Trends and Developments in IP Protection of Software-Related Inventions in the APEC Region

APEC Intellectual Property Rights Experts Group

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Economic Cooperation

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1. Introduction

This report provides an analysis of the legal protection of software-related or computer-related inventions across APEC economies. Based on the responses provided by the surveyed economies,[i] it examines and compares recent developments in the criteria applied by Patent Offices as well as relevant case law. The final findings highlight commonalities and divergences among the economies, providing an overview of the current scenario.

2. General Overview of Legal Protection

The legal basis for protection of software-related inventions among economies can be summarized as follows:

In Australia, these inventions are only patentable if what is claimed “as a matter of substance” meets the requirements for a manner of manufacture and is not a mere scheme, abstract idea, or mere information.[ii]

In Chile, the Intellectual Property Law N° 17.336, covering Copyright and Related Rights, establishes a non-exhaustive list of 18 copyrightable subject matters, one of them being computational programs.[iii] Computational programs are protected whatever the mode or form of expression, as source or object program, including preparatory documentation, its technical description, and user’s manuals.[iv] The same Law defines computational program as a bundle of instructions to be used direct or indirectly on a computer, aiming at achieving a specific process or result contained in a cassete, diskette, magnetic stripe, or another material carrier. In addition, a copy of a computational program it is understood to be a material carrier containing instructions taken directly or indirectly from a computational program and that incorporates all or the substantive part from instructions fixed therein.[v]

In Hong Kong, China, if a software-related invention provides a technical contribution and is more than a computer program “as such”, it may be patentable under the patent law subject to fulfilling other patentability requirements. Furthermore, an original computer program can be protected by copyright as a literary work in Hong Kong, China.

In Indonesia, Law Number 13 of 2016 on Patents states that the invention does not include rules and methods that only contain computer programs. It is further explained in the Elucidation of Article 4 letter d of Law Number 13 of 2016 on Patents that what is meant by “rules and methods that only contain computer programs” is a computer program that only contains programs without character, technical effect and problem solving.

Japanese Patent Act’s Article 2(1) defines an "invention" as "the highly advanced creation of technical ideas utilizing the laws of nature." Therefore, an invention which corresponds to the statutory “invention” under JPA Article 2(1) satisfies the eligibility requirement of JPA Article 29(1) and is eligible for patent protection. In addition, JPA Article 2(3)(i) stipulates that a “product” includes a “program, etc.”, which is defined by JPA Article 2(4).[vi] Thus, a computer program is defined as an example of patentable subject matter in Japan.

In the case of Korea, even though Korean Patent Act defines “invention” as a highly advanced creation of technical ideas utilizing laws of nature, the Patent Examination Guidelines in Korea further specifies that *computer program language itself, computer program itself;* won’t be considered as inventions. A computer program itself is not regarded as an “invention” but if information processing by software is specifically realized through the utilisation of the hardware, the claimed invention comes under the creation of a technical idea using laws of nature.

Computer-Related Inventions are protected under Korean Patent Act, as such, a computer-related invention may be described in the scope of the claims as a method invention or a

product invention. In the case of a method invention, it can be claimed by specifying a series of processes or operations connected in a time sequence, namely steps. Whereas, if it is a claim for product invention, a computer-related invention can be expressed as a multiple of functions implementing an invention, the invention may be disclosed in the scope of the claims as a product (apparatus) invention specified for the function(s). Also, a computer-related invention may be categorized as a computer program readable medium, data readable medium and a computer program stored on a computer-usable medium.

In Mexico, the Law for the Protection of Industrial Property excludes those related to computer programs (software) from consideration as inventions. Specifically, article 47 of the Law establishes that computer programs are not considered inventions.

In New Zealand, computer implemented inventions may be patentable under certain circumstances, depending on whether the computer program is only the way in which a new method, with a resulting contribution, is implemented. In this sense, if the actual contribution does not lie solely in it being a computer program, the invention may be patented; on the contrary, a claim in a patent relating to a computer program "as such" may not be granted if the actual contribution made by the alleged invention lies solely in it being a computer program.[vii]

In Peru computer programs or software are not considered inventions under Article 15(e) of Decision 486, if they are claimed as such. The prohibition in Article 15 (e) is directed primarily at a set of instructions expressed in words, lines of code, plans or in any other form; and not to prohibit products or processes, such as devices, systems, and methods that involve a computer program, software, or its application.

In the Philippines, the Intellectual Property Code of the Philippines (IP Code) is supplemented by the Revised Implementing Rules and Regulations for Patents, Utility Models, and Industrial Designs, under Rule 201(c), provides for computer-related inventions as one of the statutory classes of patentable inventions protected.

The legislation of Russia does not specifically mention software-related inventions. In accordance with the paragraph five of the Article 1350 of the Civil Code, computer programs are excluded from patent protection (do not constitute inventions). Nonetheless, software-related inventions that constitute a technical solution may be patentable.

In the case of Chinese Taipei, the patent eligibility depends on whether the invention utilizes laws of nature and incorporates technical concepts.[viii]

In Thailand, if the invention relates to the contents of a software itself (software *per se),* then it may be protected by Copyright, subject to the criteria for copyright protection, but it cannot be protected under Patent Law.[ix] Nonetheless, If a software-related invention has a technical character, associated with a system producing a technical result, then it may be protected by a patent provided that it complies with the requirements for patentability: new, capable of industrial application, involves an inventive step, and consists of patentable subject matter.

In the United States Copyright law and patent law are routinely used to protect software.[x] Copyrights protect the "expression," i.e., the source code or object code of software, while patents protect the processes and algorithms. 35 USC §101 establishes patent-eligible subject matter in machines, manufactures, compositions, which require a physical, tangible structure, and processes. Statutorily eligible inventions are subject to judicial exceptions to patentability: laws of nature, natural phenomena, and abstract ideas cannot be patented.[xi]

3. Explicit exclusion of Software or Computer Programs from patent subject matter eligibility

Many of the economies surveyed explicitly exclude the patentability of "software per se:"

- In Hong Kong, China, if an invention containing or related to software in a patent claim amounts to no more than a computer program (being an excluded subject-matter under the Patents Ordinance),[xii] the invention as claimed is unpatentable.
- The Law for the Protection of Industrial Property of Mexico excludes those related to computer programs (software) from consideration as inventions. Specifically, article 47, establishes that computer programs will not be considered inventions.
- In the case of Peru, as part of the Andean Community, the applicable legal framework refers to the Decision No. 486 Establishing the Common Industrial Property Regime, which explicitly provides for the computer programs are not considered as inventions.[xiii] In this sense, the prohibition in Article 15 (e) is directed primarily at a set of instructions expressed in words, lines of code, plans or in any other form; and not to prohibit products or processes, such as devices, systems, and methods that involve a computer program, software, or its application. In the same line, the Law for the Protection of Industrial Property of Mexico specifically establishes that computer programs will not be considered inventions.[xiv]
- The Philippines explicitly excludes "software *per se*" as a patentable subject matter under the IP Code.
- In Russia, according to the Civil Code (Article 1350) computer programs are excluded from patent protection.
- In the case of Thailand, Section nine (3) of the Patent Act B.E. 2522 specifically excludes a computer program from patent subject eligibility.
- In the United States, pure software, called "software per se" cannot be patented.[xv] However, software (which typically includes algorithms, data flows, or processes) embedded in a physical tangible structure can be patent-eligible if the claims overcome the judicial exceptions to patentability.[xvi] In practice, a claim to software should indicate that the "instructions" are stored on "a non-transitory computer readable medium", that when "executed" by a "processor," cause the processor to perform a claimed process.[xvii]

4. Software or Computer-Related Inventions protected by means of a Patent

In some economies, a patent can be granted to software-related inventions if certain conditions are met. To this end, it is possible to ascertain there is a similar approach among these economies, that is, the contribution of the invention should not lie solely on the software or computer program itself, thus, it should go beyond a mere abstraction and constitute a technical solution to a technical problem.

The criteria found in surveyed economies can be classified in the following manner:[xviii]

i. Technical solution, technical result, or technical effects criteria

Indonesia follows a technical effects reasoning, in the sense that, if the computer program has characteristics (instructions) that have technical effects and functions to produce tangible and intangible problem solving, it is an invention that can be granted a patent.

In the case of Russia, it is required that the claim contains a set of essential features relating to the product or method, including the use of the product or method for a particular purpose, sufficient to achieve the technical result(s) provided by the invention.

