

# IP protection of software innovations

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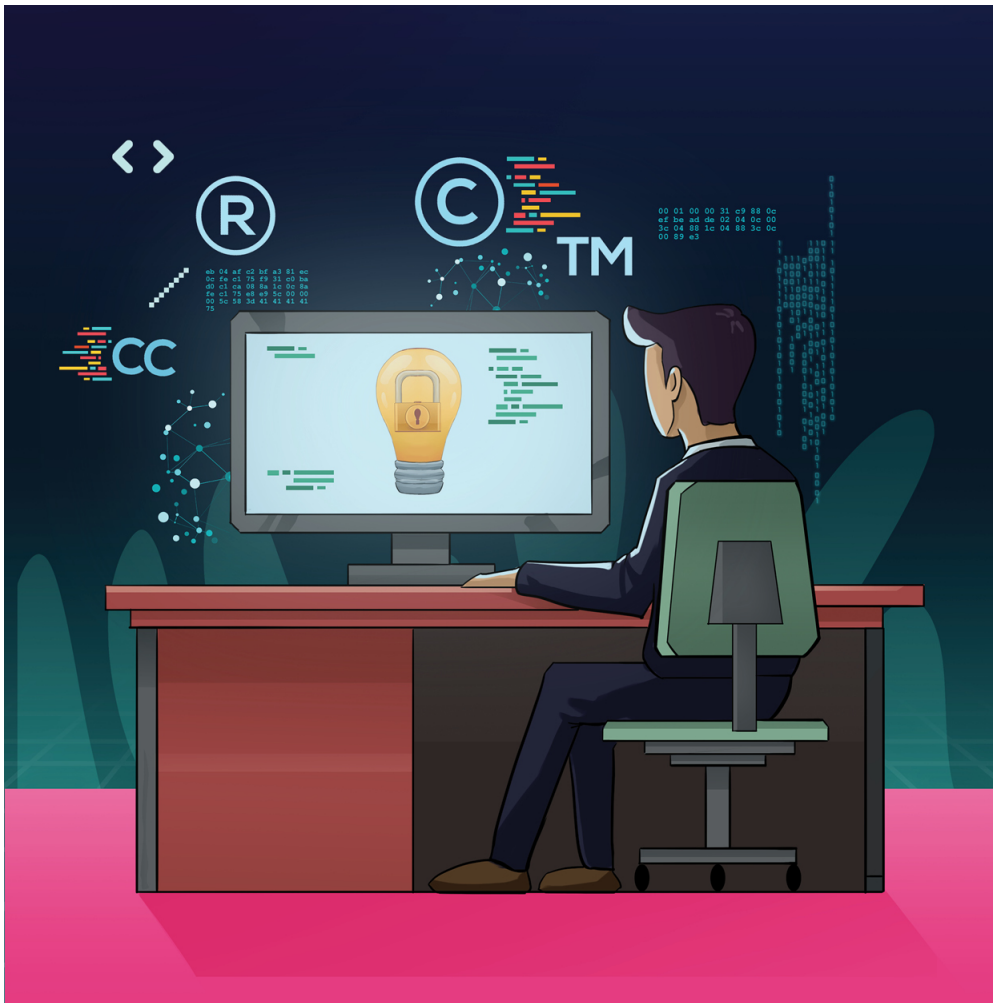
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Digital transformation is at the core of the 4th industrial revolution which goes hand in hand with software development. Therefore, it is expected that the software industry and the development of new software based technologies will be growing exponentially to support the transformation. Software will certainly play an essential role in the transformation of all types of industries including healthcare, education, transportation, services, and so on (to name but a few) and will take part on a wider range of platforms and technologies including blockchain, artificial intelligence, virtual and augmented reality, telecommunications and computer networks etc.

Software innovations may seek protection of their intellectual property rights via a number of routes depending on the nature of the innovation underlying the software. Generally, copyright, patents and trade secrets are the main three types of intellectual property vehicles available for the protection of software related innovations.

