technical effect or technical contribution, or when it is combined with hardware to produce a tangible technical result.

The Delhi High Court clarified this position in *Telefonaktiebolaget LM Ericsson v. Intex Technologies (India) Ltd.*, CS(OS) 1045/2014, judgment dated 13 March 2015, and *Telefonaktiebolaget LM Ericsson v. Lava International Ltd.*, CS(OS) 764/2015, judgment dated 10 June 2016. The Court held that inventions involving hardware components using algorithms to achieve a technical purpose are not barred under Section 3(k). Further, in *Ferid Allani v. Union of India*, W.P.(C) 7/2014, decided on 12 December 2019, the Court ruled that computer-related inventions demonstrating technical effect or technical advancement are patentable.

Earlier, the Supreme Court in *Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries*, (1979) 2 SCC 511, explained the test of inventive step. In *Novartis AG v. Union of India*, (2013) 6 SCC 1, the Supreme Court clarified that patentability depends on strict compliance with the statutory requirements.

Section 3(l) further excludes literary, artistic, and aesthetic works from patent protection. Since computer software is treated as a "literary work" under the Copyright Act, 1957, software receives copyright protection rather than patent protection. Mathematical methods, equations, and algorithms are also excluded because they are considered abstract intellectual exercises without technical application. Business methods are expressly non-patentable under Section 3(k). A business method is a set of processes for managing trade, commerce, or information. Even if drafted with references to the internet, networks, or hardware, a claim will fail if its core subject is a commercial process. This position was reinforced in *Yahoo! Inc. v. Controller of Patents and Designs*, OA/22/2010/PT/CH, where the Intellectual Property Appellate Board held that an online advertising bidding system was merely a business method implemented through software and therefore unpatentable. The term "per se" in Section 3(k) was introduced to clarify that only pure computer programs are excluded, not genuine technical inventions implemented through software. However, the legislature did not intend to allow patents for

non-technical subject matter merely because it is expressed in programming language. The focus must remain on technical contribution rather than business advantage.

To guide examiners, the Indian Patent Office issued the Manual of Patent Practice and Procedure in 2005, followed by later guidelines on Computer-Related Inventions. These define a computer-implemented invention as one in which a computer program realizes at least one feature. However, reliance on prior art and technical contribution tests created practical confusion.

#### **Business Method Patent Under Indian Patent Law**

Section 3(k) of the Patents Act, 1970, inserted through the 2002 amendment, clearly excludes “a mathematical or business method or a computer programme per se or algorithms” from patentability. In the same year, Parliament enacted the Competition Act, 2002, to prevent anti-competitive practices and abuse of dominance. Since patents grant monopoly rights, allowing business method patents could extend monopoly control to commercial processes and distort market competition. Although Section 3(5) of the Competition Act provides limited protection for reasonable conditions necessary to protect intellectual property rights, business methods are excluded from patent protection under Section 3(k). Therefore, such protection cannot be indirectly claimed under competition law.

In 2004, the Patents (Amendment) Ordinance attempted to clarify Section 3(k) by permitting computer programmes with technical application or industrial use. This approach resembled the reasoning in *Diamond v. Diehr*, 450 U.S. 175 (1981), in which the U.S. Supreme Court allowed patents for computer-implemented inventions that produce a technical result. However, the Patents (Amendment) Act, 2005, removed this language. It restored Section 3(k) to its stricter 2002 form, reaffirming Parliament's intent to treat computer programmes, business methods, and algorithms as non-patentable subject matter.

Indian courts have adopted different interpretative approaches. In *Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries*, (1979) 2 SCC 511, the Supreme Court emphasized that the invention should be examined as a whole when assessing patentability and inventive step. Similarly, in *Dhanpat Seth v. Nilkamal Plastic Crates Ltd.*, (2008) 36 PTC 123 (HP) (DB), the Court considered the substance of the invention. However, applying the “whole contents” approach to business method claims risks indirectly granting protection to excluded subject matter.

A stricter approach was adopted in *Yahoo! Inc. v. Controller of Patents and Designs*, OA/22/2010/PT/CH (Intellectual Property Appellate Board). Yahoo sought a patent for an online advertising bidding method. The IPAB held that the invention was essentially a business method executed digitally and therefore barred under Section 3(k), even if it involved technical features. The Board clarified that improvements in conducting business do not become patentable merely because they use technology. It also observed that, unlike U.S. or European law, Indian law expressly excludes business methods.

Further, in *Electronics Navigation Research Institute v. Controller General of Patents*, OA/26/2009/PT/DEL, the IPAB reaffirmed that claims primarily covering excluded subject matter cannot be saved by drafting techniques. The Indian Patent Office's Draft Guidelines on Computer-Related Inventions also stress consistent examination and reject claims that are essentially business processes.

#### **International laws on Software and business methods patents**

The first international agreement to safeguard intellectual property was signed in 1886 and is known as the Berne Copyright Agreement for the Protection of Literary and Artistic Works, or Berne Copyright Convention. It has undergone numerous revisions to add fresh concepts. The confidentiality of written works is ensured by Article 2 of the said convention. All genres of literature, art, and science are regarded as “literary works” under this term, according to Article 2(1) of the Convention. As a result, the Berne Convention's definition of literary works is very broad, including not just works of literature but also works in the fields of art and science. Therefore, the software falls within the umbrella of 'copyrights' under the system of intellectual property protection. Members in the jurisdictions of Member States are afforded the protection provided by this convention, absent any other agreement to that effect. Instead of providing protection itself, the Universal Copyright Convention requires its member nations to develop their own protection that meets certain minimum requirements. Unfortunately, the convention's applicability to computer programmes is ambiguous.