In Thailand and Hong Kong, China, if a software-related invention has a technical character, being associated with a system producing a technical result, it may be protected by a patent, as long as the conditions in the law are met (novelty, inventive step, industrial application).

ii. Manner of manufacture criteria

The manner of manufacture test is required in Australia's legislation, subject to subsections (2) and (3), an invention is a patentable invention for the purposes of an innovation patent if the invention, so far as claimed in any claim: (a) is a manner of manufacture within the meaning of Section six of the Statute of Monopolies. The Statute indicates the following: "Provided also and be it declared and enacted that any declaration before mentioned shall not extend to any letters patent and grants of privilege, for the term of 14 years or under hereafter to be made of the sole working or making of any manner of new manufacture within this realm to the true and first inventor and inventors of such manufactures which others, at the time of making such letters or grant, shall not use, so as also they be not contrary to the law, nor mischievous to the state, by raising prices of commodities at home or hurt of trade or generally inconvenient."[xix] It should be noted that, in the case Research Affiliates LLC v Commissioner of Patents [2014], the primary Judge provides more clarity and context to the term "manufacture" stating that "it has applications beyond limits suggested by its etymology and that any attempt at precise definition of manufacture is bound to fail."

Also, in New Zealand, Patents Act's Section 14 referred to "Patentable Inventions," states that an invention is a patentable invention if the invention, so far as claimed in a claim, "a) is a manner of manufacture within the meaning of Section six of the Statute of Monopolies."

iii. Technical ideas utilizing the laws of nature

Japanese Patent Act's Article 2(1) defines an "invention" as "the highly advanced creation of technical ideas utilizing the laws of nature." Therefore, an invention which corresponds to the statutory "invention" under JPA Article 2(1) satisfies the eligibility requirement of JPA Article 29(1) and is eligible for patent protection.

In addition, JPA Article 2(3)(i) stipulates that a "product" includes a "program, etc.", which is defined by JPA Article 2(4).

The Patent Act of Chinese Taipei defines an invention as "the creation of technical ideas, utilizing the laws of nature." Therefore, the patent eligibility of a software-related invention hinges on whether such invention utilizes the laws of nature and incorporates technical concepts.

5. Protection by Trade Secrets

If the applicants do not want to seek a patent, some economies contemplate the possibility of protection by trade secrets.

In Hong Kong, China, trade secrets and undisclosed commercial information are protected by the common law of confidence. In this sense, an obligation of confidence will arise whenever the information is communicated to or acquired by a person who knows or ought as a reasonable person to know that the other person wishes to keep that information confidential. An industry or trade custom or practice may also impose an obligation of confidence. The release of trade secrets and undisclosed commercial information would be detrimental to the owner or advantageous to his or her competitors or others. To this end, the remedies available for breach of confidence include injunctions, damages, account of profits and delivery up of materials containing confidential information.

Indonesia's Law N° 30 of 2000 establishes that the scope of protection of Trade Secret[xx] includes methods of production methods of processing, methods of selling, or other information in the field of technology and/or business that has economic value and is not known by the public in general.

The Philippines also provides for possible protection of computer-related inventions under Utility Models and as a Trade Secret.

The United States provides trade secret protection through the Economic Espionage Act of 1996 as amended by the Defend Trade Secrets Act of 2016. Companies in a wide variety of industry sectors, including information and communications technology, rely on these statutes to protect and enforce their trade secrets and rights in proprietary information.[xxi]

6. Jurisprudence/Case Law

Regarding judicial cases, only few economies among the surveyed responded to have relevant rulings or case law to highlight.

In this sense, it is worth identifying the grounds and/or reasonings upon which judgements are based on, to identify similarities among economies.[xxii]

Among the economies part of the common law legal system, the main grounds or reasonings invoked in judgements when assessing computer-related inventions are the following:

a) Inventive step

The Supreme Administrative Court of Chinese Taipei rendered the 2021 Shangzi Judgment No. 597, a case which revolved around the accurate determination of the inventive step by a person ordinarily skilled in the art, considered by the Appellant to be part of the investigation of evidence that should be rendered by the Courts. As such, the Court ruled that the original court reached a conclusion unfavorable to the patentee in the absence of an investigation about expert witness and reasonable explanation to make an accurate inventive step determination. The patent in question was applied for 20 years ago. When assessing the inventive step, the recognition of prior art should be judged from the perspective of a person having ordinary skill in the art (PHOSITA) at that point in time. It is challenging for technicians nowadays to determine what constituted prior art back then. Therefore, the Appellant hoped to invite a technical expert who personally experienced the technical innovation more than 20 years ago and has achieved considerable standing in the industry as an expert witness to clarify the technical perceptions and truth back to those days. The Supreme Administrative Court found that the original Court failed to conduct an ex officio investigation of evidence and issued a groundless judgement.[xxiii]

b) Patentability of a mere scheme/manner of manufacture

In Australia, case Research Affiliates LLC v Commissioner of Patents [2014] referred to the issue on whether the claimed invention of two patent applications (refused by the Commissioner and later dismissed by the Primary Judge) corresponded to a manner of manufacture in accordance with pertinent legislation (s 18(1)(a) of the Patents Act 1990.) Specifically, it inquired on the question of whether computer implementation of an otherwise unpatentable business scheme is sufficient to make the claimed method properly the subject of patent.

The judgement of the Federal Court of Australia concluded that the method claims merely required generic computer implementation and were insufficient to 'transform' the abstract idea into a patentable application and that the transformation had to be more than stating the abstract idea while adding the words *"applied"*. The computer implementation did not supply the necessary inventive concept where the process could be carried out in existing computers long in use. Simply implementing a mathematical principle on a physical machine was not a patentable application of that mathematical principle sufficient to confer patentability, where the computer implementation is purely conventional.

The Court further stated, "there is a distinction, between mere implementation of an abstract idea in a computer and implementation of an abstract idea in a computer that creates an improvement in the computer." In other words, the Court concluded that the inventive step claimed by the appellant corresponded to an inventive "idea" or abstraction, but not to a computer implementation where there is an improvement or specific effect generated by the computer.

The Court considered that the subject matter corresponded to a scheme, highlighting that "the ingenuity of the inventors, the end result of which is the invention, is directed to the idea, which is not patentable."[xxiv]

It is also interesting to note that the Court stated that when assessing or deciding whether a claimed method or product is properly the subject of letters patent, the approach to be taken should be flexible as it must allow for new technologies presently unknown, and that there is no fixed formula to be mechanically applied.

The Court concluded that the scheme was merely implemented in a computer and a standard computer at that, but it wasn't part of the claimed method that there is an improvement in what might broadly be called "computer technology".[xxv]

Other relevant cases are Commissioner of Patents v RPL Central Pty Ltd[xxvi] and Aristocrat Technologies Australia Pty Ltd v Commissioner of Patents [2022] HCA 29.[xxvii]

c) Machine-or-transformation test, Alice-Mayo test

United States' cases Gottschalk v. Benson, 409 US 63, 71-72 (1972), Parker v. Flook, 437 US 584, 590 (1978), and Diamond v. Diehr, 450 US 175 (1981) collectively analyzed to what a degree automation of a known concept via software is unpatentable versus how software embedded in a larger concrete system can be patentable.[xxviii]

Later on, the decisions in In re Alappat, 33 F.3d 1526 (Fed. Cir. 1994) (en banc) (abrogated by In re Bilski, 545 F.3d 943 (Fed. Cir. 2008)) and State St. Bank & Tr. Co. v. Signature Fin. Grp., 149 F.3d 1368, 1369 (Fed. Cir. 1998) recognized that software can transform data and produce tangible results, and resulted in steep growth in the number of software-related patents.[xxix]

More recently, Bilski v. Kappos, 561 US 593 (2010)[xxx] referred to the patent eligibility of a process, as the applicant sought protection for an invention that explains how commodities buyers and sellers in the energy market can protect, or hedge, against the risk of price

changes.[xxxi] The patent examiner considered the invention to merely manipulate an abstract idea, solving a purely mathematical problem without limitation to a practical application; the rejection was affirmed by the United States Court of Appeals for the Federal Circuit. The Federal Circuit applied the "machine-or-transformation test" to determine the patent eligibility, subject to the fulfillment of one of these two conditions: whether the process is tied to a particular machine or apparatus, or it transforms a particular article into a different state or thing.[xxxii] Regarding the test as such, noting that it should be used as an important indicator, the majority opinion of the U.S. Supreme Court considered that it could not be a sufficient or sole test for patent eligibility of processes, as this "would create uncertainty as to the patentability of software."[xxxiii] Following the application of the test, the Court concluded that the application was not patent eligible.[xxxiv] Later, in Mayo Collaborative Services v. Prometheus Laboratories, 566 U.S. 66 (2012) the Supreme Court held that additional features in claimed invention that add nothing to the laws of nature, natural phenomena, and abstract ideas other than what is well-understood, do not make the claim patentable.[xxxv] A few years later, the Supreme Court analyzed the Alice Corp. Pty. Ltd. v. CLS Bank International (2014) case, which involved several patents that disclose schemes to manage certain forms of financial risk that were implemented. According to its case law, the Courts were required to distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks to transform into a patent-eligible invention. In line with the latter, the Court reasoned that if the recitation of a computer in a patent refers only to a mere instruction to implement an abstract idea on a computer, then, that addition cannot impart patent eligibility.[xxxvi]

Both Bilski and Alice Corp[xxxvii] case decisions expanded the abstract idea judicial exception. The referenced decisions rendered by the Supreme Court established the "Alice/Mayo Framework", which is used to determine patent eligibility.[xxxviii] The Alice/Mayo framework is composed of three steps:

- the first step is to determine whether the invention is statutorily eligible as at least one of the four categories, that is, a machine, manufacture, composition, or process;[xxxix]
- the second step is to determine whether the claims recite a judicial exception ("law of nature," "natural phenomenon," "abstract ideas,"[xl] or any synonym thereof), and if so, whether the judicial exception is integrated into a practical application;[xli]
- the third step, if the claims fail to be confined to a practical application, is to determine whether the claims contain an inventive concept amounting to "significantly more" than the judicial exception.[xlii]

In this sense, claims that are directed to one of the four statutory categories of invention[xliii] and do not recite, i.e. set forth or describe, a judicial exception is patent-eligible. Judicial exceptions confined to a practical application are patent-eligible, and claims containing judicial exceptions but amounting to significantly more are patent-eligible.