Patent protection should be distinguished from copyright protection which is the easy route to protect computer programmes and software. Copyright protection is generally available for software developers in most countries and secured under several international conventions as well as local laws. However, although copyright protects the 'literal expression' of computer programmes; to say the source code against misappropriation or reproductions by non authorised parties, copyright does not protect the innovative concepts, features and processes underlying the software which often rely upon the core innovative and commercial valuable aspects of the software. This part, the innovative concepts, features and processes underlying the software, should be considered for protection under the patent route, where possible, and available in order to secure an appropriate level of protection for software developers. Absent patent protection of software related innovations, the legal protection of software will remain weak and vulnerable to misappropriation by others. Trade secret protection is normally available for confidential algorithms, data, models and formulas underlying the software without a requirement for registration however, they lose protection in case of reverse engineering or independent discovery by others and therefore trade secret protection should be considered with care.

Although hardware and other physical, tangible inventions are patentable subject matter when they meet the patentability conditions of novelty and inventiveness, this is not always the case for software related innovations which follow a more complex legal scheme which varies from one country to another. The availability of patent protection of software related innovations follows a more complex scheme and should be assessed on a case by case basis depending on the technology in question and the laws of the country where protection is sought.

## **Which protection to choose? Copyright, Patent or Trade Secrets?**

In deciding whether to apply for a patent or a copyright, or both together, to protect a software, it is crucial to understand the scope of protection each one of these vehicles provides.

Copyright generally protects the expression of the software source code which restricts non authorised third parties from using or reproducing the code (or a substantial part thereof) without permission. The copyright protection term generally lasts for the lifetime of the owner plus an additional term of up to 50 to 70 years after the death of the author (depending on the country in question). The major advantage of copyright protection lies in its simplicity; as it accrues automatically without the requirement for registration (as provided under certain international agreements), and where the process of obtaining a registration (which is desirable for evidentiary reasons in many countries) is quick and inexpensive. However, one of the main limitations with the copyright protection of software is that it does not protect the innovative concept, features or processes underlying the software but only the expression of the code itself. If the software embodies a new and inventive concept or process, copyright protection will, in most cases, not protect these elements. Therefore, copyright can be useful only if someone copies the exact same source code of software or programme (or a substantial part thereof).

Patents, on the other hand, protect inventions which extend to innovative concepts, features and processes. When a patent protection is sought in relation to software, the patent normally covers the technical features related to the software such as the data processes and other technical concepts and features underlying the software particularly when these interact with hardware or other tangible or physical assets or produces a tangible, physical outcome or results in a transformation of an object. Patent protection prohibits other parties from reproducing the protected concepts, features and processes underlying the software (called computer implemented inventions) even if the source code was not reproduced and a new source code was developed independently. The patent's term is shorter than copyright and generally lasts 20 years from the filing date. The process of gaining a patent is more expensive than copyrighting and generally takes longer than acquiring copyright in the long-term.

However, having a patent is much more beneficial and provides exclusivity for making, using, selling, offering for sale or importing an invention. The protection will provide the applicant with a legal monopoly of the market in terms of excluding others from exploiting the patented invention without authorisation, therefore substantially contributing to attracting investors, generating revenues and increasing the value of the business.

Trade secrets are generally recommended to be used to protect certain secret parts of a code such as specific mathematic formulas, models, or secret recipes of the software which are not likely to be discovered by third parties through reverse engineering or independent discovery. The term of protection of trade secrets is perpetual as long as it is kept secret and has an economic value, but it automatically loses protection when it enters the public domain. Google is known to have kept many of its computer algorithms secret.

Protecting software innovation requires a technical understanding of the various aspects of the software and a strategic approach on how best to protect the various aspects thereof through the available intellectual property vehicles. An holistic protection of software innovation normally requires a combination of copyright, patents and trade secrets strategically designed to cover the various aspects of the software.