The development of new technologies, as well as the sharing and dissemination of technical information under the TRIPs Agreement. The agreement includes the Protections for software. Article 10 (1) states that, according to the Berne Convention (1971), both the source code and the object code of computer programmes are entitled to the same legal protections as works of literature. Therefore, software protection is a form of copyright under international intellectual property law, as defined by international treaties and conventions. According to Article 27(1) of the TRIPs, any novel product or procedure that is both creative and capable of industrial application may be patented. This is true for every area of technology. Article 27(2) of the Patent Convention provides that inventions that endanger public safety or morality may be denied patent protection. Furthermore, the exclusion from patentability is permitted under Article 27(3) if:

- (a) techniques for the diagnosis and care of human patients.;
- (b) living beings, except microorganisms, and the processes that generate living organisms, excluding non-biological and microbial activities.

Only if business procedures are not regarded as an 'area of technology' would they be exempt from patentability under TRIPs. Not only must Australia comply with TRIPs requirements, but its patent policy for business methods must also align with global trends, or risk discouraging foreign investment. This is especially true in situations when TRIPs members are encouraged to implement patent law harmonization. Since the technicality requirements make it difficult to secure business-method patents in Europe, Australia's failure to adopt worldwide developments into its own legislation may render Australian patents invalid abroad. While business processes are among the most debated topics in the patent community, no consensus has emerged on how to classify or legally protect them. The Patent Law Treaty does not help with problems of categorization or harmonization; it simply addresses the mechanics of the application process.

#### **In the European Union**

Article 52(2) (c ) of the European Patent Convention states that, “ computer software, rules for games, and ways of

conducting mental acts are not patentable. Furthermore, the “technical character” of an invention, as outlined in Rule 52(1), is highly valued by the EPO and is therefore an important criterion for patentability. But the EU is counting on you to accept their EU Directives on Software Patentability and bring your laws in line with everyone else's. IBM appealed to the Board of Appeals of the European Patent Office, contending that only non-technical features of computer programmes should be taken into account when deciding whether or not they qualify as patentable subject matter. In the case law created by their courts, the technological nature of an innovation is given priority over its form. In its ruling that computer processes are patentable if they have an abstract and mathematical influence separate from the technical effect that a computer process possesses, the EPO Board of Appeals came to the same conclusion as the Supreme Court in the VICOM case. As a result, software may be patentable.

### In the United States of America

Software patentability does not face significant challenges in the United States, which has a constitutional requirement of inventive culture. To be protected under United States Code section 101, an invention must be both practical and novel. The USPTO recognises two safe harbours for patentability: activities that occur after a computer is involved and those that occur before. In addition, the laws there allow patenting a computer program's data structure, provided the structure and the program's functionality are clearly separated. There, judicial interpretation has broadened the types of software that may be patented. A similar ruling to that of “Golschalk v. Benson” was made on the patentability of mathematical formulas. The SC's decision in “Parker v. Flook” held that an algorithm cannot be copyrighted without also patenting the idea behind its operation. The 1984 Case of “Diamond v. Diehr” held that inventions involving methods or devices that include computer programmes are patentable. After reviewing every case brought before a U.S. court, we can confidently assert that the courts place more weight on actual usefulness than they do on claim type or classification. Therefore, computer programmes themselves are ineligible for patent protection, but computer programmes recorded on a recordable medium are.

### In the United Kingdom

Software is no longer considered a patentable invention in the UK. The European Union's directives and the decisions of the European Patent Office may be considered persuasive authority for evaluating patents in the United Kingdom under section 130(7) of the Patents Act. The Patent Trial and Appeal Board rejected the Merrill Lynch application because it lacked sufficient inventive and nonobvious features to qualify as a patentable invention. Fox LJ ruled that the application couldn't be considered an invention since it was essentially just a way to do business. However, Nicholls LJ followed the VICOM principles in *Gale v. UK*, where he held that an intellectual discovery with practical application in a technological procedure is patentable. Because of this, in the United Kingdom's opinion, software may be copyrighted if it addresses a technical problem in either the computer itself or the world at large.

### Conclusion

The comparative study of software and business method patentability reveals a clear divergence in legal philosophy

across jurisdictions, shaped by differing policy priorities and judicial interpretations. India, under Section 3(k) of the Patents Act, 1970, adopts a cautious, exclusionary approach, expressly barring “computer programme per se,” business methods, and algorithms from patentability. Judicial decisions such as *Ericsson v. Intex*, *Ferid Allani v. Union of India*, and *Yahoo! Inc. v. Controller of Patents* demonstrate that Indian courts permit protection only where a genuine technical effect or technical contribution is established, thereby preventing monopolisation of abstract or commercial ideas. In contrast, the United States has historically taken a broader stance under 35 U.S.C. §101, allowing computer-implemented inventions when they demonstrate practical application. However, recent jurisprudence has imposed limits on abstract ideas. Europe occupies a middle path, permitting patents only when the invention demonstrates “technical character” under Article 52 of the European Patent Convention.

The cross-jurisdictional analysis highlights a common underlying tension: balancing innovation incentives with the need to preserve competition and prevent overbroad monopolies. While liberal regimes may stimulate rapid technological development, they risk the formation of patent thickets and litigation abuse. Restrictive systems promote legal certainty but may discourage investment in digital innovation. Ultimately, a balanced framework grounded in clear statutory language, consistent judicial interpretation, and a robust technical effect test appears essential. In the digital era, patent law must evolve carefully to encourage genuine technological advancement without extending protection to abstract business concepts or mere automation of known practices.

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