7. Decisions by Intellectual Property Offices

The Intellectual Property Office of New Zealand rendered a decision regarding an application for Patent in the name of Thomson Reuters Enterprise.[xliv] This decision addressed the issue of whether the claims define an invention and manner of manufacture for the purposes of the Patents Act. Similarly to previous analyzed cases in other economies, the decision at hand assess that the actual contribution made by the invention lies solely in it being a computer program and therefore, not patentable. In this case, the alleged contribution of the invention was a new and improved way in which the computer works to provide a better interface, with an effect on the physical and visual interaction of the end user with the interface. Nevertheless, the IP Office considered that the claim related to a computer program as such, stating that the applicants had only substituted the touch movement sensitive interface "built

into" the touch sensitive graphical user interface, combining hardware and the operating system.[xlv] To shed some light on the determination of "manner of manufacture," the IP Office cited the Research Development Corporation's Application (NRDC), according to which a scheme or plan that when carried out results in an "artificially created state of affairs", having utility in practical affairs, is a manner of manufacture, therefore, corresponds to a patentable scheme (within the meaning of Section six of the Statute of Monopolies). Finally, in the case at hand, the Office concluded that none of the claims were patentable, they all related to a computer program as such.

Another notable decision by the Intellectual Property Office of New Zealand refers to the IsoLynx, LLC[xlvi] as it was the first decision considering a computer implemented invention (CII) as a manner of manufacture, establishing that the contribution identified is more than a computer program as such. The IP Office considered that there was an identifiable effect outside the software, as the claimed invention provided the user something useful about a display of real-world conditions.[xlvii] In this sense, the IP Office considered that the invention referred to identifying something that was not previously known, adding a visual indication of error to a computer-effected display of real-world location data.[xlviii]

8. Administrative Examination Guidelines

This section provides a brief description of those economies surveyed that referred to their patent examination guidelines or manuals:

a) In the case of Australia, Instructions and principles for examination of software patents are provided in IP Australia's Patent Manual of Practice and Procedure, specifically chapter 5.6.8.6 "Computer Implemented Inventions, Schemes and Business Methods,"[xlix] which cites the decision rendered by the Federal Court in Aristocrat´22 case, referring to the considerations that may be relevant to determine whether a computer implemented invention (CII) is in substance a manner of manufacture, including:

   - whether the contribution of the claimed invention is technical in nature;
   - whether the invention solves a technical problem within the computer or outside the computer;
   - whether the invention results in improvement in the functioning of the computer, irrespective of the data being processed;
   - whether the application of the method produces a practical and useful result;
   - whether it can be broadly described as an improvement in or adaptation to computer technology;
   - whether the method requires generic computer implementation;
   - whether the computer is merely an intermediary or tool for performing the method while adding nothing of substance to the idea;
   - whether there is ingenuity in the way in which the computer is utilized;
   - whether the invention involves steps that are foreign to the normal use of computers, and
   - whether the invention lies in the generation, presentation, or arrangement of intellectual information.

   In sum, the manual states that when the invention in substance lies in an improvement in a technical field outside of the computer (that is, a technical solution to a technical problem), in an improvement in, or adaptation to computer technology, then, it will generally be considered patent eligible, subject to further requirements.

   The manual illustrates on different forms to claim a computer-related invention, for e.g.:

- A processing apparatus characterized by its method of operation.
- Software or programs in a machine-readable from causing a computer to operate in a particular way.
- A computer, when programmed with code (source or executable), to operate in a particular way; and
- A computer implemented method.

The Manual also highlights that the invention needs to be assessed as a matter of substance and the form of the claims does not influence this assessment.

b) Regarding Chile, there are Guidelines on the Examination and Registry Processing of Patents in place, recently updated in 2022.[I] Software, understood to be "all intangible elements that operate directly or indirectly in conjunction with the tangible components of a computer system, such as program source code, object code or the executable program itself,"[Ii] is excluded from the scope of protection of the Industrial Property Law Nonetheless, the product category "computational program" can be patented, subject to the fulfillment of certain conditions. Furthermore, regarding computer implemented inventions, they will be understood as "all those inventions comprising at least one electronic processor, which plays an essential role in solving the technical problem of said invention," and will be considered as such all those inventions in which some type of electronic processor, such as a microprocessor or a central processing unit, is explicitly described. Also falling into this category are those inventions in which there is no explicit description of the electronic processor, but its presence is inferred as an implicit feature, e.g. a data encoding method operating in a telecommunications terminal. Nevertheless, it should be noted that, on some circumstances, an adequate description of a computer implemented invention won´t be enough to ensure patentability. This is the case of inventions based on mathematical methods or methods that could be considered mental activities where the explicit description of electronic processing means could prevent falling into a patentability exclusion; nonetheless it will be strictly necessary to also explicitly describe that such processing means are the ones executing the method steps, along with explicitly referring to the technical field of application and the technical problem to solve.

It is worth mentioning that, in 2022, the Institute of Industrial Property released the "Manual on Patenting Inventions Implemented by Computer and Artificial Intelligence,"[Iii] providing recommendations to applicants when filing an application for "computer implemented inventions," defined as an invention involving the use of a computer, a computer network, or other programmable devices, in which one or more actions are carried out or implemented partially or totally by means of a computer program.

The guidelines advice applicants, among others:

- to not claim the source code (as this is protected by copyright),
- how to properly explain a technical problem
- to provide a clear and detailed explanation on how the invention solves the technical problem,

Nonetheless, the Manual clarifies that recommendations therein cannot be cited or used as grounds invoked to respond an official action, to sustain a patent application, nor are they a guarantee for a successful result.

c) In Hong Kong, China, the administrative guidelines on patent examination are set out in the Patents Examination Guidelines.[liii] In particular, according to Section 4 "Exclusions form Patentability," examiners generally adopt the four-step test of the Aerotel case.

In determining whether an alleged invention relates to a computer program "as such," in addition to the aforementioned test, the examiners may, where appropriate, take into account the principles established in Autonomy Corp Ltd's Patent Application [2008] RPC 16. Then, when determining whether the actual or alleged contribution of a computer program is in substance technical in nature, the examiners may consider certain signposts (set out in HTC v Apple 2013 EXCA Civ 451), such as, whether the claimed technical effect has a technical effect on a process which is carried on outside the computer, if the technical effect operates at the level of the architecture of the computer, among others.

It is also worth noting that the Guidelines provide various examples as reference for the assessment, citing relevant case law.

d) Indonesia has developed the Patent Substantive Examination Technical Guidelines (2019).

e) In Japan, when assessing the eligibility of software-related inventions, the examiner firstly determines whether the invention satisfies the requirements for eligibility based on the general concept there of (see 2.2 in Part III Chapter 1 of Examination Guidelines for Patent and Utility Model in Japan).[liv] If the determination is not made based on the general concept of eligibility, a determination is then made from the viewpoint of software (see 2.1 in Chapter 1 of Annex B of the Examination Handbook for Patent and Utility Model in Japan).[lv]

It should be noted that "Computer software" is defined as a program related to operation of a computer and other information supplied for processing by the computer and equivalent to the program (also referred to as software).
In terms of the category of a software-related invention, the Handbook clarifies the concepts and offers a variety of examples to aid the analysis to be performed by the examiner. In this sense, if the applicant states an "invention of a method," then, the software-related invention can be expressed as a series of processes or operations, which are connected in terms of the time series, more specifically as "steps". Meanwhile, if the "invention of a product" is stated by the applicant, the software-related invention can be expressed by a plurality of functions the inventions serve.

f) In the case of Korea, the Korean Intellectual Property Office's Patent Examination Guidelines 2020 contain a dedicated chapter for Computer-related Inventions in Chapter 10.[lvi] The guidelines apply to an application drawn to an invention which requires computer software in practicing the invention (referred to as a computer-related invention). The Chapter comprises several definitions, among which it is important to highlight:

- Software: a set of orders and instructions (including voice or video information) for devices, such as a computer, etc., and computer peripherals to enable commands, input, processing, storage, output and interaction.
- Program: a collection of instructions that performs a specific task when executed by a computer.
- Computer program: a program uploaded within a computer to execute a specific function.