## **What do various jurisdictions say?**

### ***USA***

In the US, patenting of software related inventions is not evolving. The test (called the two step Alice test in reference to the famous Alice Case) was defined by the US Courts to ease the process. The first element of the two step test requires determining whether the claims of the patent application are directed to an abstract idea. If the answer is 'no' then the claimed subject matter is patent eligible. However, if the answer is 'yes', then to be patent eligible, the claims must satisfy the second part of the test. The second element of the test requires determining whether the subject matter in question includes elements that highlight the fact that the invention is more than an abstract idea; hence, the subject matter in question should be more than just a basic, conventional and generic function and should show improvements in the functionality of the technology. If it does, the claims are patent eligible. This two step test has been adopted by the United States Patent and Trademark Office ('USPTO') and is applied when examining patent applications in various areas of technology, including software.

To be a patent eligible subject matter, the invention underlying the software should have a technical character with a technical contribution and not a merely be an abstract idea.

For a software patent developer to overcome the 'abstract idea' rule the invention needs, in general, to carry out at least one automated decision made by the software, that could not be performed by a human otherwise, the patent office will perceive it to be a different approach and not an invention. Further, the more the software is linked with hardware or physical articles or machines such as a computer, the more likely it is to be considered by the USPTO as having a technical character.

### ***Europe***

The European Patent Office ('EPO') recently amended their guidelines for assessing patents pertaining to software related technologies. As per the 2018 edition of the Guidelines, algorithms 'which are considered computational and abstract in nature' may become eligible for patent protection once applied to a technical problem. The EPO also applies a two step test to determine the patentability of a software application. The first step is the 'eligibility test', which assesses the subject matter based on its technical

character. So, in order to pass the first step technical means should be introduced; for example, by amending the subject matter from 'a method of performing an algorithm' to a 'computer implemented method of performing an algorithm'. The second step of the test requires a technical contribution to the inventive step. This technical contribution should be non obvious over the prior art. For the assessment of the inventive step, where a claim includes a mix of technical and non technical features, all features that contribute to the technical character shall be taken into account.

## **China**

China revised the patent office guidelines for the examination of software related inventions in 2017 where it now distinguishes between computer programmes per se, which are excluded from patentability, and computer programme related inventions, which are patentable. Hence to show patentability, the claimed solution should at least solve a technical problem and achieve a technical effect.

The China National Intellectual Property Administration ('CNIPA') recently announced amended Patent Examination Guidelines effective February 1, 2020. The amended guidelines add Section 6 to Chapter IX of Part Two of the Patent Examination Guidelines, which cover provisions for the examination of patent applications that claim abstract features such as algorithm features or business method features. The amendments were introduced to cater for the special nature of examination of patent applications related to AI, internet, big data, and blockchain. The amended guidelines state that a claim, as a whole, should be examined and an examiner should not separate features directed to a business or algorithmic method. Instead, all the limitations recited in the claims should be taken as a whole in order to analyse any potential technical problems, the applied technical means, and the achieved technical effects, as a test for patentability.

## **GCC**

Under the Gulf Cooperation Council Patent Law, computer programmes or source codes by themselves are considered as not patentable unless they are linked to hardware and presented as a technical solution to a technical problem. There are no clear guidelines in the GCC however, computer implemented inventions are normally protectable provided they relate to a technical solution aimed at solving a technical problem. The more they are related to hardware or machines for conducting physical or tangible actions, the more chance it has of being considered eligible if the technical aspects are novel and inventive. As a rule of thumb, software related inventions which are eligible in Europe and the US have increased chances of being eligible in the GCC.

## **Conclusion**

IP protection of software related innovations requires a very thorough understanding of the technical aspects of the software and underlying innovations which may include data processes, simulation models, hardware interactions, signal processing and any other underlying aspects. The different innovative aspects should be considered for protection under the available intellectual property vehicles and the best holistic protection approach is to consider patent protection and trade secret protection in addition to copyright protection. Each one of these IP vehicles should be used very strategically depending on the nature of the underlying innovation features. IP protection strategy should also be considered based on the commercial objectives of the company in question as well as the applicable laws in the countries where the software is sought to be commercialised and exploited. The protection scheme can seem demanding however, it is certainly rewarding for software developers as it would allow them to secure their

investments and boost the value of their businesses.

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