- Business method related invention: an invention regarding a new business method or its system implemented by utilizing information technology.

It is also noteworthy the categories of computer-related inventions, as the Guidelines distinguish “method invention” (a computer-related invention can be claimed as aa method by specifying a series of processes or operations connected in a time sequence, namely steps) from “product invention” (as a computer-related invention can be expressed in a multiple of functions enabling an invention, an invention shall be disclosed in the claim as a product invention specified with functions).

Regarding subject matter eligibility, the guidelines establish a specific method for assessing whether a claimed invention is directed to a computer-related one as it is defined in the Patent Act, that is, whether the claimed invention is directed to the “creation of technical ideas using the law of nature” in accordance with the section on patent eligibility of an invention of the Utility Models Examination Guidance. In this sense, if the claimed invention either uses laws other than the laws of nature (economic law, mathematical formula), artificial determination (e.g. a method for creating a password by combining characters, numbers, symbols, etc.), or belongs to human mental activity, or uses or suggests simple information (where the technical feature of the claimed invention is the content of information that is merely or simply presented; e.g. a manual for how to operate an apparatus), it is deemed to not be directed to the creation of technical ideas using the law of nature.[lvii]

g) New Zealand’s Patent Examination Manual sets out practices under the Patents Act 2013 and the Patents Regulations. Section 11 of the Manual addresses’ computer programs,[lviii] specifying the required steps to perform the assessment. To this end, to determine whether an alleged invention relates to a computer program as “such”, that is, when the “actual contribution” made by the alleged invention lies solely in a computer program. In addition, the Manual refers to the four-step test established in the judgement of the England and Wales Court of Appeal in Aerotel Ltd v Telco Holdings Ltd & Ors Rev[lix] to determine whether a claimed invention falls within the matter excluded from patentability; nonetheless, the fourth step[lx] of the Aerotel test has not been adopted in New Zealand. Therefore, the steps to consider are:

- Properly construe the claim
- Identify the actual contribution
- Ask whether the actual contribution falls solely within the excluded subject matter

To determine whether a claimed invention involving a computer program relates to a computer program “as such,” five “signposts” can serve as guidelines, but not intended to be used as a definitive list (they are reframed from the Aerotel case in terms applicable to NZ Patens Act), these are:

i. Whether the computer program, when run, has an effect on a process which is carried on outside the computer.
ii. Whether the program, when run, operates at the level of the architecture of the computer; that is to say whether the effect produced by the program is produced irrespective of the data being processed or the applications being run.
iii. Whether the program, when run, results in the computer being made to operate in a new way.
iv. Whether the program, when run, makes the computer a better computer in the sense of running more efficiently and effectively as a computer.
v. Whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

h) In the case of Peru, the Manual to be followed is the "The Andean Manual for the Examination of CAN Patents," modified in August 2022,[lxi] specifically chapter 7.7. Computer Implemented Inventions. It established that these inventions should be assessed taking due consideration of all physical and non-physical elements as a whole, as the grouping and interaction among them are part of the specific solution to a problem. Therefore, the "technical character" should be understood as all the particularities of the invention contributing to solve a technical problem. Meanwhile, the "technical effect" relates to the solution given to a technical problem by means of key characteristics of the invention. The Manual provides examples of what can be considered as technical character:

- Processing of parameters or control values of physical data of an industrial process.
- The processing affecting the way in which a computer operates as memory saving, increased speed, process safety, data transfer, etc.
- Physical characteristics of an entity such as, memory, data base, etc.

The Manual also provides examples of technical effect in the context of computer implemented inventions:

- Obtaining fastest processing speed
- Reducing access time to the hard drive
- Increased efficiency of memory use
- Greater efficacy of data compression techniques
- Improved control of a robotic arm
- Improved reception/transmission or signal processing

It is also important to note that in the context of the Andean Community, computer implemented inventions can be patented, subject to the fulfillment of the patentability criteria established in Decision 486, Article 14.

i) The Philippines Patent Examination Guidelines for Information and Communications Technology ("ICT") and Computer Implemented Inventions ("CII") [lxii] specifically recognize the paradigm shift on the value of bestowing rights to those who have created inventions that solve social problems using computer algorithms and technologies. The guidelines define computer-implemented/related inventions as any invention that is implemented, partly or fully, by means of a computer program on a computer, a computer network or any program-controlled devices, whereas software is understood to mean the entire set of programs, procedures, and related documentation associated with a system and especially a computer system. When addressing the subject matter eligibility in the field of ICT, to fall within categories of invention patentable under Section 21 of the IP Code as a product, the claim directed to a computer program should be drafted in a manner wherein the program instructions are cooperatively working with a programmable device. Also noteworthy is the "broadest reasonable interpretation" that should be given to ICT-related claims in order to identify whether or not such covers an eligible subject matter.

The guidelines establish a subject matter eligibility determination test, comprising the following steps:

- Is the claim related to the field of ICT/CII?
- Is the claim directed to matter which is against public order or morality?
- Is the claim directed to a product or process within the meaning of the IP Code?

- Does the claim involve non-technical matter? Some examples include methods of doing business; idea, concepts, plan or schemes and mental processes; method of organizing human activity; mathematical methods.
- Does the claim constitute technical character wherein a technical solution to a problem is evident after weighing all the factors? If the answer is yes, the examiner should proceed to assess novelty, inventive step and industrial applicability.

j) In Russia, the examination of applications for inventions is guided by:

- Requirements to the Documents of the Invention Patent Application approved by the Order of the Ministry of Economic Development of Russia N° 107 dated 21 February 2023 (Invention Requirements).[lxiii]
- Rules for Drawing Up, Filing and Consideration of Documents that are the Basis for Legally Significant Actions for State Registration of Inventions, approved by the Order of the Ministry of Economic Development of Russia N° 107 dated 21 February 2023 (Invention Rules).
- Guidelines for the Implementation of Administrative Procedures and Actions Within the Framework of the Provision of the State Service on State Registration of Invention and Granting a Patent for Invention, its Duplicate, approved by the Rospatent Order N° 236 dated 27 December 2018.[lxiv]

k) Chinese Taipei has in place Patent Examination Guidelines,[lxv] with a dedicated Chapter on “Computer Software Related Inventions,” serving as administrative guidelines to guide the work of examiners of the Intellectual Property Office (TIPO). The significant growth experienced by technologies such as AI (artificial intelligence) and big data has led to an increase in patent applications for computer software-related inventions. To address the need for protecting computer software-related innovations, TIPO amended “the Examination Guidelines for Computer Software-Related Inventions” on 1 July 2021. The key points of the amendment include:

- Introduction of an examination procedure and flow chart for computer software-related inventions’ evaluations, supplemented by case examples, serving as a principle for assessing the eligibility of inventions.
- Alignment with the TIPO’s current standards for assessment of inventive step, with the addition of sections on “Factors Denying Existence of Inventive Step” and “Factors Determining Inventive Step.”
- Inclusion of AI-related examination instructions and application cases for reference.

In addition, TIPO has published the "Case Studies on IT Patent Examination," which includes cases related to AI, IoT, blockchain, cloud applications, and big data. This compilation aids applicants in better understanding the revised guidelines for computer software examination and ensures consistency in the concepts employed by patent examiners during examinations.

l) Concerning Thailand, the Patent Office reviews and examines patent and petty patent applications related to software (software-related invention) in accordance with the Patent Act B.E. 2522 and its subsequent amendments, as well as the Patent and Petty Patent Examination Guidelines (edition B.E. 2562). Thailand’s patent examiners should follow Section six in the guidelines when examining a “Computer System or Computer Program.”

m) In the case of the United States, there is a Manual of Patent Examining Procedure (MPEP), which describes the conduct of proceedings at the U.S. Patent and

Trademark Office (USPTO). The Sections most specific to software are MPEP 2106 on subject-matter eligibility; MPEP 2181 (II) (B) for definiteness of computer-implemented functions; MPEP 2164.06 (c) for enablement in computer-programming cases; and MPEP 2163 on written description. In between updates of the MPEP, the USPTO publishes interim guidances, of which, the most recent and notable are the Patent Eligibility Guidance Update (2019),[lxvi] and the January 2019 Revised Patent Subject Matter Eligibility Guidance.[lxvii] Other relevant guidelines are the Memorandum following the Vanda Pharmaceuticals, Inc. v. West-Ward Pharmaceuticals decision (2018),[lxviii] the Memorandum following the Berkheimer v. HP, Inc. Decision (2018),[lxix] and the Memorandum following the Finjan and Core Wireless decisions (2018).[lxx]

9. Criteria Applied by Patent Offices

This section addresses economies responses on the criteria currently applied by their Patent Offices and whether it has changed over the last years.

- Australia's examination of patent applications relating to computer software, or a relative product, reflects the law and decisions by the courts. The principles applied when examining these inventions is provided in their Patent Manual of Practice and Procedure. The principles applied by the Patent Office regarding patentability of software related inventions have evolved involved in recent years following the issuance of judgements in the court decisions.[lxxi]

- In Chile, as a first step, computer implemented inventions must comply with general patent requirements established by the law, which are, novelty, inventive step, and industrial applicability.

  In these cases, it is important to carefully describe the technical problem solved by the computer implemented invention to avoid the refusal due to the patent exclusion of abstract methods and mathematical formulas as established in Article 37 c) of the Law 19.039. Also, every stage of the process and their respective technical effect must be described in detail in the application.

  The criteria applied by the Institute of Industrial Property has changed over the years. Initially, inventions containing software were often rejected based on patent exclusion due to their abstract nature. However, in recent days, this criterion has evolved. The Institute of Industrial Property now examines computer implemented inventions to check whether they comply with general patent requirements and if the technical problem and its effects are well described in each claim of the application.

- In the case of Indonesia, the examiner conducts the examination based on the 2019 Patent Substantive Examination Technical Guidelines. It should be noted that there has been no change, inventions related to software can be protected under patent in accordance with the provisions in the Law of the Republic of Indonesia Number 13 of 2016 on Patent.

- In Japan, regarding the eligibility of software-related inventions, the examiner firstly determines whether the invention satisfies the requirements for eligibility based on the general concept there of (see 2.2 in Part III Chapter 1 of Examination Guidelines for Patent and Utility Model in Japan). If the determination is not made based on the general concept of eligibility, a determination is then made from the viewpoint of software (see 2.1 in Chapter 1 of Annex B of the Examination Handbook for Patent and Utility Model in Japan).

- In Korea, examiners refer to the Patent Examination Guidelines when examining Computer-Related Inventions.

- In New Zealand, the current requirements as set out in Section 11 of the Patents Act 2013 have not been reviewed nor have they been changed since they were implemented in September 2014.

- In the case of the Philippines, the criteria applied when assessing computer-implemented inventions, to determine whether it can be considered as a patentable subject matter under Rule 201 of the 2022 Revised IRR, it must be drafted in a manner wherein the computer program/software is cooperatively working with a tangible feature (e.g. computer, processor) to solve a technical problem, thus providing a technical contribution to the art. In this sense, a standalone computer program or software cannot be considered as patentable subject matter. Even though the criteria has remained the same in recent years, in 2022, the IPOPHL updated its Patent Examination Guidelines for Information Communications Technology and Computer Implemented Inventions to provide a more systematic and detailed approach in examining computer-related inventions.

- In Russia, an invention expressed by a claim shall be recognized as a technical solution relating to a product or method, including the use of the product or method for a particular purpose, if the claim contains a set of essential features relating to the product or method, including the use of the product or method for a particular purpose, sufficient to achieve the technical result(s) provided by the invention.[lxxii]

  Based on the results of the verification of compliance with the patentability conditions stipulated in the paragraph five of the Article 1350 of the Code, the invention shall be recognized as relating to objects that are not inventions referred to in the paragraph five of the Article 1350 of the Code, where the generic concept reflecting the purpose of the invention given in the claims or all the features by which the invention is characterized in the claims, are features of these objects.[lxxiii]

  In this sense, a software-related invention is subject to the same requirements as inventions in other fields of technology, that is:
  - Disclosure of the invention sufficient for its realisation by a specialist skilled in the field of technology[lxxiv]
  - Novelty
  - Inventive step
  - Industrial applicability[lxxv]

  It is worth noting that Russia's Patent Office is currently working on simplifying the procedure for recognizing the claimed solution involving the use of a computer as an invention.[lxxvi]

- In the United States, claims to instructions stored on non-transitory computer readable media that, when executed by a processor, cause a processor to perform functions are evaluated for eligibility under 35 USC §101, novelty and obviousness according to 35 USC §102 and §103 and definiteness according to 35 USC §112(b). The specification describing the invention is evaluated for enablement and written description according to 35 USC §112(a).

  It should be noted that the decisions in the cases Bilski v. Kappos, 561 US 593 (2010) and Alice Corp. Pty. Ltd. v. CLS Bank International, 134 S. Ct. 2347 (2014) expanded the abstract idea judicial exception, depressing the number of software-related patents.[lxxvii]

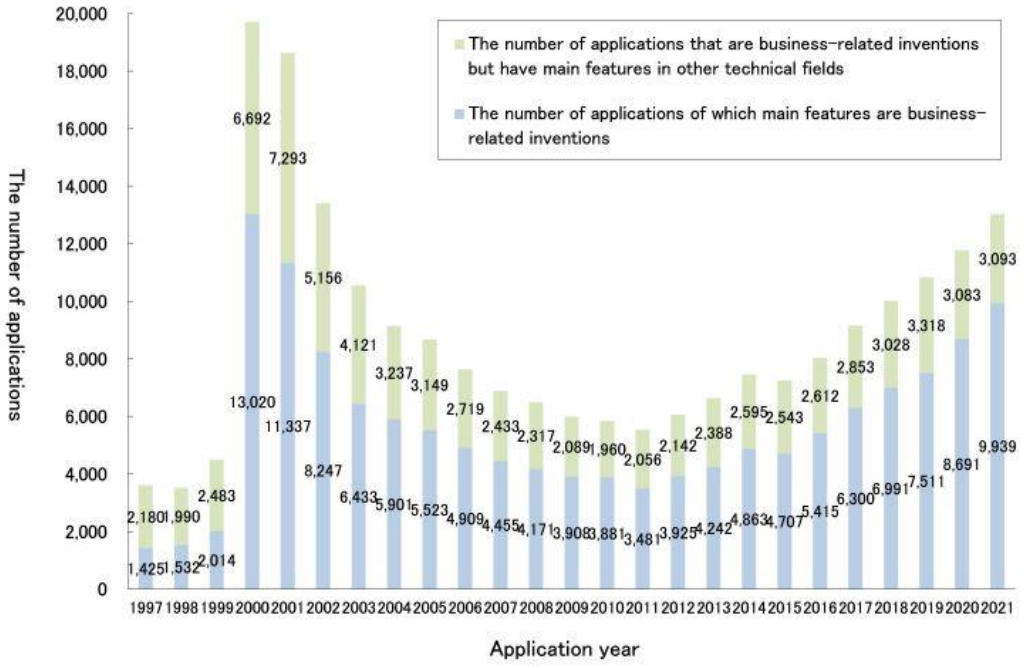
10. Statistics Available[lxxviii]

Hong Kong, China statistics on the patent applications and grants for software-related inventions from 2019 to 2023 are shown in the figure below:[lxxix]

		2019	2020	2021	2022	2023
Standard Patents (Re-registration)	No. of applications	4085	8101	7778	5582	4404
	No. of grants	1635	1905	5316	4373	4198
Standard Patents (Original grant)	No. of applications	2	129	150	36	31
	No. of grants	0	0	3	29	36
Short-term Patents	No. of applications	148	107	105	121	133
	No. of grants	100	137	121	110	120

Japan publishes statistics on the latest trends in “AI-related inventions” and “business-related inventions”, which include the number of domestic applications and patents granted in this regard.

The number of applications for Business-related inventions.



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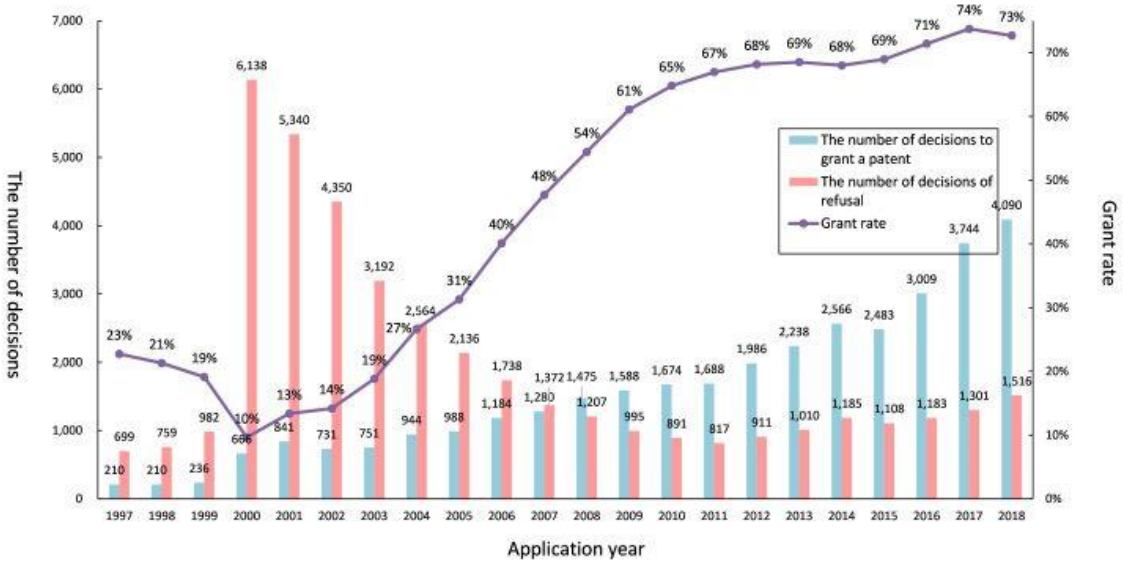
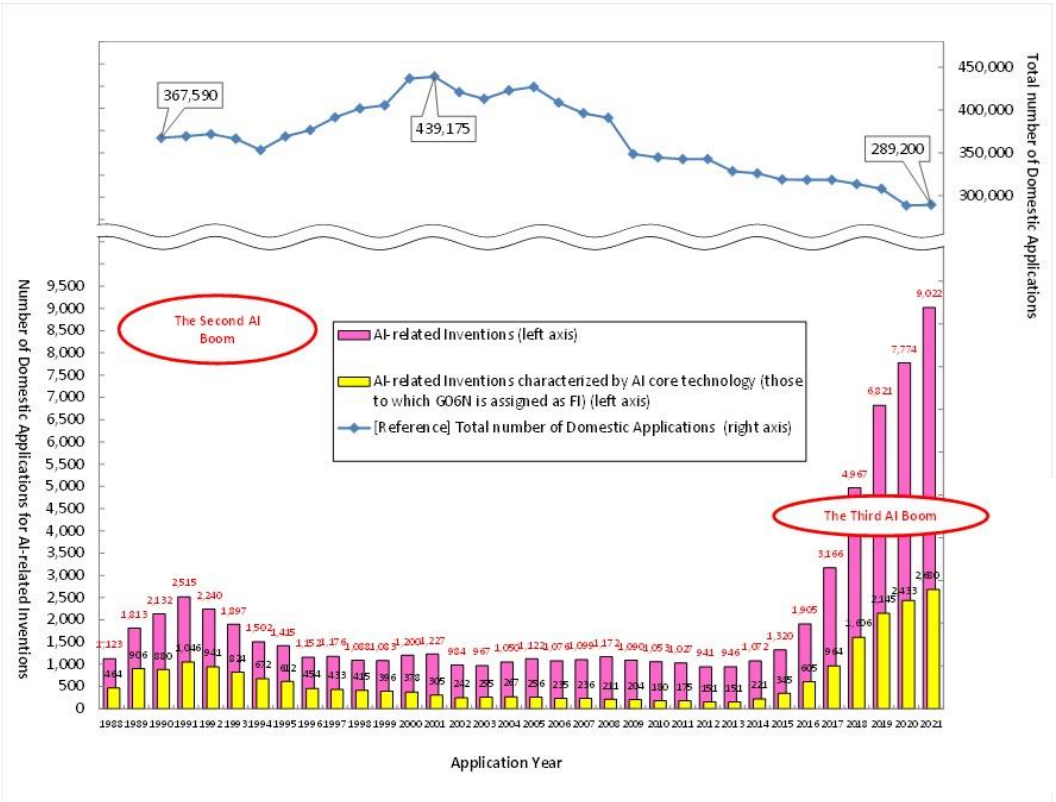
Grant rate for Business-related inventions (for the applications of which the main features are Business-related inventions).



The number of domestic applications for AI-related inventions.



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Korea

The number of applications filed at KIPO from 2018 to 2022 are as indicated in the table below. According to" IPC and Technology Concordance Table" at WIPO, [lxxxii] inventions classified as "(G06# not G06Q), G11C, G10L" belong to "Computer Technology" while those with "G06Q" are identified as "IT methods for management."

Technology (IPC)	2018	2019	2020	2021	2022
Computer Technology ((G06# not G06Q), G11C, G10L)	11,332	12,457	13,494	15,903	16,760
IT methods for management(G06Q)	10,300	10,863	12,710	15,579	16,312

The Philippines

The Intellectual Property Office of The Philippines (IPOPHL) classifies patent applications according to the WIPO-categorized Field of Technology; therefore, computer-related inventions may be categorized into one or more Fields of Technology depending on their use.

The figure bellow shows the number of patent applications for 2023 where computer-related inventions may be classified.[lxxxiii]

IPOPHL 2023 PATENT APPLICATIONS	
FIELD OF TECHNOLOGY	**TOTAL**
Basic communication processes	106
Computer technology	537
Control	90
Digital communication	1,021
Handling	173
IT methods for management	129
Measurement	334
Micro-structural and nano-technology	5
Telecommunications	200
TOTAL	**2,595**

Chinese Taipei statistics are shown in the figure bellow:

	Year					
	2018	2019	2020	2021	2022	2023
New Applications	4,629	4,500	4,346	4,378	4,513	
Granted Patents	3,597	3,423	3,879	4,152	4,753	4,469

Note:

1. Data Source: Detailed data on new applications and granted patents for the entire year (January to December) from 2018 to 2023.
2. Classification: The classification is based on the IPC concordance table as of July 2023, available at http://www.wipo.int/ipstats/en/index.html#resources. According to this table, the field of computing technology includes categories G06C, G06D,

G06E, G06F, G06G, G06J, G06K, G06M, G06N, G06T, G06V, G10L, G11C, G16B, G16C, G16Y, and G16Z.

3. Due to discrepancies in the international patent classification schedule, the number of new applications for the current year cannot be provided.

11. Regulation of key aspects of software-related inventions (source code, cryptography, and other proprietary information)

Australia

The source code of software is protected under copyright law. Software inventions are eligible for protection as a patent if the invention meets the requirements of patent legislation. Proprietary information relating to software inventions can also be protected as confidential business information (a trade secret).

Chile

The Intellectual Property Law does not specifically address software-related inventions nor aspects such as source code, cryptography, and other proprietary information. However, protection for these elements is available under the provisions governing trade secrets, provided they meet the established criteria for such protection.

Hong Kong, China

If an invention in a patent claim covering these key aspects, namely source code and cryptography, amounts to no more than any of the excluded subject-matter (e.g. a program for a computer, a mathematical method), the invention as claimed is unpatentable and will not be granted any patent protection.

On the other hand, if a patent is granted to a software-related invention, the patent owner will have the right to exclude others from making, putting on the market, using, importing or stocking the patented product.

Regarding source codes, they can be protected by copyright as literary works. Under the Copyright Ordinance (Chapter 528, Laws of Hong Kong, China), circumvention of an effective technological measure (e.g. cryptography technique) which is used for copyright protection to prevent infringement of a copyright work may attract civil liability, unless any of the exceptions applies (e.g. the circumvention is for the sole purpose of research into cryptography upon meeting the relevant conditions). Commercial dealing of circumvention devices and commercial provision of circumvention services may attract civil and criminal liabilities, unless any of the exceptions applies (e.g. for conducting research into cryptography upon meeting the relevant conditions).

If a source code or a cryptography falls within Hong Kong, China's strategic trade control lists set out in the Schedules to the Import and Export (Strategic Commodities) Regulations (Chapter 60G, Laws of Hong Kong, China), import, export and transshipment of such strategic commodities (as well as transit in case of more sensitive items) are subject to licensing control in Hong Kong, China under the Import and Export Ordinance (Chapter 60, Laws of Hong Kong, China) and the aforesaid regulations.[lxxxiv]

Finally, concerning other proprietary information, trade secrets and undisclosed commercial information are protected by the common law of confidence. An obligation of confidence will arise whenever the information is communicated to or acquired by a person who knows or ought as a reasonable person to know that the other person wishes to keep that information confidential. An industry or trade custom or practice may also impose an obligation of confidence. The release of trade secrets and undisclosed commercial information would be

detrimental to the owner or advantageous to his or her competitors or others. The remedies available for breach of confidence include injunctions, damages, account of profits and delivery up of materials containing confidential information.

Japan

Computer programs are generally considered to be copyrighted works. The Copyright Act defines a computer program as “an expression of a combination of instructions for a computer to function in order to obtain a specific result”, and lists those works that have creativity in this expression as “works of computer programming” in terms of examples of copyrighted works. The author possesses rights including the reproduction and public transmission of computer programming works. In addition, it is considered copyright infringement if a pirated computer program is used in the course of business on a company’s computer, etc., only if the pirated program was known to be pirated when the right to use it was obtained.

New Zealand

Original computer programs are protected under the Copyright Act 1994. Copyright protection would apply to an original computer program expressed in both source code and high-level language. A number of limited exceptions to copyright protection for computer programs are provided under the Copyright Act for lawful users of those computer programs to undertake certain acts, including:

- backing up
- decompilation
- copying or adapting for a lawful purpose
- observing, studying or testing.

On the other hand, the Crimes Act 1961 provides offences for anyone:

- accessing a computer system for dishonest purposes
- damaging or interfering with computer systems
- making, selling, distributing or possessing software for committing crimes
- accessing computer system without authorisation.

The Philippines

In the Philippines, software-related inventions, source code, cryptography applications can be protected by means of different methods, primarily by copyright and trade secrets, with patent coming into the picture in special cases:

- Copyright. Source code is considered a literary work and is protected under the copyright regime. This protection gives the creator (author) exclusive rights to reproduce, distribute, display, and modify the source code. Regarding application, copyright can also extend to the specific expression of source codes such as cryptography.

- Patent. While software itself is generally not patentable in the Philippines, software-related inventions may be protected provided they meet the criteria for the granting of patents. As an example, an invention directed to a method of encoding wireless digital audio signals (PH 1-2016-501882) was granted patent protection in the Philippines.

- Trade secret or undisclosed information is recognized under the IP Code. Although there is no specific law governing trade secrets in the Philippines, there are laws that include provisions relating to undisclosed business information and penalties for their unauthorized disclosure such as the Consumer Protection Act and the Revised Penal Code.

Russia

In Russia, the description of a computer-related invention may include the code of the programs, flowcharts and other information where it is necessary to understand the invention essence. Short extracts of programs are given in the programming languages used (established under paragraph 54(4) of the Invention Requirements).[lxxxv]

There is no requirement that the full code of the program shall be submitted in the application for invention.

Chinese Taipei

Software-related inventions must meet patentability requirements, and their patent description shall fully disclose the invention in a manner clear and sufficient for it to be understood and carried out by a person ordinarily skilled in the art. While it's not always obligatory to provide the original source code, passwords, or other proprietary information used in the invention during examination, the steps and methods of implementation should be clearly explained. Since patent application documents will be publicly disclosed later on, applicants need to carefully consider the scope of the information they wish to provide.

United States

The U.S. Copyright Act considers a computer program, defined as a “set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result,” to be a copyrightable literary work. (17 U.S.C. § 101). Copyright protection for a computer program extends to all of the copyrightable expression embodied in the program. U.S. copyright law does not protect the functional aspects of a computer program, such as the program's algorithms, formatting, functions, logic, or system design. In 2016, the U.S. Copyright Office completed a study[lxxxvi] reviewing the role of copyright law with respect to software-enabled consumer products.

12. **Protection standard applied when negotiating trade agreements**

Australia

When negotiating trade agreements, the Government seeks to ensure that the rights and obligations for patents align with the law and maintain policy space to regulate in the public interest, including on public health.

Chile

The standard of protection applied by Chile meets the international standards set by the TRIPS Agreement, Berne and Paris Conventions and other Intellectual Property related Treaties administered by WIPO to which Chile is a Party to.

Chile is party to the Digital Economy Partnership Agreement (DEPA), an agreement containing provisions for the cross-border treatment of digital products, including computer programs.[lxxxvii]

Chile is also a party to the Comprehensive and Progressive Agreement for Trans- Pacific Partnership,[lxxxviii] which sets standards on the government use of computer programs.[lxxxix]

Hong Kong, China

In negotiating trade agreements, Hong Kong, China would ensure that the level or standard of IP protection set out in such agreements meets or is on par with the prevailing international standards of the various international conventions, agreements and treaties that are applicable to Hong Kong, China, such as the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

Indonesia

In the negotiation of trade agreements, the standard of protection refers to the applicable laws in Indonesia regarding trade, industry, customs, intellectual property and other provisions.

Japan

Japan sometimes pursues items in EPAs that provide for the protection of computer program-related inventions through patents, for further reference:

- Article 112, Japan-Indonesia EPA
- Article 86, Japan-Viet Nam EPA
- Article 105, Japan-India EPA
- Article 174, Japan-Peru EPA
- Article 12.07, Japan-Mongolia EPA

Korea

Korea, as a member to the Digital Economy Partnership Agreement (DEPA), protects computer-related proprietary information under the DEPA.

New Zealand

A number of free trade agreements to which New Zealand is a party to set out that computer programs, whether in source or object code, are literary works to which copyright protection should apply. See for example Article 10.1 of the WTO TRIPS Agreement.

A number of agreements have also included provisions for the cross-border treatment of digital products, including computer programs, see for example module 3 of the Digital Economy Partnership Agreement.

Agreements have also set out standards for the government use of computer programs, see for example Article 18.80 of the Comprehensive and Progressive Agreement for Trans- Pacific Partnership.

The Philippines

The Philippines applies protection standards set out in the TRIPS Agreement and on WIPO Treaties to which the Philippines is a Party to.

Thailand

Thailand refers to TRIPS Agreement as a baseline for negotiating IPR protection under trade agreements.

13. Final Remarks

- Many of the economies that responded the survey exclude “computer program as such or computer program *per se*” from patentability.
- Most of the economies use the term “Computer-Related Inventions” or “Computer-Implemented Inventions.”
- In Hong Kong, China; Japan; Korea; and Chinese Taipei, software or computer-related inventions can be protected under the Patent Law.
- As a general shared similarity, when appropriate, computer or software-related inventions can be patented if the actual contribution of the invention does not lie solely in it being a computer program, as it must provide a technical solution to a technical problem.
- Most of the economies in which this matter has been addressed by courts, have established a criterion or test applicable to solve similar cases onwards.
- Most of the economies surveyed, except for Mexico,[xc] have in place administrative guidelines or manuals for patent examiners referring to this assessment. Many of these guidelines or manuals are based on criterion or “tests” established in relevant case law.
- Most of economies’ patent offices have evolved in their assessment criteria, to a different degree.

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[i] Responses were received from Australia; Chile; Hong Kong, China; Indonesia; Japan; Korea; Mexico; New Zealand; Peru; The Philippines; Russia; Chinese Taipei; Thailand; the United States. Please note that throughout the report, references to “some economies” or “economies surveyed” should be understood to be limited to the economies that responded the survey.
[ii] Subsection 18(1)(a), Patents Act 1990.
[iii] Article 3.
[iv] Article 3.16.
[v] Article 5 t).
[vi] The Japanese Patent Act defines it under Article 2 (4): A "computer program, etc." in this Act means a computer program (meaning a set of instructions given to a computer which work to produce a specific result; hereinafter the same applies in this paragraph) and any other information that is to be processed by a computer equivalent to a computer program.
[vii] Section 11 of the Patents Act 2013 provides that a computer program is not an invention and not a manner of manufacture for the purpose of this Act. A claim in a patent or an application relating to a computer program as such may not be granted if the actual contribution made by the alleged invention lies solely in it being a computer program. Nonetheless, original computer programs are protected under the Copyright Act 1994 as literary works. See: https://www.legislation.govt.nz/act/public/2013/0068/latest/DLM1419043.html
[viii] As defined in Article 21 of Chinese Taipei Patent Act.
[ix] Patent Law in Thailand specifically excludes “software *per se*” from patent subject matter eligibility.
[x] 31 A.L.R. Fed. 3d Art. 5 (Originally published in 2018); Timothy K. Armstrong, Symbols, Systems, and Software As Intellectual Property: Time for Contu, Part II, 24 Mich. Telecomm. & Tech. L. Rev. 131 (2018).

[xi] MPEP 2106.04.
[xii] Section 9A(2) of the Patents Ordinance (Chapter 514, Laws of Hong Kong, China). https://www.elegislation.gov.hk/hk/cap514
[xiii] Article 15, e). Decision No. 486 Establishing the Common Industrial Property Regime https://www.wipo.int/wipolex/es/text/223717
[xiv] Article 47, Section V. https://www.diputados.gob.mx/LeyesBiblio/pdf/LFPPI.pdf
[xv] See: MPEP 2106.03. https://www.wipo.int/wipolex/en/legislation/details/14354
[xvi] See: MPEP 2181(II)(B), MPEP 2164.06(c), MPEP 2163(I)(B).
[xvii] Claim 18 of US Patent 11,842,430 B2.
[xviii] Please note this is not an official classification, but only an author's classification.
[xix] See: https://www.alrc.gov.au/publication/genes-and-ingenuity-gene-patenting-and-human-health-alrc-report-99/6-patentability-of-genetic-materials-and-technologies/patentable-subject-matter/
[xx] Article 1.1 defines that a Trade Secret is information in the field of technology and/or business that is not known by the public and has economic value because it is useful in business activities, and the confidentiality of which is maintained by its owner.
[xxi] See: https://www.uspto.gov/ip-policy/trade-secret-policy.
[xxii] With due consideration to different legal systems of the economies surveyed, that is, civil law or common law. For the purpose of this report, cases will be grouped according to the legal system.
[xxiii] See: https://www.leeandli.com/EN/NewslettersDetail/7001.htm
[xxiv] At 115. The Court cited the case "National Research Development Corporation v Commissioner of Patents" (NRDC, 1959), quoting: "That method does not have an artificial effect falling squarely within the true concept of what must be produced by a process if it is to be held patentable." (NRDC at 277).
[xxv] At 118
[xxvi] See: https://jade.io/article/421354
[xxvii] See: https://jade.io/article/942366
[xxviii] Pamela Samuelson, Staking the Boundaries of Software Copyrights in the Shadow of Patents, 71 Fla. L. Rev. 243 (2019); Timothy K. Armstrong, Symbols, Systems, and Software As Intellectual Property: Time for Contu, Part II?, 24 Mich. Telecomm. & Tech. L. Rev. 131 (2018).
[xxix] Timothy K. Armstrong, Symbols, Systems, and Software As Intellectual Property: Time for Contu, Part II?, 24 Mich. Telecomm. & Tech. L. Rev. 131 (2018); Pamela Samuelson, Staking the Boundaries of Software Copyrights in the Shadow of Patents, 71 Fla. L. Rev. 243 (2019).
[xxx] BILSKI et al. *v*. KAPPOS, Under Secretary of Commerce for Intellectual Property and Director, Patent and Trademark Office. See: https://supreme.justia.com/cases/federal/us/561/593/
[xxxi] A business method for hedging price-fluctuation risk.
[xxxii] In Re Bilski, No. 07-1130 (Fed. Cir. 2008).
[xxxiii] See: https://unctad.org/ippcaselaw/sites/default/files/ippcaselaw/2020-12/Bilski%20et%20al.%20v.%20Kappos%2C%20U.S.%20Supreme%20Court%20%202010.pdf
[xxxiv] All the judges agreed that the invention claimed was an abstract idea, therefore, not patent eligible.
[xxxv] See: https://www.crowell.com/a/web/iCSwBxYRTDTciJma8mfMc9/4Ttiw9/Mayo-Collaborative-Services-v-Prometheus-Laboratories-Inc.pdf
[xxxvi] Timothy K. Armstrong, Symbols, Systems, and Software As Intellectual Property: Time for Contu, Part II?, 24 Mich. Telecomm. & Tech. L. Rev. 131 (2018).
[xxxvii] The Supreme Court held that the petitioner's system and media claims added nothing of substance to the underlying abstract idea, hence, they are patent ineligible.
[xxxviii] Patent-Eligible Subject Matter Reform: An Overview; Congressional Research Service https://crsreports.congress.gov/product/pdf/IF/IF12563
[xxxix] In accordance with MPEP 2106.03. https://www.uspto.gov/web/offices/pac/mpep/s2106.html#ch2100_d29a1b_139b2_397
[xl] It should be noted that software is not automatically an abstract idea, even if performance of a software task involves an underlying mathematical calculation or relationship. https://www.uspto.gov/web/offices/pac/mpep/s2106.html#ch2100_d29a1b_139b2_397

[xli] MPEP 2106.04. https://www.uspto.gov/web/offices/pac/mpep/s2106.html#ch2100_d29a1b_139b2_397
[xlii] MPEP 2106.04 and 2106.05 describe examples of practical applications and "significantly more."
[xliii] MPEP 2106.03.
[xliv] Application for Patent No 746441. [2020] NZIPOPAT 7. See: http://www.nzlii.org/nz/cases/NZIPOPAT/2020/7.html
[xlv] At 33.
[xlvi] Patent Application No. 748919 [2022] NZIPOPAT 16. See: http://www.nzlii.org/nz/cases/NZIPOPAT/2022/16.html
[xlvii] The invention at case starts in the real world, receiving data about the real world that is dynamic, data which is then processed to yield location information, transformed into symbols on a map. Nonetheless, the actual contribution refers to make errors in mapped locations known to a user, providing a visual indication of where those symbols show locations wrongly. At 89.
[xlviii] At 90.
[xlix] See: https://manuals.ipaustralia.gov.au/patent/5.6.8.6-computer-implemented-inventions-schemes-and-business-methods.
[l] See: https://www.inapi.cl/docs/default-source/2022/centro-documentacion/directrices/patentes/directrices_de_examen_pi_mu_modif_nov_2022.pdf?sfvrsn=eaf1598f_2
[li] Unofficial translation.
[lii] See: https://www.inapi.cl/docs/default-source/2022/patentes/tramites/recursos-para-usuarios/guias/manual-patentamiento-iic-ia-final.pdf?sfvrsn=2caddae8_2
[liii] See: https://www.ipd.gov.hk/en/patents/patents-examination-guidelines/index.html
[liv] See: https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/tukujitu_kijun/document/index/03_0100_e.pdf#page=6
[lv] See: https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/handbook_shinsa/document/index/app_b1_e.pdf#page=10
[lvi] Page 981. https://www.kipo.go.kr/upload/en/download/Patent_Examination_Guidelines_2020.pdf
[lvii] Page 992.
[lviii] See: https://www.iponz.govt.nz/about-ip/patents/examination-manual/current/computer-programs/
[lix] See: https://www.wipo.int/wipolex/en/text/585797
[lx] The fourth step consists in checking whether the actual or alleged contribution is actually technical in nature.
[lxi] See: https://www.comunidadandina.org/wp-content/uploads/2022/08/Manual_ANDINO_CAN_2022_fv_por_paginas_.pdf
[lxii] See: https://drive.google.com/file/d/1ulAwMYlShqmIi4KGHQ939K16ZTyzKptL/view
[lxiii] See: https://fips.ru/documents/npa-rf/prikazy-minekonomrazvitiya-rf/prikaz-minekonomrazvitiya-107-21022023.php#2
[lxiv] See: https://new.fips.ru/to-applicants/inventions/ruc-iz.pdf
[lxv] See: https://www.tipo.gov.tw/en/lp-293-2-1-20.html
[lxvi] See: https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf
[lxvii] See: https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf
[lxviii] See: https://www.uspto.gov/sites/default/files/documents/memo-vanda-20180607.PDF
[lxix] See: https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.PDF
[lxx] See: https://www.uspto.gov/sites/default/files/documents/memo-recent-sme-ctdec-20180402.PDF
[lxxi] Research Affiliates LLC v Commissioner of Patents [2014] FCAFC 150; Commissioner of Patents v RPL Central Pty Ltd [2015] FCAFC 177; Encompass Corporation Pty Ltd v InfoTrack Pty Ltd [2019] FCAFC 161; Commissioner of Patents v Rokt Pty Ltd [2020] FCAFC 86; Aristocrat Technologies Australia Pty Ltd v Commissioner of Patents [2022] HCA 29.
[lxxii] Paragraph 2 of the clause 59 of the Invention Rules.
[lxxiii] Paragraph 3 of the clause 50 of the Invention Regulations.

[lxxiv] In accordance with paragraph 2(2) of Article 1375 of the Civil Code of Russia.
[lxxv] In accordance with paragraph 1(2) of Article 1350 of the Civil Code of Russia.
[lxxvi] In accordance with paragraph 1(1) of Article 1350 of the Civil Code of Russia.
[lxxvii] Timothy K. Armstrong, Symbols, Systems, and Software As Intellectual Property: Time for Contu, Part II?, 24 Mich. Telecomm. & Tech. L. Rev. 131 (2018).
[lxxviii] Statistics on the number of patent applications and/or granted on inventions containing or related to software.
[lxxix] Hong Kong, China's Patents Registry started to receive standard patent (original grant) applications on 19.12.2019.
[lxxx] Graph taken from https://www.jpo.go.jp/e/system/patent/gaiyo/recent_trends_biz_inv.html#anchor2-1
[lxxxi] Figure taken from https://www.jpo.go.jp/e/system/patent/gaiyo/ai/ai_shutsugan_chosa.html
[lxxxii] https://www.wipo.int/meetings/en/doc_details.jsp?doc_id=117672
[lxxxiii] Please note that one application can be categorized into one or more fields of technology.
[lxxxiv] Hong Kong, China's strategic trade control lists are based on the controls adopted by the various international export control regimes and conventions and are updated regularly: Wassenaar Arrangement; Nuclear Suppliers Group, Zangger Committee established under the Nuclear Non-Proliferation Treaty; Missile Technology Control Regime; Australia Group; Chemical Weapons Convention; and Arms Trade Treaty.
[lxxxv] Invention Requirements – Requirements to the documents of the invention patent application approved by the Order of the Ministry of Economic Development of Russia № 107 dated February 21, 2023, https://fips.ru/documents/npa-rf/prikazy-minekonomrazvitiya-rf/prikaz-minekonomrazvitiya-107-21022023.php#2
[lxxxvi] See https://copyright.gov/policy/software/.
[lxxxvii] Module 3, Digital Economy Partnership Agreement. https://www.subrei.gob.cl/docs/default-source/acuerdos/depa/depa-en.pdf?sfvrsn=27dcbd38_2
[lxxxviii] See: https://www.subrei.gob.cl/docs/default-source/tratado-tpp11/18--intellectual-property.pdf?sfvrsn=5a5688ed_2
[lxxxix] Article 18.80.
[xc] Based on Mexico's response to question 7 (referred to administrative guidelines for Patent examiners) of the Survey: "In Mexico it is not possible to protect software as a patent."